Department of Defense
Fiscal Year (FY) 2019 Budget Estimates

February 2018

Navy

Justification Book Volume 4 of 5

Research, Development, Test & Evaluation, Navy

Budget Activity 6

The estimated cost for this report for the Department of the Navy (DON) is $5,568.

The estimated total cost for supporting the DON budget justification material is approximately $1,643,653 for the 2018 fiscal year. This includes $79,753 in supplies and $1,563,900 in labor.

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Research, Development, Test and Evaluation, Navy

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, $18,649,478,000 to remain available for obligation until September 30, 2020.

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Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO
Research, Development, Test & Eval, Navy	17,851,955	17,116,976	17,091,976	326,537	326,537
Total Research, Development, Test & Evaluation	17,851,955	17,116,976	17,091,976	326,537	326,537
Other RDT&E Budget Activities Not Included in the Research, Development, Test and Evaluation Title					
National Defense Sealift Fund	7,237	18,622	18,622		
Total Not in Research, Development, Test & Evaluation	7,237	18,622	18,622		

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency
Research, Development, Test & Eval, Navy	60,000	-60,000		17,478,513	-60,000	17,418,513
Total Research, Development, Test & Evaluation	60,000	-60,000		17,478,513	-60,000	17,418,513
Other RDT&E Budget Activities Not Included in the Research, Development, Test and Evaluation Title						
National Defense Sealift Fund				18,622		18,622
Total Not in Research, Development, Test & Evaluation				18,622		18,622

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Research, Development, Test & Eval, Navy	18,451,066	198,412	18,649,478
Total Research, Development, Test & Evaluation	18,451,066	198,412	18,649,478
Other RDT&E Budget Activities Not Included in the Research, Development, Test and Evaluation Title			
National Defense Sealift Fund			
Total Not in Research, Development, Test & Evaluation			

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Summary Recap of Budget Activities	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO
Basic Research	549,384	595,901	595,901		
Applied Research	954,884	886,079	886,079		
Advanced Technology Development	811,211	686,342	686,342		
Advanced Component Development & Prototypes	4,510,800	4,218,714	4,193,714	27,710	59,510
System Development & Demonstration	5,928,185	6,362,102	6,362,102		5,400
Management Support	1,279,290	945,757	945,757		
Operational Systems Development	3,818,201	3,980,140	3,980,140	102,655	102,655
Undistributed		-558,059	-558,059	196,172	158,972
Total Research, Development, Test & Evaluation	17,851,955	17,116,976	17,091,976	326,537	326,537

Summary Recap of FYDP Programs					
Strategic Forces	187,327	201,735	201,735		
General Purpose Forces	1,407,847	1,675,797	1,675,797	12,800	12,800
Intelligence and Communications	927,792	751,779	751,779		
Research and Development	13,686,598	13,589,349	13,564,349	27,710	64,910
Central Supply and Maintenance	40,169	43,035	43,035		
Administration and Associated Activities	136	-556,310	-556,310	196,172	158,972
Space		47,244	47,244		
Classified Programs	1,602,086	1,364,347	1,364,347	89,855	89,855
Total Research, Development, Test & Evaluation	17,851,955	17,116,976	17,091,976	326,537	326,537

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Summary Recap of Budget Activities	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency
Basic Research				595,901		595,901
Applied Research				886,079		886,079
Advanced Technology Development				686,342		686,342
Advanced Component Development & Prototypes				4,253,224		4,253,224
System Development & Demonstration				6,367,502		6,367,502
Management Support				945,757		945,757
Operational Systems Development	60,000	-60,000		4,142,795	-60,000	4,082,795
Undistributed				-399,087		-399,087
Total Research, Development, Test & Evaluation	60,000	-60,000		17,478,513	-60,000	17,418,513

Summary Recap of FYDP Programs						
Strategic Forces				201,735		201,735
General Purpose Forces				1,688,597		1,688,597
Intelligence and Communications				751,779		751,779
Research and Development				13,629,259		13,629,259
Central Supply and Maintenance				43,035		43,035
Administration and Associated Activities				-397,338		-397,338
Space				47,244		47,244
Classified Programs	60,000	-60,000		1,514,202	-60,000	1,454,202
Total Research, Development, Test & Evaluation	60,000	-60,000		17,478,513	-60,000	17,418,513

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Summary Recap of Budget Activities	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Basic Research	597,378		597,378
Applied Research	891,471		891,471
Advanced Technology Development	750,995		750,995
Advanced Component Development & Prototypes	4,293,713	33,300	4,327,013
System Development & Demonstration	6,042,480	1,100	6,043,580
Management Support	1,020,569		1,020,569
Operational Systems Development	4,854,460	164,012	5,018,472
Undistributed			
Total Research, Development, Test & Evaluation	18,451,066	198,412	18,649,478

Summary Recap of FYDP Programs			
Strategic Forces	251,501		251,501
General Purpose Forces	1,982,258	16,130	1,998,388
Intelligence and Communications	626,028		626,028
Research and Development	13,979,095	34,400	14,013,495
Central Supply and Maintenance	43,844		43,844
Administration and Associated Activities	1,579		1,579
Space	47,858		47,858
Classified Programs	1,518,903	147,882	1,666,785
Total Research, Development, Test & Evaluation	18,451,066	198,412	18,649,478

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO
Summary Recap of Non-RDT&E Title FYDP Programs					
Mobility Forces	7,237	18,622	18,622		
Total Research, Development, Test & Evaluation	7,237	18,622	18,622		

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

	FY 2018 Emergency Requests**	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency
Summary Recap of Non-RDT&E Title FYDP Programs						
Mobility Forces				18,622		18,622
Total Research, Development, Test & Evaluation				18,622		18,622

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Summary Recap of Non-RDT&E Title FYDP Programs			
Mobility Forces			
Total Research, Development, Test & Evaluation			

Department of the Navy
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
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Advanced Technology Development	811,211	686,342	686,342		
Advanced Component Development & Prototypes	4,510,800	4,218,714	4,193,714	27,710	59,510
System Development & Demonstration	5,928,185	6,362,102	6,362,102		5,400
Management Support	1,279,290	945,757	945,757		
Operational Systems Development	3,818,201	3,980,140	3,980,140	102,655	102,655
Undistributed		-558,059	-558,059	196,172	158,972
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Classified Programs	1,602,086	1,364,347	1,364,347	89,855	89,855
Total Research, Development, Test & Evaluation	17,851,955	17,116,976	17,091,976	326,537	326,537

Department of the Navy
FY 2019 President's Budget
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Operational Systems Development	60,000	-60,000		4,142,795	-60,000	4,082,795
Undistributed				-399,087		-399,087
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Intelligence and Communications				751,779		751,779
Research and Development				13,629,259		13,629,259
Central Supply and Maintenance				43,035		43,035
Administration and Associated Activities				-397,338		-397,338
Space				47,244		47,244
Classified Programs	60,000	-60,000		1,514,202	-60,000	1,454,202
Total Research, Development, Test & Evaluation	60,000	-60,000		17,478,513	-60,000	17,418,513

Department of the Navy
FY 2019 President's Budget
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Classified Programs	1,518,903	147,882	1,666,785
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Department of the Navy
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

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

Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
1	0601103N	University Research Initiatives	01	117,320	118,130	118,130			U
2	0601152N	In-House Laboratory Independent Research	01	18,238	19,438	19,438			U
3	0601153N	Defense Research Sciences	01	413,826	458,333	458,333			U
	Basic	Research		549,384	595,901	595,901			
4	0602114N	Power Projection Applied Research	02	69,950	13,553	13,553			U
5	0602123N	Force Protection Applied Research	02	192,579	125,557	125,557			U
6	0602131M	Marine Corps Landing Force Technology	02	67,874	53,936	53,936			U
7	0602235N	Common Picture Applied Research	02	40,649	36,450	36,450			U
8	0602236N	Warfighter Sustainment Applied Research	02	50,465	48,649	48,649			U
9	0602271N	Electromagnetic Systems Applied Research	02	114,613	79,598	79,598			U
10	0602435N	Ocean Warfighting Environment Applied Research	02	79,941	42,411	42,411			U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02	6,146	6,425	6,425			U
12	0602747N	Undersea Warfare Applied Research	02	120,537	56,094	56,094			U
13	0602750N	Future Naval Capabilities Applied Research	02	152,427	156,805	156,805			U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02	31,256	32,733	32,733			U

Department of the Navy
FY 2019 President's Budget
Exhibit R-1 FY 2019 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 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
1	0601103N	University Research Initiatives	01				118,130		118,130	U
2	0601152N	In-House Laboratory Independent Research	01				19,438		19,438	U
3	0601153N	Defense Research Sciences	01				458,333		458,333	U
	Basic Research						595,901		595,901	
4	0602114N	Power Projection Applied Research	02				13,553		13,553	U
5	0602123N	Force Protection Applied Research	02				125,557		125,557	U
6	0602131M	Marine Corps Landing Force Technology	02				53,936		53,936	U
7	0602235N	Common Picture Applied Research	02				36,450		36,450	U
8	0602236N	Warfighter Sustainment Applied Research	02				48,649		48,649	U
9	0602271N	Electromagnetic Systems Applied Research	02				79,598		79,598	U
10	0602435N	Ocean Warfighting Environment Applied Research	02				42,411		42,411	U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02				6,425		6,425	U
12	0602747N	Undersea Warfare Applied Research	02				56,094		56,094	U
13	0602750N	Future Naval Capabilities Applied Research	02				156,805		156,805	U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02				32,733		32,733	U

Department of the Navy
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
(Dollars in Thousands)

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

Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
1	0601103N	University Research Initiatives	01	119,433		119,433	U
2	0601152N	In-House Laboratory Independent Research	01	19,237		19,237	U
3	0601153N	Defense Research Sciences	01	458,708		458,708	U
	Basic	Research		597,378		597,378	
4	0602114N	Power Projection Applied Research	02	14,643		14,643	U
5	0602123N	Force Protection Applied Research	02	124,049		124,049	U
6	0602131M	Marine Corps Landing Force Technology	02	59,607		59,607	U
7	0602235N	Common Picture Applied Research	02	36,348		36,348	U
8	0602236N	Warfighter Sustainment Applied Research	02	56,197		56,197	U
9	0602271N	Electromagnetic Systems Applied Research	02	83,800		83,800	U
10	0602435N	Ocean Warfighting Environment Applied Research	02	42,998		42,998	U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02	6,349		6,349	U
12	0602747N	Undersea Warfare Applied Research	02	58,049		58,049	U
13	0602750N	Future Naval Capabilities Applied Research	02	147,771		147,771	U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02	37,545		37,545	U

Department of the Navy
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Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
15	0602792N	Innovative Naval Prototypes (INP) Applied Research	02		171,146	171,146			U
16	0602861N	Science and Technology Management - ONR Field Acitivities	02		62,722	62,722			U
17	0602898N	Science and Technology Management - ONR Headquarters	02	28,447					U
		Applied Research		954,884	886,079	886,079			
18	0603114N	Power Projection Advanced Technology	03	97,122					U
19	0603123N	Force Protection Advanced Technology	03	83,146	26,342	26,342			U
20	0603271N	Electromagnetic Systems Advanced Technology	03	25,726	9,360	9,360			U
21	0603640M	USMC Advanced Technology Demonstration (ATD)	03	137,190	154,407	154,407			U
22	0603651M	Joint Non-Lethal Weapons Technology Development	03	12,790	13,448	13,448			U
23	0603671N	Navy Advanced Technology Development (ATD)	03						U
24	0603673N	Future Naval Capabilities Advanced Technology Development	03	254,203	231,772	231,772			U
25	0603680N	Manufacturing Technology Program	03	55,555	57,797	57,797			U
26	0603729N	Warfighter Protection Advanced Technology	03	39,486	4,878	4,878			U
27	0603747N	Undersea Warfare Advanced Technology	03	25,352					U
28	0603758N	Navy Warfighting Experiments and Demonstrations	03	67,965	64,889	64,889			U

Department of the Navy
FY 2019 President's Budget
Exhibit R-1 FY 2019 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 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
15	0602792N	Innovative Naval Prototypes (INP) Applied Research	02				171,146		171,146	U
16	0602861N	Science and Technology Management - ONR Field Acitivities	02				62,722		62,722	U
17	0602898N	Science and Technology Management - ONR Headquarters	02							U
		Applied Research					886,079		886,079	
18	0603114N	Power Projection Advanced Technology	03							U
19	0603123N	Force Protection Advanced Technology	03				26,342		26,342	U
20	0603271N	Electromagnetic Systems Advanced Technology	03				9,360		9,360	U
21	0603640M	USMC Advanced Technology Demonstration (ATD)	03				154,407		154,407	U
22	0603651M	Joint Non-Lethal Weapons Technology Development	03				13,448		13,448	U
23	0603671N	Navy Advanced Technology Development (ATD)	03							U
24	0603673N	Future Naval Capabilities Advanced Technology Development	03				231,772		231,772	U
25	0603680N	Manufacturing Technology Program	03				57,797		57,797	U
26	0603729N	Warfighter Protection Advanced Technology	03				4,878		4,878	U
27	0603747N	Undersea Warfare Advanced Technology	03							U
28	0603758N	Navy Warfighting Experiments and Demonstrations	03				64,889		64,889	U

Department of the Navy
FY 2019 President's Budget
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(Dollars in Thousands)

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

Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
15	0602792N	Innovative Naval Prototypes (INP) Applied Research	02	159,697		159,697	U
16	0602861N	Science and Technology Management - ONR Field Acitivities	02	64,418		64,418	U
17	0602898N	Science and Technology Management - ONR Headquarters	02				U
		Applied Research		891,471		891,471	
18	0603114N	Power Projection Advanced Technology	03				U
19	0603123N	Force Protection Advanced Technology	03	2,423		2,423	U
20	0603271N	Electromagnetic Systems Advanced Technology	03				U
21	0603640M	USMC Advanced Technology Demonstration (ATD)	03	150,245		150,245	U
22	0603651M	Joint Non-Lethal Weapons Technology Development	03	13,313		13,313	U
23	0603671N	Navy Advanced Technology Development (ATD)	03	131,502		131,502	U
24	0603673N	Future Naval Capabilities Advanced Technology Development	03	232,996		232,996	U
25	0603680N	Manufacturing Technology Program	03	58,657		58,657	U
26	0603729N	Warfighter Protection Advanced Technology	03				U
27	0603747N	Undersea Warfare Advanced Technology	03				U
28	0603758N	Navy Warfighting Experiments and Demonstrations	03				U

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Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
29	0603782N	Mine and Expeditionary Warfare Advanced Technology	03	12,676	15,164	15,164			U
30	0603801N	Innovative Naval Prototypes (INP) Advanced Technology Development	03		108,285	108,285			U
		Advanced Technology Development		811,211	686,342	686,342			
31	0603207N	Air/Ocean Tactical Applications	04	44,175	48,365	48,365			U
32	0603216N	Aviation Survivability	04	14,811	5,566	5,566			U
33	0603251N	Aircraft Systems	04	1,519	695	695			U
34	0603254N	ASW Systems Development	04	6,877	7,661	7,661			U
35	0603261N	Tactical Airborne Reconnaissance	04	3,265	3,707	3,707			U
36	0603382N	Advanced Combat Systems Technology	04	3,583	61,381	61,381			U
37	0603502N	Surface and Shallow Water Mine Countermeasures	04	126,761	154,117	154,117			U
38	0603506N	Surface Ship Torpedo Defense	04	69,872	14,974	14,974			U
39	0603512N	Carrier Systems Development	04	7,516	9,296	9,296			U
40	0603525N	PILOT FISH	04	137,435	132,083	132,083			U
41	0603527N	RETRACT LARCH	04	48,583	15,407	15,407	22,000	22,000	U
42	0603536N	RETRACT JUNIPER	04	107,871	122,413	122,413			U
43	0603542N	Radiological Control	04	677	745	745			U
44	0603553N	Surface ASW	04	1,039	1,136	1,136			U
45	0603561N	Advanced Submarine System Development	04	120,289	100,955	100,955			U

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29	0603782N	Mine and Expeditionary Warfare Advanced Technology	03				15,164		15,164	U
30	0603801N	Innovative Naval Prototypes (INP) Advanced Technology Development	03				108,285		108,285	U
		Advanced Technology Development					686,342		686,342	
31	0603207N	Air/Ocean Tactical Applications	04				48,365		48,365	U
32	0603216N	Aviation Survivability	04				5,566		5,566	U
33	0603251N	Aircraft Systems	04				695		695	U
34	0603254N	ASW Systems Development	04				7,661		7,661	U
35	0603261N	Tactical Airborne Reconnaissance	04				3,707		3,707	U
36	0603382N	Advanced Combat Systems Technology	04				61,381		61,381	U
37	0603502N	Surface and Shallow Water Mine Countermeasures	04				154,117		154,117	U
38	0603506N	Surface Ship Torpedo Defense	04				14,974		14,974	U
39	0603512N	Carrier Systems Development	04				9,296		9,296	U
40	0603525N	PILOT FISH	04				132,083		132,083	U
41	0603527N	RETRACT LARCH	04				37,407		37,407	U
42	0603536N	RETRACT JUNIPER	04				122,413		122,413	U
43	0603542N	Radiological Control	04				745		745	U
44	0603553N	Surface ASW	04				1,136		1,136	U
45	0603561N	Advanced Submarine System Development	04				100,955		100,955	U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
29	0603782N	Mine and Expeditionary Warfare Advanced Technology	03				U
30	0603801N	Innovative Naval Prototypes (INP) Advanced Technology Development	03	161,859		161,859	U
		Advanced Technology Development		750,995		750,995	
31	0603207N	Air/Ocean Tactical Applications	04	29,747		29,747	U
32	0603216N	Aviation Survivability	04	7,050		7,050	U
33	0603251N	Aircraft Systems	04	793		793	U
34	0603254N	ASW Systems Development	04	7,058		7,058	U
35	0603261N	Tactical Airborne Reconnaissance	04	3,540		3,540	U
36	0603382N	Advanced Combat Systems Technology	04	59,741		59,741	U
37	0603502N	Surface and Shallow Water Mine Countermeasures	04	62,727		62,727	U
38	0603506N	Surface Ship Torpedo Defense	04	8,570		8,570	U
39	0603512N	Carrier Systems Development	04	5,440		5,440	U
40	0603525N	PILOT FISH	04	162,222		162,222	U
41	0603527N	RETRACT LARCH	04	11,745	18,000	29,745	U
42	0603536N	RETRACT JUNIPER	04	114,265		114,265	U
43	0603542N	Radiological Control	04	740		740	U
44	0603553N	Surface ASW	04	1,122		1,122	U
45	0603561N	Advanced Submarine System Development	04	109,086		109,086	U

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46	0603562N	Submarine Tactical Warfare Systems	04	8,603	13,834	13,834			U
47	0603563N	Ship Concept Advanced Design	04	14,359	36,891	36,891			U
48	0603564N	Ship Preliminary Design & Feasibility Studies	04	13,451	12,012	12,012			U
49	0603570N	Advanced Nuclear Power Systems	04	453,313	329,500	329,500			U
50	0603573N	Advanced Surface Machinery Systems	04	30,255	29,953	29,953			U
51	0603576N	CHALK EAGLE	04	353,146	191,610	191,610			U
52	0603581N	Littoral Combat Ship (LCS)	04	50,806	40,991	40,991			U
53	0603582N	Combat System Integration	04	23,839	24,674	24,674			U
54	0603595N	Ohio Replacement	04	681,164	776,158	776,158			U
55	0603596N	LCS Mission Modules	04	153,595	116,871	116,871			U
56	0603597N	Automated Test and Analysis	04	14,507	8,052	8,052			U
57	0603599N	Frigate Development	04	83,080	143,450	143,450			U
58	0603609N	Conventional Munitions	04	8,342	8,909	8,909			U
59	0603611M	Marine Corps Assault Vehicles	04	131,381					U
60	0603635M	Marine Corps Ground Combat/Support System	04	1,043	1,428	1,428			U
61	0603654N	Joint Service Explosive Ordnance Development	04	48,686	53,367	53,367		29,700	U
62	0603713N	Ocean Engineering Technology Development	04	4,639	8,212	8,212			U
63	0603721N	Environmental Protection	04	19,117	20,214	20,214			U

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46	0603562N	Submarine Tactical Warfare Systems	04				13,834		13,834	U
47	0603563N	Ship Concept Advanced Design	04				36,891		36,891	U
48	0603564N	Ship Preliminary Design & Feasibility Studies	04				12,012		12,012	U
49	0603570N	Advanced Nuclear Power Systems	04				329,500		329,500	U
50	0603573N	Advanced Surface Machinery Systems	04				29,953		29,953	U
51	0603576N	CHALK EAGLE	04				191,610		191,610	U
52	0603581N	Littoral Combat Ship (LCS)	04				40,991		40,991	U
53	0603582N	Combat System Integration	04				24,674		24,674	U
54	0603595N	Ohio Replacement	04				776,158		776,158	U
55	0603596N	LCS Mission Modules	04				116,871		116,871	U
56	0603597N	Automated Test and Analysis	04				8,052		8,052	U
57	0603599N	Frigate Development	04				143,450		143,450	U
58	0603609N	Conventional Munitions	04				8,909		8,909	U
59	0603611M	Marine Corps Assault Vehicles	04							U
60	0603635M	Marine Corps Ground Combat/Support System	04				1,428		1,428	U
61	0603654N	Joint Service Explosive Ordnance Development	04				83,067		83,067	U
62	0603713N	Ocean Engineering Technology Development	04				8,212		8,212	U
63	0603721N	Environmental Protection	04				20,214		20,214	U

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46	0603562N	Submarine Tactical Warfare Systems	04	9,374		9,374	U
47	0603563N	Ship Concept Advanced Design	04	89,419		89,419	U
48	0603564N	Ship Preliminary Design & Feasibility Studies	04	13,348		13,348	U
49	0603570N	Advanced Nuclear Power Systems	04	256,137		256,137	U
50	0603573N	Advanced Surface Machinery Systems	04	22,109		22,109	U
51	0603576N	CHALK EAGLE	04	29,744		29,744	U
52	0603581N	Littoral Combat Ship (LCS)	04	27,997		27,997	U
53	0603582N	Combat System Integration	04	16,351		16,351	U
54	0603595N	Ohio Replacement	04	514,846		514,846	U
55	0603596N	LCS Mission Modules	04	103,633		103,633	U
56	0603597N	Automated Test and Analysis	04	7,931		7,931	U
57	0603599N	Frigate Development	04	134,772		134,772	U
58	0603609N	Conventional Munitions	04	9,307		9,307	U
59	0603611M	Marine Corps Assault Vehicles	04				U
60	0603635M	Marine Corps Ground Combat/Support System	04	1,828		1,828	U
61	0603654N	Joint Service Explosive Ordnance Development	04	43,148	13,900	57,048	U
62	0603713N	Ocean Engineering Technology Development	04	5,915		5,915	U
63	0603721N	Environmental Protection	04	19,811		19,811	U

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64	0603724N	Navy Energy Program	04	69,500	50,623	25,623			U
65	0603725N	Facilities Improvement	04	4,213	2,837	2,837			U
66	0603734N	CHALK CORAL	04	225,665	245,143	245,143			U
67	0603739N	Navy Logistic Productivity	04	2,973	2,995	2,995			U
68	0603746N	RETRACT MAPLE	04	301,871	306,101	306,101			U
69	0603748N	LINK PLUMERIA	04	259,756	253,675	253,675			U
70	0603751N	RETRACT ELM	04	51,720	55,691	55,691			U
71	0603764N	LINK EVERGREEN	04	46,282	48,982	48,982			U
72	0603787N	Special Processes	04	13,088					U
73	0603790N	NATO Research and Development	04	8,567	9,099	9,099			U
74	0603795N	Land Attack Technology	04	17,260	33,568	33,568		2,100	U
75	0603851M	Joint Non-Lethal Weapons Testing	04	26,760	29,873	29,873			U
76	0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	102,195	106,391	106,391			U
77	0603925N	Directed Energy and Electric Weapon Systems	04	34,039	107,310	107,310			U
78	0604014N	F/A -18 Infrared Search and Track (IRST)	04						U
79	0604027N	Digital Warfare Office	04						U
80	0604028N	Small and Medium Unmanned Undersea Vehicles	04						U

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64	0603724N	Navy Energy Program	04				25,623		25,623	U
65	0603725N	Facilities Improvement	04				2,837		2,837	U
66	0603734N	CHALK CORAL	04				245,143		245,143	U
67	0603739N	Navy Logistic Productivity	04				2,995		2,995	U
68	0603746N	RETRACT MAPLE	04				306,101		306,101	U
69	0603748N	LINK PLUMERIA	04				253,675		253,675	U
70	0603751N	RETRACT ELM	04				55,691		55,691	U
71	0603764N	LINK EVERGREEN	04				48,982		48,982	U
72	0603787N	Special Processes	04							U
73	0603790N	NATO Research and Development	04				9,099		9,099	U
74	0603795N	Land Attack Technology	04				35,668		35,668	U
75	0603851M	Joint Non-Lethal Weapons Testing	04				29,873		29,873	U
76	0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04				106,391		106,391	U
77	0603925N	Directed Energy and Electric Weapon Systems	04				107,310		107,310	U
78	0604014N	F/A -18 Infrared Search and Track (IRST)	04							U
79	0604027N	Digital Warfare Office	04							U
80	0604028N	Small and Medium Unmanned Undersea Vehicles	04							U

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64	0603724N	Navy Energy Program	04	25,656		25,656	U
65	0603725N	Facilities Improvement	04	5,301		5,301	U
66	0603734N	CHALK CORAL	04	267,985		267,985	U
67	0603739N	Navy Logistic Productivity	04	4,059		4,059	U
68	0603746N	RETRACT MAPLE	04	377,878		377,878	U
69	0603748N	LINK PLUMERIA	04	381,770		381,770	U
70	0603751N	RETRACT ELM	04	60,535		60,535	U
71	0603764N	LINK EVERGREEN	04				U
72	0603787N	Special Processes	04				U
73	0603790N	NATO Research and Development	04	9,652		9,652	U
74	0603795N	Land Attack Technology	04	15,529	1,400	16,929	U
75	0603851M	Joint Non-Lethal Weapons Testing	04	27,581		27,581	U
76	0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	101,566		101,566	U
77	0603925N	Directed Energy and Electric Weapon Systems	04	223,344		223,344	U
78	0604014N	F/A -18 Infrared Search and Track (IRST)	04	108,700		108,700	U
79	0604027N	Digital Warfare Office	04	26,691		26,691	U
80	0604028N	Small and Medium Unmanned Undersea Vehicles	04	16,717		16,717	U

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81	0604029N	Unmanned Undersea Vehicle Core Technologies	04						U
82	0604030N	Rapid Prototyping, Experimentation and Demonstration.	04						U
83	0604031N	Large Unmanned Undersea Vehicles	04						U
84	0604112N	Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78 - 80)	04	69,185	83,935	83,935			U
85	0604122N	Remote Minehunting System (RMS)	04	2,926					U
86	0604126N	Littoral Airborne MCM	04						U
87	0604127N	Surface Mine Countermeasures	04						U
88	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	59,753	46,844	46,844	5,710	5,710	U
89	0604286M	Marine Corps Additive Manufacturing Technology Development	04		6,200	6,200			U
90	0604289M	Next Generation Logistics	04						U
91	0604292N	MH-XX	04	1,618					U
92	0604320M	Rapid Technology Capability Prototype	04		7,055	7,055			U
93	0604454N	LX (R)	04	24,730	9,578	9,578			U
94	0604536N	Advanced Undersea Prototyping	04	57,363	66,543	66,543			U
95	0604659N	Precision Strike Weapons Development Program	04	4,874	31,315	31,315			U
96	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	20,104	42,851	42,851			U

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81	0604029N	Unmanned Undersea Vehicle Core Technologies	04							U
82	0604030N	Rapid Prototyping, Experimentation and Demonstration.	04							U
83	0604031N	Large Unmanned Undersea Vehicles	04							U
84	0604112N	Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78 - 80)	04				83,935		83,935	U
85	0604122N	Remote Minehunting System (RMS)	04							U
86	0604126N	Littoral Airborne MCM	04							U
87	0604127N	Surface Mine Countermeasures	04							U
88	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04				52,554		52,554	U
89	0604286M	Marine Corps Additive Manufacturing Technology Development	04				6,200		6,200	U
90	0604289M	Next Generation Logistics	04							U
91	0604292N	MH-XX	04							U
92	0604320M	Rapid Technology Capability Prototype	04				7,055		7,055	U
93	0604454N	LX (R)	04				9,578		9,578	U
94	0604536N	Advanced Undersea Prototyping	04				66,543		66,543	U
95	0604659N	Precision Strike Weapons Development Program	04				31,315		31,315	U
96	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04				42,851		42,851	U

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81	0604029N	Unmanned Undersea Vehicle Core Technologies	04	30,187		30,187	U
82	0604030N	Rapid Prototyping, Experimentation and Demonstration.	04	48,796		48,796	U
83	0604031N	Large Unmanned Undersea Vehicles	04	92,613		92,613	U
84	0604112N	Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78 - 80)	04	58,121		58,121	U
85	0604122N	Remote Minehunting System (RMS)	04				U
86	0604126N	Littoral Airborne MCM	04	17,622		17,622	U
87	0604127N	Surface Mine Countermeasures	04	18,154		18,154	U
88	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	47,278		47,278	U
89	0604286M	Marine Corps Additive Manufacturing Technology Development	04				U
90	0604289M	Next Generation Logistics	04	11,081		11,081	U
91	0604292N	MH-XX	04				U
92	0604320M	Rapid Technology Capability Prototype	04	7,107		7,107	U
93	0604454N	LX (R)	04	5,549		5,549	U
94	0604536N	Advanced Undersea Prototyping	04	87,669		87,669	U
95	0604659N	Precision Strike Weapons Development Program	04	132,818		132,818	U
96	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	7,230		7,230	U

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97	0604786N	Offensive Anti-Surface Warfare Weapon Development	04	301,554	160,694	160,694			U
98	0605812M	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	04	7,658					U
99	0303354N	ASW Systems Development - MIP	04	9,110	8,278	8,278			U
100	0304240M	Advanced Tactical Unmanned Aircraft System	04		7,979	7,979			U
101	0304240N	Advanced Tactical Unmanned Aircraft System	04						U
102	0304270N	Electronic Warfare Development - MIP	04	437	527	527			U
		Advanced Component Development & Prototypes		4,510,800	4,218,714	4,193,714	27,710	59,510	
103	0603208N	Training System Aircraft	05	17,490	16,945	16,945			U
104	0604212N	Other Helo Development	05	5,889	26,786	26,786			U
105	0604214M	AV-8B Aircraft - Eng Dev	05						U
106	0604214N	AV-8B Aircraft - Eng Dev	05	32,179	48,780	48,780			U
107	0604215N	Standards Development	05	1,300	2,722	2,722			U
108	0604216N	Multi-Mission Helicopter Upgrade Development	05	5,189	5,371	5,371			U
109	0604218N	Air/Ocean Equipment Engineering	05	3,747	782	782			U
110	0604221N	P-3 Modernization Program	05	1,864	1,361	1,361			U
111	0604230N	Warfare Support System	05	11,404	14,167	14,167		5,400	U
112	0604231N	Tactical Command System	05	36,190	55,695	55,695			U

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Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests**	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
97	0604786N	Offensive Anti-Surface Warfare Weapon Development	04				160,694		160,694	U
98	0605812M	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	04							U
99	0303354N	ASW Systems Development - MIP	04				8,278		8,278	U
100	0304240M	Advanced Tactical Unmanned Aircraft System	04				7,979		7,979	U
101	0304240N	Advanced Tactical Unmanned Aircraft System	04							U
102	0304270N	Electronic Warfare Development - MIP	04				527		527	U
		Advanced Component Development & Prototypes					4,253,224		4,253,224	
103	0603208N	Training System Aircraft	05				16,945		16,945	U
104	0604212N	Other Helo Development	05				26,786		26,786	U
105	0604214M	AV-8B Aircraft - Eng Dev	05							U
106	0604214N	AV-8B Aircraft - Eng Dev	05				48,780		48,780	U
107	0604215N	Standards Development	05				2,722		2,722	U
108	0604216N	Multi-Mission Helicopter Upgrade Development	05				5,371		5,371	U
109	0604218N	Air/Ocean Equipment Engineering	05				782		782	U
110	0604221N	P-3 Modernization Program	05				1,361		1,361	U
111	0604230N	Warfare Support System	05				19,567		19,567	U
112	0604231N	Tactical Command System	05				55,695		55,695	U

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97	0604786N	Offensive Anti-Surface Warfare Weapon Development	04	143,062		143,062	U
98	0605812M	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	04				U
99	0303354N	ASW Systems Development - MIP	04	8,889		8,889	U
100	0304240M	Advanced Tactical Unmanned Aircraft System	04	25,291		25,291	U
101	0304240N	Advanced Tactical Unmanned Aircraft System	04	9,300		9,300	U
102	0304270N	Electronic Warfare Development - MIP	04	466		466	U
		Advanced Component Development & Prototypes		4,293,713	33,300	4,327,013	
103	0603208N	Training System Aircraft	05	12,798		12,798	U
104	0604212N	Other Helo Development	05	32,128		32,128	U
105	0604214M	AV-8B Aircraft - Eng Dev	05	46,363		46,363	U
106	0604214N	AV-8B Aircraft - Eng Dev	05				U
107	0604215N	Standards Development	05	3,771		3,771	U
108	0604216N	Multi-Mission Helicopter Upgrade Development	05	16,611		16,611	U
109	0604218N	Air/Ocean Equipment Engineering	05	17,368		17,368	U
110	0604221N	P-3 Modernization Program	05	2,134		2,134	U
111	0604230N	Warfare Support System	05	9,729		9,729	U
112	0604231N	Tactical Command System	05	57,688		57,688	U

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113	0604234N	Advanced Hawkeye	05	354,390	292,535	292,535			U
114	0604245M	H-1 Upgrades	05						U
115	0604245N	H-1 Upgrades	05	27,013	61,288	61,288			U
116	0604261N	Acoustic Search Sensors	05	28,940	37,167	37,167			U
117	0604262N	V-22A	05	149,113	171,386	171,386			U
118	0604264N	Air Crew Systems Development	05	8,746	13,235	13,235			U
119	0604269N	EA-18	05	100,825	173,488	173,488			U
120	0604270N	Electronic Warfare Development	05	44,894	54,055	54,055			U
121	0604273M	Executive Helo Development	05						U
122	0604273N	Executive Helo Development	05	327,770	451,938	451,938			U
123	0604274N	Next Generation Jammer (NGJ)	05	559,017	632,936	632,936			U
124	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	2,295	4,310	4,310			U
125	0604282N	Next Generation Jammer (NGJ) Increment II	05	18,964	66,686	66,686			U
126	0604307N	Surface Combatant Combat System Engineering	05	288,678	390,238	390,238			U
127	0604311N	LPD-17 Class Systems Integration	05	565	689	689			U
128	0604329N	Small Diameter Bomb (SDB)	05	86,989	112,846	112,846			U
129	0604366N	Standard Missile Improvements	05	113,601	158,578	158,578			U
130	0604373N	Airborne MCM	05	44,930	15,734	15,734			U

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113	0604234N	Advanced Hawkeye	05				292,535		292,535	U
114	0604245M	H-1 Upgrades	05							U
115	0604245N	H-1 Upgrades	05				61,288		61,288	U
116	0604261N	Acoustic Search Sensors	05				37,167		37,167	U
117	0604262N	V-22A	05				171,386		171,386	U
118	0604264N	Air Crew Systems Development	05				13,235		13,235	U
119	0604269N	EA-18	05				173,488		173,488	U
120	0604270N	Electronic Warfare Development	05				54,055		54,055	U
121	0604273M	Executive Helo Development	05							U
122	0604273N	Executive Helo Development	05				451,938		451,938	U
123	0604274N	Next Generation Jammer (NGJ)	05				632,936		632,936	U
124	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05				4,310		4,310	U
125	0604282N	Next Generation Jammer (NGJ) Increment II	05				66,686		66,686	U
126	0604307N	Surface Combatant Combat System Engineering	05				390,238		390,238	U
127	0604311N	LPD-17 Class Systems Integration	05				689		689	U
128	0604329N	Small Diameter Bomb (SDB)	05				112,846		112,846	U
129	0604366N	Standard Missile Improvements	05				158,578		158,578	U
130	0604373N	Airborne MCM	05				15,734		15,734	U

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113	0604234N	Advanced Hawkeye	05	223,565		223,565	U
114	0604245M	H-1 Upgrades	05	58,097		58,097	U
115	0604245N	H-1 Upgrades	05				U
116	0604261N	Acoustic Search Sensors	05	42,485		42,485	U
117	0604262N	V-22A	05	143,079		143,079	U
118	0604264N	Air Crew Systems Development	05	20,980		20,980	U
119	0604269N	EA-18	05	147,419		147,419	U
120	0604270N	Electronic Warfare Development	05	89,824		89,824	U
121	0604273M	Executive Helo Development	05	245,064		245,064	U
122	0604273N	Executive Helo Development	05				U
123	0604274N	Next Generation Jammer (NGJ)	05	459,529		459,529	U
124	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	3,272		3,272	U
125	0604282N	Next Generation Jammer (NGJ) Increment II	05	115,253		115,253	U
126	0604307N	Surface Combatant Combat System Engineering	05	397,403		397,403	U
127	0604311N	LPD-17 Class Systems Integration	05	939		939	U
128	0604329N	Small Diameter Bomb (SDB)	05	104,448		104,448	U
129	0604366N	Standard Missile Improvements	05	165,881		165,881	U
130	0604373N	Airborne MCM	05	10,831		10,831	U

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131	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	25,086	25,445	25,445			U
132	0604501N	Advanced Above Water Sensors	05	70,658	87,233	87,233			U
133	0604503N	SSN-688 and Trident Modernization	05	120,261	130,981	130,981			U
134	0604504N	Air Control	05	42,206	75,186	75,186			U
135	0604512N	Shipboard Aviation Systems	05	114,327	177,926	177,926			U
136	0604518N	Combat Information Center Conversion	05	6,092	8,062	8,062			U
137	0604522N	Air and Missile Defense Radar (AMDR) System	05	141,338	32,090	32,090			U
138	0604530N	Advanced Arresting Gear (AAG)	05						U
139	0604558N	New Design SSN	05	127,883	120,087	120,087			U
140	0604562N	Submarine Tactical Warfare System	05	50,069	50,850	50,850			U
141	0604567N	Ship Contract Design/ Live Fire T&E	05	82,946	67,166	67,166			U
142	0604574N	Navy Tactical Computer Resources	05	3,059	4,817	4,817			U
143	0604580N	Virginia Payload Module (VPM)	05	94,846	72,861	72,861			U
144	0604601N	Mine Development	05	14,860	25,635	25,635			U
145	0604610N	Lightweight Torpedo Development	05	29,567	28,076	28,076			U
146	0604654N	Joint Service Explosive Ordnance Development	05	7,369	7,561	7,561			U
147	0604703N	Personnel, Training, Simulation, and Human Factors	05	4,805	40,828	40,828			U
148	0604727N	Joint Standoff Weapon Systems	05	396	435	435			U

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131	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05				25,445		25,445	U
132	0604501N	Advanced Above Water Sensors	05				87,233		87,233	U
133	0604503N	SSN-688 and Trident Modernization	05				130,981		130,981	U
134	0604504N	Air Control	05				75,186		75,186	U
135	0604512N	Shipboard Aviation Systems	05				177,926		177,926	U
136	0604518N	Combat Information Center Conversion	05				8,062		8,062	U
137	0604522N	Air and Missile Defense Radar (AMDR) System	05				32,090		32,090	U
138	0604530N	Advanced Arresting Gear (AAG)	05							U
139	0604558N	New Design SSN	05				120,087		120,087	U
140	0604562N	Submarine Tactical Warfare System	05				50,850		50,850	U
141	0604567N	Ship Contract Design/ Live Fire T&E	05				67,166		67,166	U
142	0604574N	Navy Tactical Computer Resources	05				4,817		4,817	U
143	0604580N	Virginia Payload Module (VPM)	05				72,861		72,861	U
144	0604601N	Mine Development	05				25,635		25,635	U
145	0604610N	Lightweight Torpedo Development	05				28,076		28,076	U
146	0604654N	Joint Service Explosive Ordnance Development	05				7,561		7,561	U
147	0604703N	Personnel, Training, Simulation, and Human Factors	05				40,828		40,828	U
148	0604727N	Joint Standoff Weapon Systems	05				435		435	U

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131	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	33,429		33,429	U
132	0604501N	Advanced Above Water Sensors	05	35,635		35,635	U
133	0604503N	SSN-688 and Trident Modernization	05	126,932		126,932	U
134	0604504N	Air Control	05	62,448		62,448	U
135	0604512N	Shipboard Aviation Systems	05	9,710		9,710	U
136	0604518N	Combat Information Center Conversion	05	19,303		19,303	U
137	0604522N	Air and Missile Defense Radar (AMDR) System	05	27,059		27,059	U
138	0604530N	Advanced Arresting Gear (AAG)	05	184,106		184,106	U
139	0604558N	New Design SSN	05	148,233		148,233	U
140	0604562N	Submarine Tactical Warfare System	05	60,824		60,824	U
141	0604567N	Ship Contract Design/ Live Fire T&E	05	60,062		60,062	U
142	0604574N	Navy Tactical Computer Resources	05	4,642		4,642	U
143	0604580N	Virginia Payload Module (VPM)	05				U
144	0604601N	Mine Development	05	25,756		25,756	U
145	0604610N	Lightweight Torpedo Development	05	95,147		95,147	U
146	0604654N	Joint Service Explosive Ordnance Development	05	7,107		7,107	U
147	0604703N	Personnel, Training, Simulation, and Human Factors	05	6,539		6,539	U
148	0604727N	Joint Standoff Weapon Systems	05	441		441	U

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149	0604755N	Ship Self Defense (Detect & Control)	05	133,452	161,713	161,713			U
150	0604756N	Ship Self Defense (Engage: Hard Kill)	05	115,081	212,412	212,412			U
151	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	108,630	103,391	103,391			U
152	0604761N	Intelligence Engineering	05	9,029	34,855	34,855			U
153	0604771N	Medical Development	05	24,510	9,353	9,353			U
154	0604777N	Navigation/ID System	05	41,905	92,546	92,546			U
155	0604800M	Joint Strike Fighter (JSF) - EMD	05	519,393	152,934	152,934			U
156	0604800N	Joint Strike Fighter (JSF) - EMD	05	512,662	108,931	108,931			U
157	0604810M	Joint Strike Fighter Follow On Modernization (FoM) - Marine Corps	05	29,691	144,958	144,958			U
158	0604810N	Joint Strike Fighter Follow On Modernization (FoM) - Navy	05	25,041	143,855	143,855			U
159	0605013M	Information Technology Development	05	3,744	14,865	14,865			U
160	0605013N	Information Technology Development	05	87,469	152,977	152,977			U
161	0605024N	Anti-Tamper Technology Support	05	500	3,410	3,410			U
162	0605212M	CH-53K RDTE	05						U
163	0605212N	CH-53K RDTE	05	339,101	340,758	340,758			U
164	0605215N	Mission Planning	05	32,876	33,430	33,430			U
165	0605217N	Common Avionics	05	42,711	58,163	58,163			U
166	0605220N	Ship to Shore Connector (SSC)	05	12,588	22,410	22,410			U

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149	0604755N	Ship Self Defense (Detect & Control)	05				161,713		161,713	U
150	0604756N	Ship Self Defense (Engage: Hard Kill)	05				212,412		212,412	U
151	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05				103,391		103,391	U
152	0604761N	Intelligence Engineering	05				34,855		34,855	U
153	0604771N	Medical Development	05				9,353		9,353	U
154	0604777N	Navigation/ID System	05				92,546		92,546	U
155	0604800M	Joint Strike Fighter (JSF) - EMD	05				152,934		152,934	U
156	0604800N	Joint Strike Fighter (JSF) - EMD	05				108,931		108,931	U
157	0604810M	Joint Strike Fighter Follow On Modernization (FoM) - Marine Corps	05				144,958		144,958	U
158	0604810N	Joint Strike Fighter Follow On Modernization (FoM) - Navy	05				143,855		143,855	U
159	0605013M	Information Technology Development	05				14,865		14,865	U
160	0605013N	Information Technology Development	05				152,977		152,977	U
161	0605024N	Anti-Tamper Technology Support	05				3,410		3,410	U
162	0605212M	CH-53K RDTE	05							U
163	0605212N	CH-53K RDTE	05				340,758		340,758	U
164	0605215N	Mission Planning	05				33,430		33,430	U
165	0605217N	Common Avionics	05				58,163		58,163	U
166	0605220N	Ship to Shore Connector (SSC)	05				22,410		22,410	U

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149	0604755N	Ship Self Defense (Detect & Control)	05	180,391	1,100	181,491	U
150	0604756N	Ship Self Defense (Engage: Hard Kill)	05	178,538		178,538	U
151	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	120,507		120,507	U
152	0604761N	Intelligence Engineering	05	29,715		29,715	U
153	0604771N	Medical Development	05	8,095		8,095	U
154	0604777N	Navigation/ID System	05	121,026		121,026	U
155	0604800M	Joint Strike Fighter (JSF) - EMD	05	66,566		66,566	U
156	0604800N	Joint Strike Fighter (JSF) - EMD	05	65,494		65,494	U
157	0604810M	Joint Strike Fighter Follow On Modernization (FoM) - Marine Corps	05				U
158	0604810N	Joint Strike Fighter Follow On Modernization (FoM) - Navy	05				U
159	0605013M	Information Technology Development	05	14,005		14,005	U
160	0605013N	Information Technology Development	05	268,567		268,567	U
161	0605024N	Anti-Tamper Technology Support	05	5,618		5,618	U
162	0605212M	CH-53K RDTE	05	326,945		326,945	U
163	0605212N	CH-53K RDTE	05				U
164	0605215N	Mission Planning	05	32,714		32,714	U
165	0605217N	Common Avionics	05	51,486		51,486	U
166	0605220N	Ship to Shore Connector (SSC)	05	1,444		1,444	U

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167	0605327N	T-AO 205 Class	05	1,062	1,961	1,961			U
168	0605414N	Unmanned Carrier Aviation (UCA)	05	75,863	222,208	222,208			U
169	0605450M	Joint Air-to-Ground Missile (JAGM)	05						U
170	0605450N	Joint Air-to-Ground Missile (JAGM)	05	17,834	15,473	15,473			U
171	0605500N	Multi-mission Maritime Aircraft (MMA)	05	61,959	11,795	11,795			U
172	0605504N	Multi-Mission Maritime (MMA) Increment III	05	109,827	181,731	181,731			U
173	0605611M	Marine Corps Assault Vehicles System Development & Demonstration	05		178,993	178,993			U
174	0605813M	Joint Light Tactical Vehicle (JLTV) System Development & Demonstration	05		20,710	20,710			U
175	0204202N	DDG-1000	05	45,187	140,500	140,500			U
176	0303267N	Auctioned Spectrum Relocation Fund***	05	251,203					U
177	0303367N	Spectrum Access Research and Development***	05	46,902					U
178	0303467N	SENSR Spectrum Pipeline SRF***	05	150					U
179	0304231N	Tactical Command System - MIP	05	676					U
180	0304785N	Tactical Cryptologic Systems	05	34,038	28,311	28,311			U
181	0305124N	Special Applications Program	05	35,002					U
182	0306250M	Cyber Operations Technology Development	05	2,349	4,502	4,502			U
		System Development & Demonstration		5,928,185	6,362,102	6,362,102		5,400	

***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).

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Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
167	0605327N	T-AO 205 Class	05				1,961		1,961	U
168	0605414N	Unmanned Carrier Aviation (UCA)	05				222,208		222,208	U
169	0605450M	Joint Air-to-Ground Missile (JAGM)	05							U
170	0605450N	Joint Air-to-Ground Missile (JAGM)	05				15,473		15,473	U
171	0605500N	Multi-mission Maritime Aircraft (MMA)	05				11,795		11,795	U
172	0605504N	Multi-Mission Maritime (MMA) Increment III	05				181,731		181,731	U
173	0605611M	Marine Corps Assault Vehicles System Development & Demonstration	05				178,993		178,993	U
174	0605813M	Joint Light Tactical Vehicle (JLTV) System Development & Demonstration	05				20,710		20,710	U
175	0204202N	DDG-1000	05				140,500		140,500	U
176	0303267N	Auctioned Spectrum Relocation Fund***	05							U
177	0303367N	Spectrum Access Research and Development***	05							U
178	0303467N	SENSR Spectrum Pipeline SRF***	05							U
179	0304231N	Tactical Command System - MIP	05							U
180	0304785N	Tactical Cryptologic Systems	05				28,311		28,311	U
181	0305124N	Special Applications Program	05							U
182	0306250M	Cyber Operations Technology Development	05				4,502		4,502	U
		System Development & Demonstration					6,367,502		6,367,502	

***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).

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
167	0605327N	T-AO 205 Class	05	1,298		1,298	U
168	0605414N	Unmanned Carrier Aviation (UCA)	05	718,942		718,942	U
169	0605450M	Joint Air-to-Ground Missile (JAGM)	05	6,759		6,759	U
170	0605450N	Joint Air-to-Ground Missile (JAGM)	05				U
171	0605500N	Multi-mission Maritime Aircraft (MMA)	05	37,296		37,296	U
172	0605504N	Multi-Mission Maritime (MMA) Increment III	05	160,389		160,389	U
173	0605611M	Marine Corps Assault Vehicles System Development & Demonstration	05	98,223		98,223	U
174	0605813M	Joint Light Tactical Vehicle (JLTV) System Development & Demonstration	05	2,260		2,260	U
175	0204202N	DDG-1000	05	161,264		161,264	U
176	0303267N	Auctioned Spectrum Relocation Fund***	05				U
177	0303367N	Spectrum Access Research and Development***	05				U
178	0303467N	SENSR Spectrum Pipeline SRF***	05				U
179	0304231N	Tactical Command System - MIP	05				U
180	0304785N	Tactical Cryptologic Systems	05	44,098		44,098	U
181	0305124N	Special Applications Program	05				U
182	0306250M	Cyber Operations Technology Development	05	6,808		6,808	U
		System Development & Demonstration		6,042,480	1,100	6,043,580	

***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).

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Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
183	0604256N	Threat Simulator Development	06	16,581	91,819	91,819			U
184	0604258N	Target Systems Development	06	34,021	23,053	23,053			U
185	0604759N	Major T&E Investment	06	51,375	52,634	52,634			U
186	0605126N	Joint Theater Air and Missile Defense Organization	06	2,888	141	141			U
187	0605152N	Studies and Analysis Support - Navy	06	3,861	3,917	3,917			U
188	0605154N	Center for Naval Analyses	06	43,532	50,432	50,432			U
189	0605285N	Next Generation Fighter	06	1,394					U
190	0605502N	Small Business Innovative Research	06	370,665					U
191	0605804N	Technical Information Services	06	1,494	782	782			U
192	0605853N	Management, Technical & International Support	06	97,939	94,562	94,562			U
193	0605856N	Strategic Technical Support	06	3,460	4,313	4,313			U
194	0605861N	RDT&E Science and Technology Management	06	62,961	1,104	1,104			U
195	0605863N	RDT&E Ship and Aircraft Support	06	105,693	105,666	105,666			U
196	0605864N	Test and Evaluation Support	06	398,972	373,667	373,667			U
197	0605865N	Operational Test and Evaluation Capability	06	17,984	20,298	20,298			U
198	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	9,658	17,341	17,341			U
199	0605867N	SEW Surveillance/Reconnaissance Support	06	6,500					U

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183	0604256N	Threat Simulator Development	06				91,819		91,819	U
184	0604258N	Target Systems Development	06				23,053		23,053	U
185	0604759N	Major T&E Investment	06				52,634		52,634	U
186	0605126N	Joint Theater Air and Missile Defense Organization	06				141		141	U
187	0605152N	Studies and Analysis Support - Navy	06				3,917		3,917	U
188	0605154N	Center for Naval Analyses	06				50,432		50,432	U
189	0605285N	Next Generation Fighter	06							U
190	0605502N	Small Business Innovative Research	06							U
191	0605804N	Technical Information Services	06				782		782	U
192	0605853N	Management, Technical & International Support	06				94,562		94,562	U
193	0605856N	Strategic Technical Support	06				4,313		4,313	U
194	0605861N	RDT&E Science and Technology Management	06				1,104		1,104	U
195	0605863N	RDT&E Ship and Aircraft Support	06				105,666		105,666	U
196	0605864N	Test and Evaluation Support	06				373,667		373,667	U
197	0605865N	Operational Test and Evaluation Capability	06				20,298		20,298	U
198	0605866N	Navy Space and Electronic Warfare (SEW) Support	06				17,341		17,341	U
199	0605867N	SEW Surveillance/Reconnaissance Support	06							U

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183	0604256N	Threat Simulator Development	06	94,576		94,576	U
184	0604258N	Target Systems Development	06	10,981		10,981	U
185	0604759N	Major T&E Investment	06	77,014		77,014	U
186	0605126N	Joint Theater Air and Missile Defense Organization	06	48		48	U
187	0605152N	Studies and Analysis Support - Navy	06	3,942		3,942	U
188	0605154N	Center for Naval Analyses	06	48,797		48,797	U
189	0605285N	Next Generation Fighter	06	5,000		5,000	U
190	0605502N	Small Business Innovative Research	06				U
191	0605804N	Technical Information Services	06	1,029		1,029	U
192	0605853N	Management, Technical & International Support	06	87,565		87,565	U
193	0605856N	Strategic Technical Support	06	4,231		4,231	U
194	0605861N	RDT&E Science and Technology Management	06	1,072		1,072	U
195	0605863N	RDT&E Ship and Aircraft Support	06	97,471		97,471	U
196	0605864N	Test and Evaluation Support	06	373,834		373,834	U
197	0605865N	Operational Test and Evaluation Capability	06	21,554		21,554	U
198	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	16,227		16,227	U
199	0605867N	SEW Surveillance/Reconnaissance Support	06				U

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200	0605873M	Marine Corps Program Wide Support	06	19,142	21,751	21,751			U
201	0605898N	Management HQ - R&D	06	16,188	44,279	44,279			U
202	0606355N	Warfare Innovation Management	06	14,846	28,841	28,841			U
203	0606942M	Assessments and Evaluations Cyber Vulnerabilities	06						U
204	0606942N	Assessments and Evaluations Cyber Vulnerabilities	06						U
205	0305327N	Insider Threat	06						U
206	0902498N	Management Headquarters (Departmental Support Activities)	06		1,749	1,749			U
207	0909999N	Financing for Cancelled Account Adjustments	06	136					U
208	1206867N	SEW Surveillance/Reconnaissance Support	06		9,408	9,408			U
		Management Support		1,279,290	945,757	945,757			
210	0604227N	HARPOON Modifications	07						U
211	0604840M	F-35 C2D2	07						U
212	0604840N	F-35 C2D2	07						U
213	0607658N	Cooperative Engagement Capability (CEC)	07	75,099	92,571	92,571			U
214	0607700N	Deployable Joint Command and Control	07	2,935	3,137	3,137			U
215	0101221N	Strategic Sub & Weapons System Support	07	130,364	135,219	135,219			U

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200	0605873M	Marine Corps Program Wide Support	06				21,751		21,751	U
201	0605898N	Management HQ - R&D	06				44,279		44,279	U
202	0606355N	Warfare Innovation Management	06				28,841		28,841	U
203	0606942M	Assessments and Evaluations Cyber Vulnerabilities	06							U
204	0606942N	Assessments and Evaluations Cyber Vulnerabilities	06							U
205	0305327N	Insider Threat	06							U
206	0902498N	Management Headquarters (Departmental Support Activities)	06				1,749		1,749	U
207	0909999N	Financing for Cancelled Account Adjustments	06							U
208	1206867N	SEW Surveillance/Reconnaissance Support	06				9,408		9,408	U
		Management Support					945,757		945,757	
210	0604227N	HARPOON Modifications	07							U
211	0604840M	F-35 C2D2	07							U
212	0604840N	F-35 C2D2	07							U
213	0607658N	Cooperative Engagement Capability (CEC)	07				92,571		92,571	U
214	0607700N	Deployable Joint Command and Control	07				3,137		3,137	U
215	0101221N	Strategic Sub & Weapons System Support	07				135,219		135,219	U

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200	0605873M	Marine Corps Program Wide Support	06	24,303		24,303	U
201	0605898N	Management HQ - R&D	06	43,262		43,262	U
202	0606355N	Warfare Innovation Management	06	41,918		41,918	U
203	0606942M	Assessments and Evaluations Cyber Vulnerabilities	06	7,000		7,000	U
204	0606942N	Assessments and Evaluations Cyber Vulnerabilities	06	48,800		48,800	U
205	0305327N	Insider Threat	06	1,682		1,682	U
206	0902498N	Management Headquarters (Departmental Support Activities)	06	1,579		1,579	U
207	0909999N	Financing for Cancelled Account Adjustments	06				U
208	1206867N	SEW Surveillance/Reconnaissance Support	06	8,684		8,684	U
		Management Support		1,020,569		1,020,569	
210	0604227N	HARPOON Modifications	07	5,426		5,426	U
211	0604840M	F-35 C2D2	07	259,122		259,122	U
212	0604840N	F-35 C2D2	07	252,360		252,360	U
213	0607658N	Cooperative Engagement Capability (CEC)	07	130,515		130,515	U
214	0607700N	Deployable Joint Command and Control	07	3,127		3,127	U
215	0101221N	Strategic Sub & Weapons System Support	07	157,679		157,679	U

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216	0101224N	SSBN Security Technology Program	07	32,910	36,242	36,242			U
217	0101226N	Submarine Acoustic Warfare Development	07	7,300	12,053	12,053			U
218	0101402N	Navy Strategic Communications	07	16,753	18,221	18,221			U
219	0204136N	F/A-18 Squadrons	07	169,473	224,470	224,470			U
220	0204163N	Fleet Telecommunications (Tactical)	07	38,949	33,525	33,525			U
221	0204228N	Surface Support	07	20,595	24,829	24,829			U
222	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	49,149	133,617	133,617			U
223	0204311N	Integrated Surveillance System	07	57,043	38,972	38,972	11,600	11,600	U
224	0204313N	Ship-Towed Array Surveillance Systems	07						U
225	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	11,143	3,940	3,940			U
226	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07	78,860	54,645	54,645			U
227	0204571N	Consolidated Training Systems Development	07	44,435	66,518	66,518			U
228	0204574N	Cryptologic Direct Support	07	1,122	1,155	1,155	1,200	1,200	U
229	0204575N	Electronic Warfare (EW) Readiness Support	07	79,410	51,040	51,040			U
230	0205601N	HARM Improvement	07	32,889	87,989	87,989			U
231	0205604N	Tactical Data Links	07	121,396	89,852	89,852			U

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216	0101224N	SSBN Security Technology Program	07				36,242		36,242	U
217	0101226N	Submarine Acoustic Warfare Development	07				12,053		12,053	U
218	0101402N	Navy Strategic Communications	07				18,221		18,221	U
219	0204136N	F/A-18 Squadrons	07				224,470		224,470	U
220	0204163N	Fleet Telecommunications (Tactical)	07				33,525		33,525	U
221	0204228N	Surface Support	07				24,829		24,829	U
222	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07				133,617		133,617	U
223	0204311N	Integrated Surveillance System	07				50,572		50,572	U
224	0204313N	Ship-Towed Array Surveillance Systems	07							U
225	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07				3,940		3,940	U
226	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07				54,645		54,645	U
227	0204571N	Consolidated Training Systems Development	07				66,518		66,518	U
228	0204574N	Cryptologic Direct Support	07				2,355		2,355	U
229	0204575N	Electronic Warfare (EW) Readiness Support	07				51,040		51,040	U
230	0205601N	HARM Improvement	07				87,989		87,989	U
231	0205604N	Tactical Data Links	07				89,852		89,852	U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
216	0101224N	SSBN Security Technology Program	07	43,198		43,198	U
217	0101226N	Submarine Acoustic Warfare Development	07	11,311		11,311	U
218	0101402N	Navy Strategic Communications	07	39,313		39,313	U
219	0204136N	F/A-18 Squadrons	07	193,086		193,086	U
220	0204163N	Fleet Telecommunications (Tactical)	07	25,014		25,014	U
221	0204228N	Surface Support	07	11,661		11,661	U
222	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	282,395		282,395	U
223	0204311N	Integrated Surveillance System	07	36,959		36,959	U
224	0204313N	Ship-Towed Array Surveillance Systems	07	15,454		15,454	U
225	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	6,073		6,073	U
226	0204460M	Ground/Air Task Oriented Radar (G/ ATOR)	07	45,029		45,029	U
227	0204571N	Consolidated Training Systems Development	07	104,903		104,903	U
228	0204574N	Cryptologic Direct Support	07	4,544		4,544	U
229	0204575N	Electronic Warfare (EW) Readiness Support	07	66,889		66,889	U
230	0205601N	HARM Improvement	07	120,762		120,762	U
231	0205604N	Tactical Data Links	07	104,696		104,696	U

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232	0205620N	Surface ASW Combat System Integration	07	23,779	29,351	29,351			U
233	0205632N	MK-48 ADCAP	07	48,507	68,553	68,553			U
234	0205633N	Aviation Improvements	07	121,138	119,099	119,099			U
235	0205675N	Operational Nuclear Power Systems	07	101,786	127,445	127,445			U
236	0206313M	Marine Corps Communications Systems	07	141,171	123,825	123,825			U
237	0206335M	Common Aviation Command and Control System (CAC2S)	07	6,934	7,343	7,343			U
238	0206623M	Marine Corps Ground Combat/ Supporting Arms Systems	07	45,877	66,009	66,009			U
239	0206624M	Marine Corps Combat Services Support	07	11,639	25,258	25,258			U
240	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	22,978	30,886	30,886			U
241	0206629M	Amphibious Assault Vehicle	07	36,571	58,728	58,728			U
242	0207161N	Tactical AIM Missiles	07	54,678	42,884	42,884			U
243	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	34,010	25,364	25,364			U
244	0219902M	Global Combat Support System - Marine Corps (GCSS-MC)	07	9,128					U
248	0303109N	Satellite Communications (SPACE)	07	30,826					U
249	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07	23,224	24,271	24,271			U
250	0303140N	Information Systems Security Program	07	32,708	50,269	50,269			U

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232	0205620N	Surface ASW Combat System Integration	07				29,351		29,351	U
233	0205632N	MK-48 ADCAP	07				68,553		68,553	U
234	0205633N	Aviation Improvements	07				119,099		119,099	U
235	0205675N	Operational Nuclear Power Systems	07				127,445		127,445	U
236	0206313M	Marine Corps Communications Systems	07				123,825		123,825	U
237	0206335M	Common Aviation Command and Control System (CAC2S)	07				7,343		7,343	U
238	0206623M	Marine Corps Ground Combat/ Supporting Arms Systems	07				66,009		66,009	U
239	0206624M	Marine Corps Combat Services Support	07				25,258		25,258	U
240	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07				30,886		30,886	U
241	0206629M	Amphibious Assault Vehicle	07				58,728		58,728	U
242	0207161N	Tactical AIM Missiles	07				42,884		42,884	U
243	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07				25,364		25,364	U
244	0219902M	Global Combat Support System - Marine Corps (GCSS-MC)	07							U
248	0303109N	Satellite Communications (SPACE)	07							U
249	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07				24,271		24,271	U
250	0303140N	Information Systems Security Program	07				50,269		50,269	U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
232	0205620N	Surface ASW Combat System Integration	07	28,421		28,421	U
233	0205632N	MK-48 ADCAP	07	94,155		94,155	U
234	0205633N	Aviation Improvements	07	121,805		121,805	U
235	0205675N	Operational Nuclear Power Systems	07	117,028		117,028	U
236	0206313M	Marine Corps Communications Systems	07	174,779	16,130	190,909	U
237	0206335M	Common Aviation Command and Control System (CAC2S)	07	4,826		4,826	U
238	0206623M	Marine Corps Ground Combat/ Supporting Arms Systems	07	97,152		97,152	U
239	0206624M	Marine Corps Combat Services Support	07	30,156		30,156	U
240	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	39,976		39,976	U
241	0206629M	Amphibious Assault Vehicle	07	22,637		22,637	U
242	0207161N	Tactical AIM Missiles	07	40,121		40,121	U
243	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	32,473		32,473	U
244	0219902M	Global Combat Support System - Marine Corps (GCSS-MC)	07				U
248	0303109N	Satellite Communications (SPACE)	07				U
249	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07	23,697		23,697	U
250	0303140N	Information Systems Security Program	07	44,228		44,228	U

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

Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
252	0305192N	Military Intelligence Program (MIP) Activities	07	6,019	6,352	6,352			U
253	0305204N	Tactical Unmanned Aerial Vehicles	07	8,436	7,770	7,770			U
254	0305205N	UAS Integration and Interoperability	07	21,543	39,736	39,736			U
255	0305208M	Distributed Common Ground/Surface Systems	07	2,079	12,867	12,867			U
256	0305208N	Distributed Common Ground/Surface Systems	07	44,564	46,150	46,150			U
257	0305220N	MQ-4C Triton	07	113,606	84,115	84,115			U
258	0305231N	MQ-8 UAV	07	26,518	62,656	62,656			U
259	0305232M	RQ-11 UAV	07		2,022	2,022			U
260	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07	5,071	4,835	4,835			U
261	0305239M	RQ-21A	07	8,379	8,899	8,899			U
262	0305241N	Multi-Intelligence Sensor Development	07	64,765	99,020	99,020			U
263	0305242M	Unmanned Aerial Systems (UAS) Payloads (MIP)	07	11,181	18,578	18,578			U
264	0305421N	RQ-4 Modernization	07	144,477	229,404	229,404			U
265	0308601N	Modeling and Simulation Support	07	4,529	5,238	5,238			U
266	0702207N	Depot Maintenance (Non-IF)	07	37,089	38,227	38,227			U
267	0708730N	Maritime Technology (MARITECH)	07	3,080	4,808	4,808			U

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

Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests**	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
252	0305192N	Military Intelligence Program (MIP) Activities	07				6,352		6,352	U
253	0305204N	Tactical Unmanned Aerial Vehicles	07				7,770		7,770	U
254	0305205N	UAS Integration and Interoperability	07				39,736		39,736	U
255	0305208M	Distributed Common Ground/Surface Systems	07				12,867		12,867	U
256	0305208N	Distributed Common Ground/Surface Systems	07				46,150		46,150	U
257	0305220N	MQ-4C Triton	07				84,115		84,115	U
258	0305231N	MQ-8 UAV	07				62,656		62,656	U
259	0305232M	RQ-11 UAV	07				2,022		2,022	U
260	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07				4,835		4,835	U
261	0305239M	RQ-21A	07				8,899		8,899	U
262	0305241N	Multi-Intelligence Sensor Development	07				99,020		99,020	U
263	0305242M	Unmanned Aerial Systems (UAS) Payloads (MIP)	07				18,578		18,578	U
264	0305421N	RQ-4 Modernization	07				229,404		229,404	U
265	0308601N	Modeling and Simulation Support	07				5,238		5,238	U
266	0702207N	Depot Maintenance (Non-IF)	07				38,227		38,227	U
267	0708730N	Maritime Technology (MARITECH)	07				4,808		4,808	U

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

Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
252	0305192N	Military Intelligence Program (MIP) Activities	07	6,081		6,081	U
253	0305204N	Tactical Unmanned Aerial Vehicles	07	8,529		8,529	U
254	0305205N	UAS Integration and Interoperability	07	41,212		41,212	U
255	0305208M	Distributed Common Ground/Surface Systems	07	7,687		7,687	U
256	0305208N	Distributed Common Ground/Surface Systems	07	42,846		42,846	U
257	0305220N	MQ-4C Triton	07	14,395		14,395	U
258	0305231N	MQ-8 UAV	07	9,843		9,843	U
259	0305232M	RQ-11 UAV	07	524		524	U
260	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07	5,360		5,360	U
261	0305239M	RQ-21A	07	10,914		10,914	U
262	0305241N	Multi-Intelligence Sensor Development	07	81,231		81,231	U
263	0305242M	Unmanned Aerial Systems (UAS) Payloads (MIP)	07	5,956		5,956	U
264	0305421N	RQ-4 Modernization	07	219,894		219,894	U
265	0308601N	Modeling and Simulation Support	07	7,097		7,097	U
266	0702207N	Depot Maintenance (Non-IF)	07	36,560		36,560	U
267	0708730N	Maritime Technology (MARITECH)	07	7,284		7,284	U

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

Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
268	1203109N	Satellite Communications (SPACE)	07		37,836	37,836			U
9999	9999999999	Classified Programs		1,602,086	1,364,347	1,364,347	89,855	89,855	U
		Operational Systems Development		3,818,201	3,980,140	3,980,140	102,655	102,655	
269	0901560N	Continuing Resolution Programs	20		-558,059	-558,059	196,172	158,972	U
		Undistributed			-558,059	-558,059	196,172	158,972	
Total Research, Development, Test & Eval, Navy				17,851,955	17,116,976	17,091,976	326,537	326,537	

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

Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests**	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
268	1203109N	Satellite Communications (SPACE)	07				37,836		37,836	U
9999	9999999999	Classified Programs		60,000	-60,000		1,514,202	-60,000	1,454,202	U
		Operational Systems Development					4,142,795		4,082,795	
269	0901560N	Continuing Resolution Programs	20				-399,087		-399,087	U
		Undistributed					-399,087		-399,087	
Total Research, Development, Test & Eval, Navy							17,478,513		17,418,513	

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

Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
268	1203109N	Satellite Communications (SPACE)	07	39,174		39,174	U
9999	9999999999	Classified Programs		1,518,903	147,882	1,666,785	U
		Operational Systems Development		4,854,460	164,012	5,018,472	
269	0901560N	Continuing Resolution Programs	20				U
		Undistributed					
Total Research, Development, Test & Eval, Navy				18,451,066	198,412	18,649,478	

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Summary Recap of Budget Activities	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO
Research and Development	7,237	18,622	18,622		
Total Research, Development, Test & Evaluation	7,237	18,622	18,622		

Summary Recap of Non-RDT&E Title FYDP Programs

Mobility Forces	7,237	18,622	18,622		
Total Research, Development, Test & Evaluation	7,237	18,622	18,622		

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Summary Recap of Budget Activities	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency
Research and Development				18,622		18,622
Total Research, Development, Test & Evaluation				18,622		18,622

Summary Recap of Non-RDT&E Title FYDP Programs

Mobility Forces				18,622		18,622
Total Research, Development, Test & Evaluation				18,622		18,622

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Summary Recap of Budget Activities	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Research and Development			
Total Research, Development, Test & Evaluation			
Summary Recap of Non-RDT&E Title FYDP Programs			
Mobility Forces			
Total Research, Development, Test & Evaluation			

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Appropriation: 4557N National Defense Sealift Fund

Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
1	0408042N	National Defense Sealift Fund	04	7,237	18,622	18,622			U
		Research and Development		7,237	18,622	18,622			
Total National Defense Sealift Fund				7,237	18,622	18,622			

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Appropriation: 4557N National Defense Sealift Fund

Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
1	0408042N	National Defense Sealift Fund	04				18,622		18,622	U
		Research and Development					18,622		18,622	
Total National Defense Sealift Fund							18,622		18,622	

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(Dollars in Thousands)

Appropriation: 4557N National Defense Sealift Fund

Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
1	0408042N	National Defense Sealift Fund	04				U
				----------	----------	----------	
		Research and Development					
				----------	----------	----------	
Total National Defense Sealift Fund							

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0604256N / *Threat Simulator Development*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	16.581	91.819	94.576	-	94.576	69.602	30.049	29.339	30.238	Continuing	Continuing
0602: *Eletronics W/F Env Simulation (ECHO)*	0.000	3.426	76.886	80.936	-	80.936	54.241	14.430	13.901	14.339	Continuing	Continuing
0672: *Effect Nav E/W (ENEWS)*	0.000	13.155	14.933	13.640	-	13.640	15.361	15.619	15.438	15.899	Continuing	Continuing

A. Mission Description and Budget Item Justification

This is a continuing program that consolidates the design, fabrication and integration of Naval Electronic Warfare (EW) threat simulators for increased managerial emphasis and coordination. These simulator development efforts provide realistic Developmental and Operational Test and Evaluation environments to test EW systems and defensive tactics. These projects develop threat Anti-Air and Anti-Ship weapon system simulators in accordance with the Services' requirements.

The 0602 Project, Electronic Warfare Environment Simulation, directly supports the Test and Evaluation resource requirements for all Naval Air EW development programs to include multi-spectral situational awareness and countermeasures. Programs in development and future programs include: ALR-67(v)3 Radar Warning Receiver, ALQ-214 Integrated Defensive Electronic Countermeasures Suite, AAR-47 Missile Approach Warning System, AVR-2 Laser Warning System, ALQ-144A Infrared Countermeasure System, Joint Strike Fighter, EA-18G, LR700 Low Band Transmitter, P-8A and the Next Generation Jammer.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	16.633	91.819	98.492	-	98.492
Current President's Budget	16.581	91.819	94.576	-	94.576
Total Adjustments	-0.052	0.000	-3.916	-	-3.916
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.052	0.000			
• Program Adjustments	0.000	0.000	-2.282	-	-2.282
• Rate/Misc Adjustments	0.000	0.000	-1.634	-	-1.634

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*

Change Summary Explanation

The funding increase from FY 2018 to FY 2019 supports the procurement of the first two of three signal detection and location systems, two additional passive radar systems, and an additional L-Band radar signal emulator for the Naval Air Warfare Center Weapon Division (NAWC WD) Land Range and Sea Range. The FY 2018 and FY 2019 investments will provide capabilities that do not currently exist on any Department of Defense open air range.

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604256N / *Threat Simulator Development*	Project (Number/Name) 0602 / *Eletronics W/F Env Simulation (ECHO)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0602: *Eletronics W/F Env Simulation (ECHO)*	0.000	3.426	76.886	80.936	-	80.936	54.241	14.430	13.901	14.339	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The objective of this project is development of necessary simulation facilities and approaches to allow determination of the effectiveness of Electronic Warfare (EW) in real world engagement situations and to support the introduction of modern, effective systems into Naval Aviation. The heavy use of test resources by all Services demonstrates the importance of these assets.

The Electronic Warfare Environment Simulation project is unique because it is the only program within the Department of Defense which develops and provides Naval anti-air warfare threat assets for Test and Evaluation (T&E).

This project directly supports the T&E resource requirements for all Naval Air EW development programs, to include multi-spectral situational awareness and countermeasures. Programs in development and future programs include: : ALR-67(v)3 Radar Warning Receiver, ALQ-214 Integrated Defensive Electronic Countermeasures Suite, AAR-47 Missile Approach Warning System, AVR-2 Laser Warning System, ALQ-144A Infrared Countermeasure System, Joint Strike Fighter, EA-18G, LR700 Low Band Transmitter, P-8A and the Next Generation Jammer.

This project provides for the development of an Integrated Air Defense T&E capability to be fielded at each of the three sites comprising the Navy's Tri-Center complex: Naval Air Warfare Center Weapons Division, China Lake and Point Mugu in CA, and Naval Air Warfare Center Aircraft Division, Patuxent River, MD.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: ACQUISITION AND MEASUREMENT CAPABILITIES	0.400	66.062	71.491	0.000	71.491
Articles:	-	-	-	-	-
Description: Provide the test community with modern threat target acquisition and engagement systems and effective measurement systems necessary for Test and Evaluation of airborne early warning, situational awareness, detection and targeting systems and airborne response systems. Project investments in FY18 and FY19 support procurement of advanced, threat representative electronic warfare (EW) target acquisition and engagement radars to establish a frequency diverse, dense and geographically dispersed threat integrated air defense system to support operationally realistic testing of F-35, Next Generation Jammer, EA-18G and Triton in a threat representative multi-axis anti-access area denial environment that does not currently exist on any Department of Defense open air range.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*	**Project (Number/Name)** 0602 / *Eletronics W/F Env Simulation (ECHO)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: - Continue development of an open air radio frequency beam measurement capability. - Initiate upgrades to the Naval Air Warfare Center ranges to support OT of the JSF. - Initiate the site preparation and integration of radar signal emulators at the Electronic Combat Range. - Initiate the development of a threat signal augmentation capability. - Initiate the procurement of three L-Band radar signal emulators for Naval Air Warfare Center Weapons Division (NAWCWD). - Initiate and complete the upgrade of two S-Band radar signal emulators for NAWCWD. - Initiate the procurement of three passive radar systems for NAWCWD. - Initiate the procurement of three early warning radar systems for NAWCWD.					
FY 2019 Base Plans: - Complete development of an open air radio frequency beam measurement capability. - Continue upgrades to the Naval Air Warfare Center ranges to support OT of the JSF by preparing sites for L-Band radar signal emulators, passive radar systems, early warning radar systems and signal detection and location systems. - Continue the site preparation and integration of radar signal emulators at the Electronic Combat Range. - Continue the development of two threat signal augmentation simulators for NAWCWD. - Continue the procurement of three L-Band radar signal emulators for NAWCWD by procuring the second system. - Continue the procurement of three passive radar systems for NAWCWD by procuring the second and third systems. - Continue the procurement of three early warning radar systems for NAWCWD by procuring the first system. - Initiate the procurement of three signal detection and location systems for NAWCWD by procuring the first two systems.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The funding increase from FY 2018 to FY 2019 supports the procurement of the first two of three signal detection and location systems, two additional passive radar systems, and an additional L-Band radar signal emulator for the Naval Air Warfare Center Weapon Division (NAWC WD) Land Range and Sea Range. The requirement is based on Department of Defense direction to improve the Electronic Warfare test infrastructure at					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*	**Project (Number/Name)** 0602 / *Eletronics W/F Env Simulation (ECHO)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
the NAWC WD. The investment supports procurement of threat emulators that are representative of capabilities possessed by near peer adversaries. These threat emulators will support evaluation of the electronic warfare capabilities of the Joint Strike Fighter Block IV. Additional programs that will benefit from this capability include the Next Generation Jammer which begins Initial Operational Test and Evaluation in 2021, EA-18G and Triton. The systems planned for procurement will provide the necessary frequency diversity, density and geographic dispersion to present a stressing, operationally realistic, threat environment to evaluate the performance of the JSF Block IV, Next Generation Jammer, the EA-18G and Triton, as well as other electronic warfare, electronic attack and electronic protection systems.					
Title: REQUIREMENTS AND VALIDATION	0.602	0.775	0.590	0.000	0.590
Articles:	-	-	-	-	-
Description: Validate and track intel updates of the threat systems necessary for the operation and continuous improvement of Navy laboratories and ranges which provide engineering support, testing and analysis to the developers, integrators, testers and users of systems and technologies that counter or penetrate air defenses. ***FY 2018 Plans:*** - Continue to provide program management, systems engineering, and requirements identification for the development of simulators and foreign material acquisition. - Continue to validate simulators and stimulators at the Navy tri-lab centers. ***FY 2019 Base Plans:*** - Continue to provide program management, systems engineering, and requirements identification for the development of simulators and foreign material acquisition. - Continue to validate simulators and stimulators at the Navy tri-lab centers. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY 2018 to FY 2019 reflects lower validation requirements because of the completion of a closed-loop threat surface to air missile system simulator and the integration of a threat engagement system at ECR, both projects from the Engagement Capabilities accomplishment.					
Title: ENGAGEMENT CAPABILITIES	2.424	10.049	8.855	0.000	8.855
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*	**Project (Number/Name)** 0602 / *Eletronics W/F Env Simulation (ECHO)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: Provide the test community with the modern threat engagement systems necessary for Test and Evaluation of airborne alert, Situation Awareness, targeting systems and airborne response systems. The funding decrease from FY 2018 to FY 2019 due to the completion of the closed-loop threat surface to air missile system simulator during FY 2019. ***FY 2018 Plans:*** - Continue the upgrade and integration of missile simulation models. - Continue the development of a closed-loop threat surface to air missile system simulator. - Continue the conversion of a threat system. - Continue the minor upgrades to open air and laboratory threat systems. - Continue the integration of a threat engagement system at ECR. - Initiate the development of a naval based threat radar closed-loop simulator for installation in laboratories at Naval Air Warfare Center Weapons Division and Naval Air Warfare Center Aircraft Division and designed for open air range implementation. ***FY 2019 Base Plans:*** - Complete the development of a closed-loop threat surface to air missile system simulator. - Complete the integration of a threat engagement system at ECR. - Continue the upgrade and integration of missile simulation models. - Continue the conversion of a threat system. - Continue the minor upgrades to open air and laboratory threat systems. - Continue the development of a naval based threat radar closed-loop simulator for installation in laboratories at Naval Air Warfare Center Weapons Division and Naval Air Warfare Center Aircraft Division and designed for open air range implementation. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY 2018 to FY 2019 due to the completion of the closed-loop threat surface to air missile system simulator during FY 2019.					
Accomplishments/Planned Programs Subtotals	3.426	76.886	80.936	0.000	80.936

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*	**Project (Number/Name)** 0602 / *Eletronics W/F Env Simulation (ECHO)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Successfully achieve Initial Operational Capability of Navy Threat Simulation projects within 60 days of approved schedule and have test capabilities scheduled in support of Navy test programs within 180 days.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604256N / *Threat Simulator Development*	Project (Number/Name) 0672 / *Effect Nav E/W (ENEWS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0672: *Effect Nav E/W (ENEWS)*	0.000	13.155	14.933	13.640	-	13.640	15.361	15.619	15.438	15.899	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The objective of the Effectiveness of Navy Electronic Warfare (EW) Systems (ENEWS) Project is the development and application of necessary simulation assets to determine the effectiveness of Electronic Warfare for Navy ships in simulated real-world engagement situations. The project primarily supports the introduction of modern, effective shipboard and off-board Electronic Warfare systems, and tactics for the Surface Navy. The heavy use of Effectiveness of Navy Electronic Warfare Systems resources by Naval Sea Systems Command, Operational Test and Evaluation (OT&E) Force, Special Operations, and other Electronic Warfare Research, Development, Test and Evaluation (T&E) agencies speaks to the overall importance of this project. The project provides support for Electronic Warfare system design, Engineering Test (ET), Development Test (DT), Operational Test (OT), and the development of utilization tactics. In the past Effectiveness of Navy Electronic Warfare Systems quick reaction capabilities have had great impact on crisis situations such as the Libyan crises, Iran threat, Persian Gulf crisis, and Operation Desert Shield/ Storm. Simulation Display (SIMDIS) is an Effectiveness of Navy Electronic Warfare Systems modeling tool that was developed to support Testing and Evaluation. Simulation Display has been adopted by most Department of Defense (DoD) Testing and Evaluation and training ranges to provide visualization of Testing and Evaluation and training scenarios. One of the primary threats to surface ships is Anti-Ship Capable Missile systems. The Effectiveness of Navy Electronic Warfare Systems Project is unique in that it is the only project within the Department of Defense dedicated to developing and providing realistic Anti-Ship Capable Missile assets to test and evaluate the effectiveness of shipboard Electronic Warfare systems and tactics against these type threats. The Effectiveness of Navy Electronic Warfare Systems Project is a critical part of the Office of the Secretary of Defense Test Resource Master Plan. This plan employs many of the Effectiveness of Navy Electronic Warfare Systems assets for planning, analysis, testing, and verification of shipboard and off-board Electronic Warfare systems techniques and tactics. As part of its normal activities, Effectiveness of Navy Electronic Warfare Systems provides Development Test and Evaluation (DT&E), Operational Test and Evaluation (OT&E), and Follow-on Operational Test and Evaluation (FOT&E) support to the surface Navy for all ship classes. Development Test, Operational Test and Follow-on Operational Test and Evaluation support includes AN/SLQ-32 Surface Electronic Warfare Improvement Program (SEWIP), Nulka, Rapid Anti-ship Integrated Defense System, all MK245 Giant tests, advanced InfraRed (IR) decoys, decoy placement, ship InfraRed signature and radar cross section measurement of DDG-51, LPD-17, DD-21 and Patrol Craft class ships, High Power Microwave program, and other ship self-defense initiatives, including Test and Evaluation of Future Naval Capability process. In addition, Effectiveness of Navy Electronic Warfare Systems assets are regularly employed to test the effectiveness of North Atlantic Treaty Organization (NATO) ships' Electronic Warfare systems in joint allied exercises. Effectiveness of Navy Electronic Warfare Systems assets also support Joint Electronic Warfare exercises that are conducted with Rim of the Pacific (RIMPAC) nations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: CLASSIFIED PROGRAM	8.100	8.200	7.139	0.000	7.139
Articles:	-	-	-	-	-
Description: Details about this program are classified.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*	**Project (Number/Name)** 0672 / *Effect Nav E/W (ENEWS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Details about this program and any changes are classified. ***FY 2018 Plans:*** - Details are of a higher classification. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** - Details are of a higher classification.					
Title: HARDWARE SIMULATION SYSTEMS	2.201	3.564	3.538	0.000	3.538
Articles:	-	-	-	-	-
Description: Maintain and perform Hardware and Software Upgrades to the inventory of Effectiveness of Navy Electronic Warfare Systems flyable and shore based Anti-Ship Capable Missile (ASCM) Electro-Optic/ Infrared (EO/IR), Visible and Radio Frequency (RF) Simulators. Perform characterization of Infrared and Radio Frequency simulators as part of the periodic evaluation of simulation performance and collect performance data for comparison with previously recorded data. Also includes development and maintenance of all simulator control panels. The increase between FY 2017 and FY 2018 is due to the addition of one hardware simulator to the Effectiveness of Navy Electronic Warfare Systems inventory and the requirement for Effectiveness of Navy Electronic Warfare Systems hardware simulators to support the Surface Electronic Warfare Improvement Program (SEWIP) Block 3. These requirements include Operational Assessment (OA) and Factory Qualification Tests (FQT) in FY 2018 and preparing hardware simulators to support Developmental Testing (DT) and First Article Qualification Test (FAQT) scheduled for FY 2019. ***FY 2018 Plans:*** - Continue hardware upgrades to the SUMMIT Simulator. - Continue software upgrades to the VICTOR Standard Instrumentation Pod (SIP). - Continue hardware upgrades to the FOXTROT 3 TOWSIM(IOTA).					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*	**Project (Number/Name)** 0672 / *Effect Nav E/W (ENEWS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue hardware upgrades for VICTOR 1 SIP and Anti-Ship Imaging Missile (AIMS) simulators - Continue software upgrade for FOXTROT 1 Sim 1 simulator - Continue to maintain and perform hardware and software upgrades to the inventory of Effectiveness of Navy Electronic Warfare Systems flyable and shore based Anti-Ship Capable Missile (ASCM) Electro-Optic/Infrared (EO/IR), Visible and Radio Frequency (RF) Simulators and simulator control panels. - Complete software upgrade for the FOXTROT 1 Sim 1 simulator - Initiate hardware upgrades for the EPSILON, FOXTROT 1 (ground based) and FOXTROT 1 SIP simulators - Initiate software upgrades for the FOXTROT 1 (ground based), FOXTROT SIP simulators - Maintain and upgrade 21 hardware simulators, 5 programmable simulators and the Antenna Test Rig to support the SEWIP Block 3 and AOEW effectiveness evaluations. ***FY 2019 Base Plans:*** - Continue all efforts of FY 2018 less those noted as completed above. - Continue to maintain and perform hardware and software upgrades to the inventory of Effectiveness of Navy Electronic Warfare Systems flyable and shore based Anti-Ship Capable Missile (ASCM) Electro-Optic/Infrared (EO/IR), Visible and Radio Frequency (RF) Simulators and simulator control panels. - Complete hardware upgrades for the EPSILON, FOXTROT 1 (ground based) and FOXTROT 1 SIP simulators - Complete software upgrades for the FOXTROT 1 (ground based) and FOXTROT 1 SIP simulators - Initiate hardware upgrades for the NU (towed configuration) and VICTOR 1 SIP simulators - Introduce and initiate flight certification of one new simulator into the ENEWS inventor - Initiate software upgrades for the IOTA (towed configuration), VICTOR 1 SIP simulators - Maintain and upgrade 22 hardware simulators, 5 programmable simulators and the Antenna Test Rig to support the SEWIP Block 3 and AOEW effectiveness evaluations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change between FY 2018 and FY 2019.					
Title: SIMULATION CHARACTERIZATION, VERIFICATION AND REQUIREMENTS	0.580	0.691	0.632	0.000	0.632
Articles:	-	-	-	-	-
Description: Provides for the documentation of Anti-Ship Capable Missile (ASMC) threat simulators. Develops reports that contain detailed descriptions and parametric data of the Anti-Ship Capable Missile threat simulators and compares the simulator's parametric data to the actual threat's parametric data. Provide technical					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*	**Project (Number/Name)** 0672 / *Effect Nav E/W (ENEWS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
management functions in support of the Effectiveness of Navy Electronic Warfare Systems project; engineering and technical support requirements for the Anti-Ship Capable Missile simulators and upgrades to meet DT/ OT testing requirements, development of detailed test resource requirements and provides an interface between OPNAV N2/N6, Office of Naval Research, and Effectiveness of Navy Electronic Warfare Systems oversight activities. Formerly know as "SIMULATION VALIDATION AND REQUIREMENTS" is now titled "SIMULATION CHARACTERIZATION, VERIFICATION AND REQUIREMENTS" effective FY 2017. ***FY 2018 Plans:*** - Continue BETA hardware simulator documentation report. - Continue LAMBDA simulator hardware validation report. - Continue to develop reports that compare the parametric data of the Anti-Ship Capable Missile (ASCM) threat simulators to the parametric data of the actual threat and provide technical management functions in support of the Effectiveness of Navy Electronic Warfare Systems project. - Initiate and complete the FY 2018 ENEWS Program Management Plan. - Initiate and complete FY 2018 status reviews, performance based management and analysis, financial execution reporting and assessment. - Initiate characterization assessment and hardware simulator documentation report for upgraded OMEGA simulator. ***FY 2019 Base Plans:*** - Continue to develop reports that compare the parametric data of the Anti-Ship Capable Missile (ASCM) threat simulators to the parametric data of the actual threat and provide technical management functions in support of the Effectiveness of Navy Electronic Warfare Systems project. - Initiate and complete the FY 2019 ENEWS Program Management Plan. - Initiate and complete FY 2019 status reviews, monthly reports, performance based management and analysis, financial execution reporting and assessment. - Complete characterization and hardware simulator documentation report for the upgraded OMEGA simulator. ***FY 2019 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*	**Project (Number/Name)** 0672 / *Effect Nav E/W (ENEWS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change between FY 2018 and FY 2019.					
Title: SUPPORT AND COMPUTERS SIMULATION SYSTEMS	2.274	2.478	2.331	0.000	2.331
Articles:	-	-	-	-	-
Description: Perform maintenance and intelligence upgrades to Electro-Optic/Infrared, Digital, and Radio Frequency Laboratory Simulation Testing facilities and flight support equipment based on existing and emerging complex threat systems. Development of Testing & Evaluation scenarios and environmental modeling to support electronic support (ES) and electronic attack (EA) testing; modify Anti-ship Cruise Missile (ASCM) threat simulators based on the latest intelligence data obtained from threat databases. ***FY 2018 Plans:*** - Continue to perform maintenance and intelligence upgrades to Electro-Optic/Infrared, Digital, and Radio Frequency Laboratory Simulation testing facilities and flight support equipment and provide electronic support (ES) and electronic attack (EA) test support. - Continue target models to support Surface Electronic Warfare Improvement Program Block 3 and Advanced Offboard Electronic Warfare (AOEW) effectiveness assessments. - Continue update to the Scenario and Environmental Model used to support open and closed loop simulations. - Continue maintenance and upgrades to shore-based test facilities and mobile test vans as required to conduct testing in support of Surface Electronic Warfare Improvement Program, Nulka and multi-function Electronic Warfare programs. - Continue to transition environmental, threat and platform simulations from Subversion to Mercurial Distributed Version Control System. - Continue upgrades to configuration control software library as new releases became available. - Continue to develop new digital models of Anti-ship Cruise Missile (ASCM) threats as they became available. - Continue upgrades and maintenance of flight support systems as necessary to support the infrared / radio frequency Effectiveness of Navy Electronic Warfare Systems simulators. - Continue upgrades and user friendly enhancements to the Simulation Display (SIMDIS) toolset - Continue development of LIMA III and LIMA IV digital models - Continue digital model upgrades to support Surface Electronic Warfare Improvement Program (SEWIP) Block 3 test and evaluation.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604256N / *Threat Simulator Development*	**Project (Number/Name)** 0672 / *Effect Nav E/W (ENEWS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue simulator upgrades to support Surface Electronic Warfare Improvement Program (SEWIP) Block 3 test and evaluation. ***FY 2019 Base Plans:*** - Continue all efforts of FY 2018 less those noted as completed above. - Continue to perform maintenance and intelligence upgrades to Electro-Optic/Infrared, Digital, and Radio Frequency Laboratory Simulation testing facilities and flight support equipment and provide electronic support (ES) and electronic attack (EA) test support. - Update and install new ship models into database and evaluate performance. - Initiate hardware-in-the-loop (HWIL) capability update. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	13.155	14.933	13.640	0.000	13.640

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Performance metrics are discussed within each project (R2a).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0604258N / *Target Systems Development*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	34.021	23.053	10.981	-	10.981	9.227	8.569	8.791	8.993	Continuing	Continuing
0609: *Aerial Target System Dev*	0.000	19.682	6.345	9.658	-	9.658	7.874	7.184	7.377	7.551	Continuing	Continuing
0610: *Wpn Sys T&E Trng Dev/ Proc*	0.000	13.081	15.415	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	28.496
0612: *Surface Targets Development*	0.000	1.258	1.293	1.323	-	1.323	1.353	1.385	1.414	1.442	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element funds the development of Aerial Target Systems, Unmanned Aerial Vehicle targets, Sea Surface Target Systems, Target Control systems, and associated Target Mission Support Systems, Target Threat Simulation Program and Target Augmentation and Auxiliary Systems required to simulate real world threats. These capabilities are required to execute developmental/operational test and evaluation of naval combat weapon systems and to satisfy advanced fleet training requirements while ensuring the Navy continues to develop threat simulations of emerging threat requirements.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST AND EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	36.662	23.053	26.504	-	26.504
Current President's Budget	34.021	23.053	10.981	-	10.981
Total Adjustments	-2.641	0.000	-15.523	-	-15.523
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.100	0.000			
• SBIR/STTR Transfer	-0.541	0.000			
• Program Adjustments	0.000	0.000	-12.791	-	-12.791
• Rate/Misc Adjustments	0.000	0.000	-2.732	-	-2.732

Change Summary Explanation

The FY 2019 funding request was reduced by $1.621 million to account for the availability of prior year execution balances.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604258N *I Target Systems Development*

FY 2019 decrease of $1.111 million due to rate and inflation changes.

In FY 2019, $12.791 million was realigned to WPN Line Item 2280 Aerial Targets in support of QF-16 Full Scale Aerial Target (FSAT) transition from RDTEN to WPN.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604258N / *Target Systems Development*	Project (Number/Name) 0609 / *Aerial Target System Dev*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0609: *Aerial Target System Dev*	0.000	19.682	6.345	9.658	-	9.658	7.874	7.184	7.377	7.551	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The mission of the Aerial Target Systems Development program is the design and development of threat representative subsonic and supersonic aerial targets that simulate threat weapon systems, threat aircraft or threat Unmanned Aerial Vehicles. In addition to representative air vehicles, this includes development of Target Control (TC) systems, and associated Target Augmentation and Auxiliary Systems (TA/AS) which are used to replicate specific threats. Targets and auxiliary payloads are developed to support test and evaluation of combat systems required to defend fleet surface and air units in a hostile environment. As to specific hardware development, this project includes:

- Supersonic Targets: GQM-163A Supersonic Sea-Skimming Target (SSST) and GQM-173A Multi-Stage Supersonic Target (MSST) program. Supersonic targets represent supersonic anti-ship cruise missile threats. The design and development of GQM-163A capabilities provide threat representative targets that are used in direct support of Developmental Test and Evaluation, Operational Test and Evaluation, and Live Fire Test and Evaluation of major combat weapons programs and, to a lesser degree, support fleet training. Critical live-fire Test and Evaluation events are supported for AEGIS, DDG-1000, LHA-6, CVN-78, LCS, and LSD-41/49 (SM-6, SM-2, RAM, SSDS, and ESSM). GQM-163A is a non-recoverable supersonic sea skimming aerial target, capable of speeds in excess of Mach 2.5 and cruise altitudes from 13.0 to 66 ft. The GQM-163A has also demonstrated a capability to perform a higher altitude diving threat profile. MSST was a supersonic development effort that was terminated on September 25, 2015. Once the contract termination costs have been determined by DCMA, funds may be required to cover settlement costs. New supersonic target developments efforts include a Rapid Prototype alternative ground launched target and a replacement target for AQM-37.

- Subsonic Targets: The BQM-177A SSAT development primarily represents subsonic anti-ship cruise missile threats, replacing legacy BQM-74E targets with a modernized subsonic target with increased capabilities. The BQM-177A SSAT provides threat representation for developmental and operational test & evaluation events of major combat weapons systems programs and in support of fleet training events. Specifically, the BQM-177A SSAT provides critical live-fire test and evaluation events for AEGIS, SM-6, SM-2, RAM, and ESSM.

- Target Threat Simulation Program (TTSP), Target Mission Support Systems (TMSS), and Target Control and Target Augmentation and Auxiliary Systems (TC/TA/AS) development: The TTSP provides the payload equipment required to electronically enhance aerial targets to provide threat representative radio frequency signatures, specifically the electronic attack and threat radar emissions (active emitters). Development of threat representative simulation components is on-going and required to keep pace with evolving threats and ensure that the Navy's threat simulation capabilities maintain warfighter readiness in the current environment. TC provides command and control of targets to enable the execution of threat-representative mission profiles. The mission also includes the design, development and qualification of various TMSS including but not limited to: scalar scorers, scoring ground station, telemetry antennas, radar and locator beacons, identification, friend or foe, and associated test sets. TA/AS enables each target to be uniquely configured for specific mission profiles and provide high fidelity simulation of foreign threats. TA/AS-configured targets are used for radar acquisition test, electronic countermeasures (jamming) evaluation, infrared measurement and testing, radar cross section

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0609 / *Aerial Target System Dev*

evaluation, decoy-effectiveness testing, maneuver analysis, electronic warfare evaluation, warhead-effectiveness testing and evaluation of fleet tactics. TA/AS scoring capabilities include both surface and airborne scalar and vector scoring systems.

In addition to the design and development of target hardware and software, funding supports studies performed by a University Affiliated Research Center (UARC) to specify and verify needed target performance for future target development. For the design and validation of targets under development, the UARC will provide engineering studies in areas such as structures, controls, guidance, and propulsion. For those hardware and software items presently under development by commercial vendors, the UARC will provide oversight and validation of vendor design and development approach.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Supersonic Targets - Development & Upgrades of Supersonic targets	7.200	0.229	0.229	0.000	0.229
Articles:	-	-	-	-	-
Description: Provides funding for the development of GQM-163A upgrades/evolutionary development to keep pace with evolving threat characteristics. Efforts include continued development of performance envelope characteristics to include flight termination performance, enhanced speed and distance capabilities and multiple target launch capability. Funding will also support the development of other unique supersonic targets as required, and the close out of the GQM-173 development effort.					
FY 2018 Plans: Continued the GQM-163A Supersonic Sea Skimming Targets multiple target launch capability, which provided the required improvements in the current infrastructure of the launch capability to accommodate the increased number of targets to as many as six. Continued Radome, and Radar Altimeter design and development efforts and integration of Joint Advanced Missile Instrumentation (JAMI), Joint Target Integrated Module (JTIM), and Front End System space allocation studies for SSST. Commenced the development of deployable chaff dispensing capability. Initiated design and development of Electronic Attack (EA) payloads and enhanced flight performance capabilities. Continue to support the development and test of other unique supersonic targets as required.					
FY 2019 Base Plans: Continue the GQM-163A Supersonic Sea Skimming Targets improvement and increased capability efforts. Complete Radome and Radar Altimeter design and development efforts, integration of Joint Advanced Missile Instrumentation (JAMI), Joint Target Integrated Module (JTIM), and Orbital Front End System space allocation studies for SSST. Continue to support the development and test of other unique supersonic targets as required.					
FY 2019 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0609 / *Aerial Target System Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A					
Title: Subsonic Targets - Development of subsonic aerial targets with increased capabilities	7.244	0.912	1.000	0.000	1.000
Articles:	-	-	-	-	-

Description: A Subsonic Aerial Target (SSAT) replacement air vehicle, for the currently fielded BQM-74E target no longer in production, is required. The BQM-177A is a modernized subsonic target with increased capabilities providing realistic threat representation in support of critical live-fire Test and Evaluation events for major weapons systems and Fleet combat training. The target features increased capabilities to include higher speed, longer range, lower cruise altitudes and greater maneuverability. Other subsonic target alternatives are being explored, including the BQM-74G.

FY 2018 Plans:
Complete Navy led flight testing. Continue to fund OEM EMD & NRE support. Provide government program management, engineering, test and logistics support and contract support services towards IOC and Full Rate Production (FRP) decisions. Support additional RATO/JATO qualification efforts as required for safety of operations. Continue engineering, and manufacturing, training, logistics and test efforts of the BQM-177A SSAT for transition to LRIP 2 and FRP. Continue training and logistics requirements towards Full Operational Capability (FOC) including shipboard qualification and operations. Continue initial shipboard suitability testing and qualification efforts. Complete system validation and verification efforts and conduct production verification flight tests. Conduct Physical Configuration Audit for baseline configuration and support initial efforts for incorporating Engineering Change Proposals in the baseline design configuration. Continue studies & development efforts on other subsonic target alternatives including the BQM-74G.

FY 2019 Base Plans:
Continue to prepare for a Full Rate Production (FRP) contract award and obtain support of a FRP decision. Complete the Weapon System Explosive Safety Review Board (WSESRB) for approval of shipboard operations. Conduct required shipboard suitability testing in preparation of Full Operational Capability (FOC). Provide government program management, engineering, test and logistics support and contract support services towards FRP decision and contract award. Continue engineering, manufacturing, training, logistics and test efforts of the BQM-177A SSAT for transition to FRP. Continue training and logistics requirements towards FOC including shipboard qualification and operations. Incorporate Engineering Change Proposals and modernizations in the

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0609 / *Aerial Target System Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
baseline design configuration as mission and threats evolve. Continue studies & development efforts on other subsonic target alternatives, including the BQM-74G. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 increase of $0.088M is attributed to inflation and anticipated ECPs & modernizations in the baseline configuration of the BQM-177A.					
Title: Target Threat Simulation Program (TTSP), Target Mission Support Systems (TMSS), Target Control (TC) and Target Augmentation and Auxiliary Systems (TA/AS) ***Articles:*** ***Description:*** Continue to support the development of Target Control (TC) systems and TA/AS capable of supporting Test and Evaluation (T&E) and fleet training activities to ensure emerging threat simulation requirements are met. Target Control Systems (TCS) involves the improved command and control systems capable of controlling multiple targets simultaneously while delivering adequate fidelity of T&E telemetry data. The TMSS program provides target control, scoring, location, and navigation of air, land and seaborne targets for fleet training and weapons systems test and evaluation. Continue to support design, development and qualification of TMSS including but not limited to the current and next generation TC systems, scalar scorers, scoring ground station, telemetry antennas, radar and locator beacons, identification friend or foe and associated test sets. Augmentation and auxiliary systems must be capable of augmenting targets in support of radar acquisition test, electronic countermeasures (jamming) evaluation, infrared measurement/test, radar cross section evaluation, decoy effectiveness, maneuver analysis, electronic warfare, warhead effectiveness and evaluation of fleet tactics, readiness, and training. The TTSP provides the payload equipment required to electronically enhance aerial/surface targets to provide threat representative Radio Frequency signatures, specifically the Electronic Attack and Threat Radar Emissions (Active Emitters). The TTSP accomplishes this by providing a collection of modules which are integrated into individual targets in various configurations to provide the ability to simulate the RF environment. TTSP equipment in various configurations is certified for carriage in aerial/surface targets. ***FY 2018 Plans:*** Continue development, prototype and integration of threat electronic attack & active emitter simulators to ensure the fleet meets emerging threat requirements. Develop threat electronic attack simulation capabilities to address	5.238 -	5.204 -	8.429 -	0.000 -	8.429 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0609 / *Aerial Target System Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
shortfalls identified in the FY 2017 Top 20 threat listing. Develop improved high peak power pulsed and pulsed Doppler emitter simulation capabilities. Gather and exploit threat intelligence. Continue to support the design, development and qualification of various TMSS equipment, such as the TCS Radio Frequency Subsystem (SNTC BLK 3). Begin development of the SNTC BLK 3a Ground Control Station with associated hardware and software upgrades. Continue development of the replacement DSQ-50A Scalar Scorer and its associated Ground Telemetry Station, as well as the replacement AN/DPN-90 Radar Beacon. ***FY 2019 Base Plans:*** Continue development, prototype and integration of threat electronic attack & active emitter simulators to ensure the Fleet meets emerging threat requirements. Gather and exploit threat intelligence. Begin fielding of the TCS Radio Frequency Subsystem (SNTC BLK 3) upgrade hardware. Continue development and qualification of the SNTC BLK 3a Ground Control Station with associated hardware and software upgrades. Field the DSQ-50A Scalar Scorer and its associated Ground Telemetry Station. Field the replacement AN/DPN-90 Radar Beacon. Begin development AN/DPN-88 Identify, Friend or Foe (IFF) replacement for fielding in FY 2020. Begin acquisition planning for a replacement TDU-32 Tow Banner in support of Fleet Aerial Gunner Training. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increase of $3.225M in FY 2019 is attributed to the payload development required for IOC/FOC of the BQM-177A and for other targets to keep pace with evolving and emerging threats.					
Accomplishments/Planned Programs Subtotals	19.682	6.345	9.658	0.000	9.658

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• WPN 2280: *Aerial Targets*	138.784	124.757	137.137	6.500	143.637	150.798	181.031	178.105	181.844	Continuing	Continuing

Remarks

D. Acquisition Strategy

Supersonics: The GQM-163A Supersonic Sea-Skimming Target (SSST) is an Acquisition Category II program. Development strategy includes the continued development of the Quad Launch capability. The SSST program development efforts also include the development and design efforts for a new Radome and Radar Altimeter and other Engineering Change Proposals as required to emulate emerging threat systems. These development efforts will continue to be rolled into the

production baseline. Production efforts are expected to continue at higher quantities in order to meet projected MDAP T&E requirements. Additionally, development of alternative supersonic targets is being explored.

Congress was notified on September 25, 2015 that the Department of the Navy made the decision to terminate the Multi-Stage Supersonic Target (MSST) development program. Termination settlement efforts are ongoing with DCMA.

Subsonics: The Subsonic Aerial Target (SSAT) program is an Acquisition Category IVM program. The EMD contract was awarded to an OEM that proposed a BQM-177A as the vehicle to satisfy the identified requirements for a new SSAT. It is currently undergoing developmental testing with Critical Design Review, Test Readiness Review / Flight Readiness Review completed in FY16 and Milestone C completed in 1st Quarter FY17. The Low Rate Initial Production (LRIP) 1 option contract was awarded 28 June 2017 and the second pre-negotiated option, LRIP 2, is scheduled to award in 2nd Quarter FY18. IOC is scheduled for 4th Quarter FY18 and the program will transition to Full Rate Production (FRP) in FY19.

Target Threat Simulation Program (TTSP), Target Mission Support Systems (TMSS), Target Control, and Target Augmentation and Auxiliary Systems: TTSP will continue to award contracts to support the development of electronic attack & threat radar simulations, ensuring the fleet requirement for simulations of emerging threats is met. Additional contracts will be awarded to support the development and design of TMSS upgrades, including but not limited to the current and next generation Target Control Systems, Scalar Scorers, Scoring Ground Station, Telemetry Antennas, Radar and Locator Beacons, Identification Friend or Foe and associated test sets.

E. Performance Metrics

EFFORT	PERFORMANCE REQUIREMENT	OBJECTIVE	THRESHOLD	TEST RESULT
BQM-177 EMD	Maximum Speed at Low Altitude [Mach(M) at feet (ft) above wave crest at WMO Sea State conditions]	0.95 M @ 6.6 ft @ Sea State 5	0.90 M @ 10.0 ft @ Sea State 3	TBD

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604258N / *Target Systems Development*	Project (Number/Name) 0610 / *Wpn Sys T&E Trng Dev/Proc*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0610: *Wpn Sys T&E Trng Dev/ Proc*	0.000	13.081	15.415	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	28.496
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the development and procurement of aerial targets and associated systems. These systems are used exclusively for test and evaluation of naval weapons systems, which closely represent current and projected threats to fleet units in the joint strike and the littoral warfare environments. These threat representations must include characteristics in relation to size, performance envelope, and electromagnetic and infrared signatures. As threats evolve, changes must be made to keep the targets threat representative in response to increased complexity in the test requirements from the developers of naval weapons systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: QF-16 Full-Scale Aerial Target (FSAT)	13.081	15.415	0.000	0.000	0.000
Articles:	5	3	-	-	-

Description: The QF-16 FSAT is being developed as a 4th generation, full scale, threat representative target providing a replacement for the FSAT/QF-4 and are maintained and operated by the Air Force. The QF-16 FSAT is a converted F-16 aircraft that provides a supersonic, high altitude, remote-controlled aerial target. This target will have full command and control capability through normal flight envelopes. The QF-16 FSAT target presentations will support aircraft and weapons systems testing and development, including that of the Joint Strike Fighter, AIM-9X Sidewinder missile, AIM-120 Advanced Medium Range Air-to-Air Missile, and Standard Missile-6.

FY 2018 Plans:
Work with the Air Force to develop the Memorandum of Agreement for QF-16 Lot 6-8 procurement. Provide incremental funding to complete the procurement of the five (5) Lot five (5) QF-16 FSAT test assets to be delivered 3rd Quarter FY21. Procure three (3) QF-16 FSAT test assets. Conduct regeneration of engines and airframes and drone conversion of QF-16 FSAT aircraft retrieved from Davis Monthan AFB storage. A FSAT Gulf Range Drone Control Station (GRDCS) demonstration planned to be held March 2018 at NAS Pt. Mugu

FY 2019 Base Plans:
FY 2019 funds were reprogrammed to the Weapons Procurement, Navy (WPN) appropriation (BLI 2280).

FY 2019 OCO Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0610 / *Wpn Sys T&E Trng Dev/Proc*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** $15.415M decrease from FY 2018 to FY 2019 is due to the realignment of QF-16 funding from Research Development Test & Evaluation, Navy to WPN LI 2280 Aerial Targets commencing in FY 2019.					
Accomplishments/Planned Programs Subtotals	13.081	15.415	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• WPN 2280: *Aerial Targets*	138.784	124.757	137.137	6.500	143.637	150.798	181.031	178.105	181.844	Continuing	Continuing

Remarks

D. Acquisition Strategy

A Memorandum of Agreement (MOA) for Lots 6-8 is being developed between the United States Navy (USN) and the United States Air Force (USAF) for the QF-16 Full-Scale Aerial Target Program (FSAT). Milestone C was achieved in 1st Quarter FY14 and Initial Operating Capability was achieved 4th Quarter FY 2016. FOC is planned for FY 2018. Commencing in FY 2019, the QF-16 program will be reprogrammed to a WPN program.

E. Performance Metrics

EFFORT	PERFORMANCE REQUIREMENT	OBJECTIVE	THRESHOLD	TEST RESULT
QF-16 FSAT Superiority Target	Drone Mission Performance Payload Integration carry, operation & monitoring TEMS, ALE-47, AIM-9, ALQ-188, ALQ-167 ALE-56 & 300 Gallon Fuel Tank	Achieve requirement Achieve requirement	Threshold=objective Threshold=objective	TBD TBD

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604258N / *Target Systems Development*	Project (Number/Name) 0612 / *Surface Targets Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0612: *Surface Targets Development*	0.000	1.258	1.293	1.323	-	1.323	1.353	1.385	1.414	1.442	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops seaborne targets and their related target augmentation systems in support of air-to-surface and surface-to-surface weapons test and evaluation and fleet training.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Surface Targets Development	1.258	1.293	1.323	0.000	1.323
Articles:	-	-	-	-	-

FY 2018 Plans:

Test new FACT platform performance and measure radar cross section and infrared signatures. Develop configurations of Low Cost Modular Target (LCMT) to support testing of Long Range Anti-Ship Missile (LRASM) and Joint Standoff Weapon (JSOW). Develop high fidelity control and feedback for target emitters and cameras. Develop improved Seaborne Target steering systems to increase precision under remote control. Develop improvements to target swarm formation control. Develop new scoring grid for Humannequin target augmentation system and conduct operational evaluation. Develop advanced radar and infrared signature enhancement for powered Seaborne Targets. Research cost-effective methods of producing towed Seaborne Targets in lower quantities to support customization and exercises with short lead times. Monitor developments in Command and Control and support developments for System for Naval Target Control (SNTC) applicable to Seaborne Targets.

FY 2019 Base Plans:

Develop specifications and initiate design concepts for Mobile Ship Target - Large (MST-L) / Joint At-Sea Target (JAST). Analyze and develop control concepts for MST-L / JAST. Research improved system for over-the-horizon command and control for Seaborne Targets including satellite links. Integrate Ship Deployable Seaborne Target (SDST) with formation algorithms in Portable Command and Control Unit (PCCU). Test and evaluate advanced radar and infrared signature enhancement for powered seaborne targets. Measure radar cross section of High Speed Maneuvering Surface Target - Streamlined Variant (HSMST-s). Develop configurations of Low Cost Modular Target (LCMT) to support test and evaluation of new weapon systems. Review emerging threats

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604258N / *Target Systems Development*	**Project (Number/Name)** 0612 / *Surface Targets Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
and developing weapon systems and analyze requirements for new targets or improvements/alterations to existing targets. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No significant program change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	1.258	1.293	1.323	0.000	1.323

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• OPN/5429: *ASW SE*	22.319	10.571	7.753	-	7.753	12.762	12.398	11.425	11.675	0.000	103.496

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Review capability of inventory with respect to threat, weapons test schedules and fleet training requirements. OBJECTIVE: Available inventory of seaborne targets meets fleet requirements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0604759N *I Major T&E Investment*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	51.375	52.634	77.014	-	77.014	85.348	83.560	71.548	61.514	Continuing	Continuing
2195: *T & E Investment*	0.000	41.704	52.634	77.014	-	77.014	85.348	83.560	71.548	61.514	Continuing	Continuing
9999: *Congressional Adds*	0.000	9.671	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.671

A. Mission Description and Budget Item Justification

This project corrects major deficiencies, improves Test & Evaluation (T&E) capabilities, and increases T&E support effectiveness at Navy Major Range and Test Facility Base. The T&E Investment project provides improved test capabilities at the following test facilities: the Naval Undersea Warfare Center Division Newport Atlantic Undersea Test and Evaluation Center, Andros Island, Bahamas; the Nanoose and Dabob ranges of the Naval Undersea Warfare Center Division Keyport, Keyport, WA; the Sea Range, Land Ranges, Targets, Ordnance T&E Facility, Test Wing Pacific located at the Naval Air Warfare Center Weapons Division, Point Mugu, CA and China Lake, CA; and the Atlantic Test Range, Air Combat Environment T&E Facility, Electromagnetic Environmental Effects, Air Vehicle Modification and Instrumentation facility, Test Wing Atlantic, Targets, and the Propulsion Systems Evaluation Facility located at the Naval Air Warfare Center Aircraft Division, Patuxent River, MD and the test and evaluation capabilities located at the Pacific Missile Range Facility, Kauai, HI.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	42.109	52.634	52.694	-	52.694
Current President's Budget	51.375	52.634	77.014	-	77.014
Total Adjustments	9.266	0.000	24.320	-	24.320
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.712	0.000			
• Program Adjustments	0.000	0.000	24.850	-	24.850
• Rate/Misc Adjustments	-0.009	0.000	-0.530	-	-0.530
• Congressional General Reductions Adjustments	-0.013	-	-	-	-
• Congressional Add Adjustments	10.000	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604759N *I Major T&E Investment*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 9999: *Congressional Adds*		
Congressional Add: *Modeling and Simulation for Ground Testing Capabilities*	9.671	0.000
Congressional Add Subtotals for Project: 9999	9.671	0.000
Congressional Add Totals for all Projects	9.671	0.000

Change Summary Explanation

The funding increase from FY 2017 to FY 2018 supports material procurements for the replacement of in-water sensors at AUTEC, additional equipment purchases for the Range Support aircraft, and the purchase of Radio Frequency (RF) signal generation and distribution equipment.

Funding increase from FY18 to FY19 supports the development of a common Navy modeling and Simulation (M&S) environment that is persistent across multiple domains. Current M&S capabilities are not easily integratable or interoperable. An integrated multi domain M&S environment will provide a reusable and persistent ability to perform analysis, engineering, and testing in mixed modeling lab and range environments.

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0604759N / *Major T&E Investment*	Project (Number/Name) 2195 / *T & E Investment*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2195: *T & E Investment*	0.000	41.704	52.634	77.014	-	77.014	85.348	83.560	71.548	61.514	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project corrects major deficiencies, improves Test & Evaluation (T&E) capabilities, and increases T&E support effectiveness at Navy Major Range and Test Facility Base. The T&E Investment project provides improved test capabilities at the following test facilities: the Naval Undersea Warfare Center Division Newport Atlantic Undersea Test and Evaluation Center (AUTEC), Andros Island, Bahamas; the Nanoose and Dabob ranges of the Naval Undersea Warfare Center Division Keyport, Keyport, WA; the Sea Range, Land Ranges, Targets, Ordnance T&E Facility, Test Wing Pacific located at the Naval Air Warfare Center Weapons Division, Point Mugu, CA and China Lake, CA; and the Atlantic Test Range, Air Combat Environment T&E Facility, Electromagnetic Environmental Effects, Air Vehicle Modification and Instrumentation facility, Test Wing Atlantic, Targets, and the Propulsion Systems Evaluation Facility located at the Naval Air Warfare Center Aircraft Division, Patuxent River, MD and the test and evaluation capabilities located at the Pacific Missile Range Facility, Kauai, HI.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: UNDERSEA RANGE INVESTMENTS	3.724	8.624	6.611	0.000	6.611
Articles:	-	-	-	-	-
Description: This effort funds the modernization, upgrades, and new test and evaluation capabilities required at the Navy's Major Range Test Facility Base undersea ranges, to include AUTEC, Andros Island, Bahamas and the Nanoose and Dabob ranges of the Naval Undersea Warfare Center Division Keyport, Keyport, WA.					
FY 2018 Plans: - Continue the minor upgrade and modernization of test capabilities at AUTEC, Nanoose and Dabob. - Continue replacement of in-water sensors at AUTEC. - Continue replace of range tracking radar at AUTEC. - Continue range radar obsolescence project at Nanoose and Dabob. - Continue tracking system modernization at Nanoose and Dabob. - Continue recovery system improvement at Nanoose and Dabob. - Continue operating system upgrade at Nanoose and Dabob. - Complete range craft service life extension at Nanoose and Dabob. - Complete launch system modernization at Nanoose and Dabob.					
FY 2019 Base Plans: - Continue the minor upgrade and modernization of test capabilities at AUTEC, Nanoose and Dabob. - Continue tracking system modernization at Nanoose and Dabob.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604759N / *Major T&E Investment*	**Project (Number/Name)** 2195 / *T & E Investment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Complete replacement of in-water sensors at AUTEC. - Complete replace of range tracking radar at AUTEC. - Complete range radar obsolescence project at Nanoose and Dabob. - Complete recovery system improvement at Nanoose and Dabob. - Complete operating system upgrade at Nanoose and Dabob. - Initiate torpedo control panel modernization at Nanoose and Dabob. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY 2018 to FY 2019 due to the completion of material purchases for in-water sensors at AUTEC, range tracking radar at AUTEC, and the range radar obsolescence project at Nanoose and Dabob.					
Title: OPEN AIR RANGE INVESTMENTS	35.930	38.610	40.167	0.000	40.167
Articles:	-	-	-	-	-
Description: This effort funds the modernization and upgrades of existing capabilities and the development of new T&E capabilities required at the Navy's Major Range Test Facility Base open air ranges at the Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, MD, Naval Air Warfare Center Weapons Division (NAWCWD), Point Mugu, CA and China Lake, CA and Pacific Missile Range Facility (PMRF), Kauai, HI. ***FY 2018 Plans:*** - Continue the minor upgrade and modernization of test capabilities at NAWCAD, NAWCWD and PMRF. - Continue procurement of Range Support Aircraft. - Continue the modernization of the telemetry antenna controllers and data processors at PMRF. - Continue the modernization of the imaging radar at PMRF. - Complete procurement of new aircraft position tracking system. - Complete target vessel modernization at NAWCWD. - Complete the upgrade of the telemetry processing system at NAWCAD. - Complete the modernization of the InfraRed measurement capability at NAWCAD. - Complete the modernization of the video tracking mounts at PMRF. - Complete the modernization of the Land Range timing and instrumentation control system at NAWCWD. - Complete the modernization of the Land Range and Sea Range voice switch at NAWCWD. - Initiate the acquisition of tactical data link capability at NAWCAD.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604759N / *Major T&E Investment*	**Project (Number/Name)** 2195 / *T & E Investment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Initiate the upgrade of the avionic data processing and display system at NAWCAD. - Initiate modernization of the imaging radar mechanical assemblies at PMRF. - Initiate the acquisition of new Infrared and Ultraviolet measurement capability at NAWCAD. - Initiate the development of Environmental Impact Statements at NAWCAD and NAWCWD. - Initiate the replacement of the FOCUS cable at NAWCWD. - Initiate the development and integration of Telemetry and optics equipment on the Range Support Aircraft. - Initiate the site preparation and integration of radars and emitters at NAWCWD. ***FY 2019 Base Plans:*** - Continue the minor upgrade and modernization of test capabilities at NAWCAD, NAWCWD and PMRF. - Continue procurement of Range Support Aircraft. - Continue the modernization of the telemetry antenna controllers and data processors at PMRF. - Continue the modernization of the imaging radar at PMRF. - Complete the modernization of the InfraRed measurement capability at NAWCAD. - Continue the upgrade of the avionic data processing and display system at NAWCAD. - Continue modernization of the imaging radar mechanical assemblies at PMRF. - Continue the development of Environmental Impact Statements at NAWCAD and NAWCWD. - Complete the acquisition of tactical data link capability at NAWCAD. - Complete the acquisition of new Infrared and Ultraviolet measurement capability at NAWCAD. - Complete the replacement of the FOCUS cable at NAWCWD. - Complete the development and integration of Telemetry and optics equipment on the Range Support Aircraft. - Complete the site preparation and integration of radars and emitters at NAWCWD. - Initiate and complete modernization of air traffic control radar at NAWCWD. - Initiate upgrade for ground based testing against a 5th generation aerial threat. This effort will upgrade an existing track test facility at NAWC WD with the ability to suspend a 5th generation aircraft for use in testing sensors. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase from FY 2018 to FY 2019 supports to the procurement of an FAA compliant Air Traffic Control Radar for R2508 Joint Use airspace at China Lake and upgrade of the Supersonic Navy Ordnance Research Track (SNORT) to support weapons testing against 5th Generation aerial threats.					
Title: TEST FACILITIES INVESTMENTS	2.050	5.400	30.236	0.000	30.236

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604759N / *Major T&E Investment*	**Project (Number/Name)** 2195 / *T & E Investment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Articles:	-	-	-	-	-

Description: This effort funds the modernization and upgrades of existing capabilities and the development of new Test & Evaluation capabilities required at the Navy's Major Range Test Facility Base ground test facilities at NAWCAD, Patuxent River, MD, and NAWCWD, Point Mugu, CA and China Lake, CA.

FY 2018 Plans:
- Continue the minor upgrade and modernization of test capabilities at NAWCAD and NAWCWD.
- Continue the upgrade to general instrumentation and equipment.
- Continue the modernization of the helicopter propulsion data acquisition system.
- Initiate the procurement of time precision RF signal generation and distribution equipment.

FY 2019 Base Plans:
-Initiate the test cell performance improvement at NAWCAD. This effort will upgrade Propulsion Systems Evaluation Facility turbine engine test cell to provide uniform temperature and pressure intake airflow and improve dynamometer performance. FY19 work includes establishing requirements, analyzing solution alternatives, and preliminary and critical design reviews.

- Initiate the modernization of the data acquisition and processing system at NAWCAD. This effort will modernize the Electro Magnetic Pulse (EMP) instrumentation by replacing analog fiber links and obsolete oscilloscopes and control triggers with modern supportable equipment. In FY19, the prototype instrumentation package will be developed.

- Initiate the procurement of the direct drive electromagnetic test system at NAWCAD. This effort will evaluate potential amplifier solutions to replace amplifiers at the Electromagnetic/Environmental/Effects (E3)facility that are no longer supported by the manufacturer. The replacement amplifiers will provide less distortion/better representation responses and be maintainable.

- Initiate the modernization of the insensitive munitions test arena at NAWCWD. Tasks include developing requirements for modernizing the control room, test pads and cable paths to the test arena and developing a contract package to implement the modernization of the Ordnance test facility.

Modeling and Simulation:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604759N / *Major T&E Investment*	**Project (Number/Name)** 2195 / *T & E Investment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Initiate and complete a study to evaluate past and current modeling and simulation environments in government and industry. Effort will confirm requirements of advanced modeling and simulation detailed requirements, analyze solution alternatives, and conduct design reviews for technical products. -Initiate multi-site and multi-domain modeling and simulation test bed design. Develop virtualized representations of high-priority Navy systems to integrate into complex digital battle space and into National Cyber Range. Innovate and standardize virtualization and integration process for use in DON Modeling & Simulation/Live Virtual Constructive (LVC) Environment. Evaluate architecture of major modeling and simulation environments and integrate major multi-domain test beds using best practices, open interfaces and ensure standing persistent connectability. Task will promulgate Enterprise models across Air, Surface, Subsurface and Cyber domains. Collaborate on improvements required for multi-Domain modeling and complex security environments to facilitate "Capability" Analysis/RDT&E/Training and fund enabling technologies. -Initiate common modeling and simulation tool design effort. Enhance Model Based Systems Engineering tools and integrate tools with T&E capabilities, allowing improved planning for agile software testing and cyber evaluations. Develop state-of-the-art data analysis and mining tools to integrate and present cohesive results in complex LVC environments. Develop architecture to integrate emerging Threat Intelligence products for both classified software, virtual and low-cost hardware representations. Improve and integrate Integrated Threat Analysis Simulation Environment to meet Navy requirements. Update immersive visualization model suite to add complex Electronic Warfare (EW) effects and improve ability to evaluate and understand complex interactions tied to warfighting outcomes. Continue to integrate and transition best-of-breed innovations coming from research centers, DIUX and the gaming industry into use at RDT&E facilities for program and prototyping support. Incorporate improved EW effects/interactions into constructive modeling and integrate with virtual/ hardware in the loop labs/ranges to create a coherent LVC EW/Electromagnetic Spectrum Maneuver Warfare evaluation environment. Analyze future state and develop plan to assess new capabilities for fusion and predictive systems. Integrate ONR modeling tools into test beds to allow assessment of human performance when assisted by improved machine-learning technologies. Focus on integration with Next Generation Threat System as core enterprise simulation and allow assessment in both test/training environments. Design, develop and integrate reference Interoperability emulators, low fidelity capability assessment tools and battlespace suite design to allow platforms to assess performance early in system development - Continue the minor upgrade and modernization of test capabilities at NAWCAD and NAWCWD and the upgrade to general instrumentation and equipment.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0604759N / *Major T&E Investment*	**Project (Number/Name)** 2195 / *T & E Investment*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Complete the modernization of the helicopter propulsion data acquisition system - Complete the procurement of time precision RF signal generation and distribution equipment. -Initiate upgrade for model and simulation testing against a 5th generation aerial threat. This effort will develop the capability to synchronize radio frequency output of different electronic warfare environment generators for a coherent presentation." ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increase from FY 2018 to FY 2019 supports the development of a common Navy Modeling and Simulation (M&S) environment that is persistent across multiple domains and for the upgrade of electronic warfare (EW) environment generator output capabilities. Current M&S capabilities are not easily integratable or interoperable. An integrated multi domain M&S environment will provide a reusable and persistent ability to perform analysis, engineering, and testing in mixed modeling lab and range environments. This funding increase also supports an upgrade to the Air Combat Environment Test and Evaluation Facility to support platform and sensor testing against 5th generation aerial threats					
Accomplishments/Planned Programs Subtotals	41.704	52.634	77.014	0.000	77.014

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Successfully achieve Initial Operational Capability of 8-15 Improvement and Modernization projects per year and have 90% of test capabilities scheduled in support of Navy acquisition test programs within 180 days.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0604759N / *Major T&E Investment*				Project (Number/Name) 9999 / *Congressional Adds*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
9999: *Congressional Adds*	0.000	9.671	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.671
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Add

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: Modeling and Simulation for Ground Testing Capabilities	9.671	0.000
FY 2017 Accomplishments: Develop/integrate models for jammer simulator and open loop stimulator; procure magic wall transporter; upgrade lightning test capability; develop wet/dry aircraft instrumentation prototype; develop electronic warfare common open-air and ground test instrumentation; develop interface standards for real time ground test environments; upgrade ground test target presentation capability; upgrade network storage capability.		
FY 2018 Plans: N/A		
Congressional Adds Subtotals	9.671	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not required for Congressional Adds

E. Performance Metrics

Not required for Congressional Adds

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605126N *I (U)Joint Theater Air and Missile Defense Org*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	2.888	0.141	0.048	-	0.048	0.000	0.000	0.000	0.000	0.000	3.077
3307: *Maritime Integrated Air and Missile Defense (IAMD) Processing Sys (MIPS)*	0.000	2.888	0.141	0.048	-	0.048	0.000	0.000	0.000	0.000	0.000	3.077

A. Mission Description and Budget Item Justification

Maritime Integrated Air and Missile Defense (IAMD) Planning System (MIPS) is an automated air and missile defense planning tool that supports the Joint Force Maritime Component Commander at the Operational Level of War (OLW) by automatically and optimally allocating and stationing ships in support of Ballistic Missile Defense (BMD) and Anti-Air Warfare (AAW). MIPS contains United States Army Patriot and Terminal High Altitude Air Defense (THAAD) models to ensure synergistic allocation and positioning of maritime units in relation to other joint units, providing optimized mutual defense for selected defended assets against selected BMD and AAW threats. MIPS completed developing significantly improved inorganic Ballistic Missile Defense planning capabilities through the incorporation of Long Range Surveillance and Training, Cued Engagement, and Launch on Tactical Digital Information Links (TADIL) planning functionality. In FY2015, MIPS began development to deliver an automated planning capability for Naval Integrated Fire Control-Counter Air (NIFC-CA) operations, incorporating the Naval Positioning Assessment Tool (NPAT) to assist in aviation asset placement, bottom contours will be added to refine the areas of ship positioning during the planning process, and adding the Cooperative Engagement Capability (CEC) stationing planning capability.

B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	2.998	0.141	0.048	-	0.048
Current President's Budget	2.888	0.141	0.048	-	0.048
Total Adjustments	-0.110	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.110	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605126N / *(U)Joint Theater Air and Missile Defense Org*	Project (Number/Name) 3307 / *Maritime Integrated Air and Missile Defense (IAMD) Processing Sys (MIPS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3307: *Maritime Integrated Air and Missile Defense (IAMD) Processing Sys (MIPS)*	0.000	2.888	0.141	0.048	-	0.048	0.000	0.000	0.000	0.000	0.000	3.077
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Maritime Integrated Air and Missile Defense (IAMD) Planning System (MIPS) is an automated air and missile defense planning tool that supports the Joint Force Maritime Component Commander at the Operational Level of War (OLW) by automatically and optimally allocating and stationing ships in support of Ballistic Missile Defense (BMD) and Anti-Air Warfare (AAW). MIPS contains United States Army Patriot and Terminal High Altitude Air Defense (THAAD) models to ensure synergistic allocation and positioning of maritime units in relation to other joint units, providing optimized mutual defense for selected defended assets against selected BMD and AAW threats. MIPS completed developing significantly improved inorganic Ballistic Missile Defense planning capabilities through the incorporation of Long Range Surveillance and Training, Cued Engagement, and Launch on Tactical Digital Information Links (TADIL) planning functionality. In FY2015, MIPS began development to deliver an automated planning capability for Naval Integrated Fire Control-Counter Air (NIFC-CA) operations, incorporating the Naval Positioning Assessment Tool (NPAT) to assist in aviation asset placement, bottom contours will be added to refine the areas of ship positioning during the planning process, and adding the Cooperative Engagement Capability (CEC) stationing planning capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Systems Engineering	2.888	0.141	0.048	0.000	0.048
Articles:	-	-	-	-	-
FY 2018 Plans: - Conduct acceptance testing and Development Test in FY 2018					
FY 2019 Base Plans: - Complete test analysis and resolve test performance issues.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Decrease due to Baseline reductions.					
Accomplishments/Planned Programs Subtotals	2.888	0.141	0.048	0.000	0.048

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605126N / *(U)Joint Theater Air and Missile Defense Org*	**Project (Number/Name)** 3307 / *Maritime Integrated Air and Missile Defense (IAMD) Processing Sys (MIPS)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

ACAT III designation granted February 2011.
The MIPS Capabilities Development Document (CDD) signed and approved 4QTRFY2016.

Contracts:
MIPS RDT&E FY15-FY17

E. Performance Metrics

FY17:
- Completed system development and prepared for Development Testing occurring in FY2018.

FY18:
- Perform independent government testing.

FY19:
- Complete test analysis and resolve test performance issues.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605152N / *Studies & Analysis Supt - Navy*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	3.861	3.917	3.942	-	3.942	3.959	4.010	4.087	4.169	Continuing	Continuing
2092: *Naval Warfare Studies*	0.000	0.672	0.776	0.777	-	0.777	0.799	0.814	0.830	0.846	Continuing	Continuing
2097: *Manpower Personnel & Training*	0.000	0.534	0.472	0.549	-	0.549	0.531	0.501	0.512	0.522	Continuing	Continuing
3310: *Naval Aviation Developmental Planning*	0.000	2.655	2.669	2.616	-	2.616	2.629	2.695	2.745	2.801	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program provides analytical support to the Secretary of the Navy and the Chief of Naval Operations as a basis for major policy, planning and acquisition program execution decisions. It supports research and development strategy development and planning. It supports studies in the areas of manpower, personnel, training, and aviation. It also develops analytical tools for evaluating effectiveness of U.S. weapons against potential foreign threat ships and submarines.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	3.931	3.917	4.037	-	4.037
Current President's Budget	3.861	3.917	3.942	-	3.942
Total Adjustments	-0.070	0.000	-0.095	-	-0.095
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.005	0.000			
• SBIR/STTR Transfer	-0.065	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.095	-	-0.095

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605152N / *Studies & Analysis Supt - Navy*	Project (Number/Name) 2092 / *Naval Warfare Studies*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2092: *Naval Warfare Studies*	0.000	0.672	0.776	0.777	-	0.777	0.799	0.814	0.830	0.846	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports detailed mission, capability, and technical analysis of future naval warfighting requirements. This work provides the analytical basis for integration and prioritization of overall military capability requirements and acquisition programs in support of executing the Naval Capability Development Process and development/delivery of Mission Capability Packages, Naval Capability Packages, and Integrated Strategic Capability Plans for Chief of Naval Operations. The Resource Allocation Model (RAM) is an analytic Portfolio Management Methodology used to aid Navy leadership with both investment and divestment programming decisions. This methodology provides an assessment process that fosters informed, understandable, repeatable investment decisions with consistent, pedigreed, and retrievable information. The focus of this work adds fidelity to the system through the inclusion of Mission Technical Baselines and Integrated Capabilities Technical Baselines data to identify program of record integration and interoperability dependencies to inform investment/divestment decisions. It provides leadership and resource sponsors with a starting point for their offset decision process as well as an issue ranking capability. RAM will include linkage of programs to strategic imperatives, programs mapped to warfare areas, program interdependencies annotated, and balance factors that can be adjusted to reflect Navy Leadership Priorities. The effort expands on Portfolio Management Decision Support System by capturing and mapping issues/funding adjustments, and providing a system capable of identifying fiscal interdependencies and consideration to risk in order to increase accuracy in calculating programmatic risk.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Resource Allocation Model (RAM)	0.672	0.776	0.777	0.000	0.777
Articles:	-	-	-	-	-
FY 2018 Plans: Continue establishing the Resource Allocation Model (RAM) to provide an analytic portfolio management methodology to aid Navy leadership with investment decision support. Provide an assessment process that fosters informed, understandable, repeatable investment decisions with consistent, pedigreed, and retrievable information. Assess programs of record and their proposed modifications on their capability to contribute to future warfighting requirements. Develop techniques that optimize the usage of the Warfare Capability Baseline Kill Chain data and enable capability trade-offs based on sound algorithmic or mathematical analysis.					
FY 2019 Base Plans: Continue establishing the Resource Allocation Model to provide an analytic portfolio management methodology to aid Navy leadership with investment decision support. Provide an assessment process that fosters informed, understandable, repeatable investment decisions with consistent, pedigreed, and retrievable information. Assess programs of record and their proposed modifications on their capability to contribute to future warfighting					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605152N / *Studies & Analysis Supt - Navy*	**Project (Number/Name)** 2092 / *Naval Warfare Studies*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
requirements. Develop techniques that optimize the usage of the Warfare Capability Baseline Kill Chain data and enable capability trade-offs based on sound algorithmic or mathematical analysis. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change between FY 2018 and FY 2019.					
Accomplishments/Planned Programs Subtotals	0.672	0.776	0.777	0.000	0.777

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

The RAM methodology and analysis will be used to assist with the prioritization, planning, and programming of Naval warfare program budgets to achieve interoperable warfighting capability solutions. Identification of capability gaps and seams will be used to inform budgetary decision-making with current fiscal budgetary constraints.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605152N / *Studies & Analysis Supt - Navy*	Project (Number/Name) 2097 / *Manpower Personnel & Training*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2097: *Manpower Personnel & Training*	0.000	0.534	0.472	0.549	-	0.549	0.531	0.501	0.512	0.522	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Chief of Naval Personnel has a continuing need for studies and analysis of Manpower and Personnel (M&P) policies and programs and critical M&P issues that have Navy-wide implications. This project provides an essential management tool to: (a) assess the effectiveness of existing M&P policies and programs; (b) identify needs for new policies and programs; (c) determine the required manpower and training mix relative to changing demographic, societal and legislative/regulatory actions, and to evolving strategic and geopolitical factors; (d) study the impact of M&P programs on Navy accession, attrition, retention, and performance; and, (e) to develop, validate and/or refine a broad range of M&P forecasting models. The program permits Navy to more effectively utilize Research and Development expertise to respond to emergent M&P issues on a continuing basis. This program is funded under RDT&E operational systems development because it encompasses engineering and development of new end-items prior to production approval decision.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Manpower Personnel & Training	0.534	0.472	0.549	0.000	0.549
Articles:	5	5	6	-	6
Description: The FY18 funding request was reduced by -$0.106 million to account for the availability of prior year balances.					
FY 2018 Plans: - Continue assessing Special and Incentive Pay policies. - Continue assessing Econometric Modeling System and updating elasticity - Continue assessing and evaluating retention, accession and training trade-offs. - Continue assessing economic factors and relationships to MPTE business lines ISO forecasting and responses. - Continue assessing factors, thresholds and mitigation strategies to avoid a Hollow Force.					
FY 2019 Base Plans: - Continue assessing Special and Incentive Pay policies. - Continue assessing Econometric Modeling System and updating elasticity - Continue assessing and evaluating retention, accession and training trade-offs.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605152N / *Studies & Analysis Supt - Navy*	**Project (Number/Name)** 2097 / *Manpower Personnel & Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue assessing economic factors and relationships to MPTE business lines ISO forecasting and responses. - Continue assessing factors, thresholds and mitigation strategies to avoid a Hollow Force. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Manpower Personnel & Training FY18 funding request was reduced by -$0.106 million to account for the availability of prior year balances. The increased funding in FY 2019 supports the production of an additional article.					
Accomplishments/Planned Programs Subtotals	0.534	0.472	0.549	0.000	0.549

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This PE provides funding to support continuing need for studies and analysis of issues critical to decisions required by the Chief of Naval Personnel and his staff regarding manpower, personnel, training and education policies, and programs that have far-reaching implications to service members and the Navy budget. This PE supports research of both Naval Postgraduate School faculty and students, and in FY10 began the formulation of focused economic research, to include behavioral economics. This focus will provide continuing analysis and research to facilitate the data gathering and synthesis to provide consistent and timely update to economic indicators to use in the numerous models that support management decisions within the MPTE arena that have significant impact on the efficient use of the nearly $27B Manpower & Personnel, Navy budget. The economic research will consolidate the data necessary to perform elasticity estimations and maintain this data for subsequent estimations. To gather the data necessary to perform such estimations, would conservatively cost more than $300K on each such occasion. The MPTE enterprise uses dozens of models, most of which require elasticity updates. Consolidating the data repository to support this analysis will result in a cost avoidance of more than $1M and this does not include any of the actual model revisions.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605152N / *Studies & Analysis Supt - Navy*	Project (Number/Name) 3310 / *Naval Aviation Developmental Planning*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3310: *Naval Aviation Developmental Planning*	0.000	2.655	2.669	2.616	-	2.616	2.629	2.695	2.745	2.801	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding supports Naval aviation pre-Milestone B developmental activities to include the conduct and integration of systems engineering activities. This project unit provides information, automated tools, and decision aids necessary to perform acquisition planning in support of warfighter capability requirements. This project unit also supports research, development, and analysis efforts to include various studies, joint requirements analysis, and cost analysis requirements in support of systems engineering activities, analyses of alternatives, and development of the 30-Year Aviation Plan, a Congressionally mandated product. Due to high turnover and end of service life of several Naval aircraft set against increasing threat capabilities, DOD 5000 series mandates documentation of capability requirements and mechanisms to obtain these capabilities. This project unit allows Naval aviation the means to properly identify capability gaps and potential solutions required to maintain maximum warfighting capability realizing (or achieving) reductions to technical risks and overall program costs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Naval Aviation Developmental Planning	2.655	2.669	2.616	0.000	2.616
Articles:	-	-	-	-	-

FY 2018 Plans:

Continue various studies for training aircraft, FA-18E/F/G, P-8A, MH-60R, MH-60S, and Joint Strike Fighter with integrated engineering, logistics, and manpower requirements. Meet emergent engineering requirements documentation within the air warfare portfolio. Update decision support toolset to facilitate internal air warfare and program office total life-cycle trades, and reduce long-term costs of data repositories, manpower, and computer programs. Fund total life-cycle analysis modeling environment required for multiple anticipated analyses of alternatives on fighter, adversary, and rotary-wing aircraft to reduce total cost of studies. Analyses are required to meet pre-Milestone B, DOD 5000 series mandated activities, as well as timelines mandated by the Congressional requirements for an Aviation Investment Plan.

FY 2019 Base Plans:

Continue various studies for training aircraft, FA-18E/F/G, P-8A, MH-60R, MH-60S, and Joint Strike Fighter with integrated engineering, logistics, and manpower requirements. Meet emergent engineering requirements documentation within the air warfare portfolio. Update decision support toolset to facilitate internal air warfare and program office total life-cycle trades, and reduce long-term costs of data repositories, manpower, and computer programs. Fund total life-cycle analysis modeling environment required for multiple anticipated

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605152N / *Studies & Analysis Supt - Navy*	**Project (Number/Name)** 3310 / *Naval Aviation Developmental Planning*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
analyses of alternatives on fighter, adversary, and rotary-wing aircraft to reduce total cost of studies. Analyses are required to meet pre-Milestone B, DOD 5000 series mandated activities, as well as timelines mandated by the Congressional requirements for an Aviation Investment Plan. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change between FY 2018 and FY 2019.					
Accomplishments/Planned Programs Subtotals	2.655	2.669	2.616	0.000	2.616

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Produce and deliver 30-Year Aviation Plan (Congressionally mandated product). Studies performed will be used to identify known warfighter capability gaps and support acquisition planning requirements associated with potential solutions. Studies provide coherent and integrated cost and capability data to support long-term planning for Naval Aviation consistent with DOD 5000 series instructions.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605154N *I Center For Naval Analyses*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	43.532	50.432	48.797	-	48.797	50.578	51.594	52.620	53.700	Continuing	Continuing
0031: *MCOAG*	0.000	5.555	6.212	5.149	-	5.149	6.421	6.566	6.701	6.839	Continuing	Continuing
0148: *Center For Naval Analyses (CNA)*	0.000	37.977	44.220	43.648	-	43.648	44.157	45.028	45.919	46.861	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Center for Naval Analyses (CNA) is the Department of the Navy's (DoN) only Federally Funded Research and Development Center (FFRDC). CNA provides independent, objective, and expert analyses based on its unique access to sensitive data and hands-on exposure to fleet operations gained through its world-wide field program. CNA's research program is centrally funded by this program element and is primarily concentrated along one Marine Corps category and thirteen Navy categories of study called product areas. These product areas are structured to enhance CNA's focus of research and analysis upon the major present and future needs and issues of the Navy and the Marine Corps. Because of rapid advances in technology, changes in the fleet, the increasing complexity of weapon systems, and reductions in manpower, force structure, budgets, the current security environment, and Department of Defense (DoD) transformation, the Navy and Marine Corps have a greater need for analyses that are sophisticated, relevant, and timely. CNA conducts research and analysis at all security classification levels, to include Sensitive Compartmented Information (SCI) and Special Access Programs (SAP).

B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	46.634	50.432	51.799	-	51.799
Current President's Budget	43.532	50.432	48.797	-	48.797
Total Adjustments	-3.102	0.000	-3.002	-	-3.002
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.725	0.000			
• Program Adjustments	0.000	0.000	-2.398	-	-2.398
• Rate/Misc Adjustments	0.000	0.000	-0.604	-	-0.604
• Congressional General Reductions Adjustments	-1.377	-	-	-	-

Change Summary Explanation

The decrease in FY 2019 reflects fewer studies being conducted.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605154N *I Center For Naval Analyses*

Technical: N/A

Schedule: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605154N / *Center For Naval Analyses*	Project (Number/Name) 0031 / *MCOAG*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0031: *MCOAG*	0.000	5.555	6.212	5.149	-	5.149	6.421	6.566	6.701	6.839	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the Marine Corps portion of the Department of Navy, CNA, Center for Naval Analysis Research Program, and is managed as an element of the Marine Corps Studies System. This program provides the Marine Corps with independent and objective research and analysis of specific issues/topics appropriately performed by a Federally Funded Research and Development Center (FFRDC). Marine Corps Division analysts work at CNA headquarters and, through CNA's Field representative Program serve at commands worldwide, including: Marine Forces Command, Marine Forces Pacific, Marine Special Operations Command, the three Marine Expeditionary Forces, Marine Aviation Weapons and Tactics Squadron One (MAWTS-1), and in Iraq, providing on-site analysis to deployed Marine forces there. CNA also assigns analysts to support the Deputy Commandants and their staffs as well as other Marine Corps organizations such as the Marine Corps Warfighting Lab, Marine Corps Systems Command, and the Commander, Marine Forces Reserve.

The program areas are linked to the Marine Corps Advocacy (prepotency), which are: (1) Logistics and Infrastructure; (2) Manpower and Training; (3) Research, Development and Acquisition; (4) Operations and Plans; (5) Programs and Resources; (6) Aviation; (7) Combat Development and Integration; and (8) Intelligence, Surveillance and Reconnaissance. Scientific Analyst support provides six scientific analysts for the following six focus areas: Deputy Commandant (DC), Plans, Policies and Operations; DC Aviation; DC Installation and Logistics; DC Programs and Resources; DC Manpower Reserve Affairs; and Director, Manpower Plans (MP) - Manpower and Reserve Affairs (M&RA). The program continues analytical support for field exercises, Ad Hoc and Quick Response study requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: MARINE CORPS OPERATIONS AND ANALYSIS GROUP	5.555	6.212	5.149	0.000	5.149
Articles:	-	-	-	-	-
FY 2018 Plans: - Continue research analysis, modeling and simulation data that focused analytical support to the Special Marine Air Ground Task Forces (MAGTF) Crisis Response (CR) that provides critical mission research advise to unit commanders. - Continue support current operations to include: weapons and systems programs, MAGTF training and exercise assessments, amphibious shipping capabilities, and reductions to naval operations and strategic commitments. Analysis and solutions relating to support and sustainment in terms of equipment readiness, training, responsiveness and maintaining squadron readiness, development of facilities sustainment and service life programs save the Marine Corps valuable time and resources. Manpower, force structure, aviation recruiting and retention, and valuations of recruiting, retaining and retiring Marines analyses provide viable personnel solutions in times of shrinking resources. Intelligence capabilities assessments, analyses of threat assessments					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605154N / *Center For Naval Analyses*	**Project (Number/Name)** 0031 / *MCOAG*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
from known and unknown enemies, i.e. Al-Qaeda, Northern Africa and Iran, and Joint Irregular Warfare Analytic Baseline (JIWAB) development provide valuable information to assist Marine Corps Intelligence organizations in keeping the force educated and safe. - Continue high priority study and analysis projects approved in FY17 Marine Corps Studies System Master Plan (MCSSMP). - Continue research analysis, and survey support efforts associated with development and implantation of the Marine Forces Integration Plan (MCFIP) Women in Infantry. - Continue high priority study and analysis projects approved in FY17 Marine Corps Studies System Master Plan (MCSSMP). - Initiate high priority study and analysis projects approved in FY18 Marine Corps Studies System Master Plan (MCSSMP).					
FY 2019 Base Plans: Conduct new studies in support of the FY19 Marine Corps Studies System Master Plan (MCSSMP) including the following priority areas: applying USMC capabilities today, balancing current demands against future readiness, innovating to enhance Marine Corps warfighting advantages, ways and means for USMC strategy and policy, and operating the Marine Corps more effectively and efficiently. Continue the FY18 analytic focus in support of CMC priorities. Enhanced support and increased capacity to address CMC priorities such as: - The relative threats posed by our major adversaries (e.g., Russian resurgence and PRC capabilities and activities) - Prosecuting global campaigns - Enabling and supporting distributed operations - Integrating information operations into the MAGTF construct both organizationally and to maximize effects on the battlefield - Leveraging autonomy and artificial intelligence to establish and maintain dominance over existing and emerging threats - Using big data/data science/predictive analysis to gain comparative advantage - Improving the use of gaming in Navy learning and research - Leveraging our analytic efforts for the Navy to support USMC priorities.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605154N / *Center For Naval Analyses*	**Project (Number/Name)** 0031 / *MCOAG*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The funding decrease from FY18 to FY19 reflects the delay of two studies.					
Accomplishments/Planned Programs Subtotals	5.555	6.212	5.149	0.000	5.149

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This project supports the Marine Corps portion of the Department of Navy, CNA Center for Naval Analysis Research Program, and is managed as an element of the Marine Corps Studies System. This program provides the Marine Corps with independent and objective research and analysis of specific issues/topics appropriately performed by a Federally Funded Research and Development Center (FFRDC). Marine Corps Division analysts work at CNA headquarters and, through CNA's Field representative Program, serve at commands worldwide, including: Marine Forces Command, Marine Forces Pacific, Marine Special Operations Command, the three Marine Expeditionary Forces, Marine Aviation Weapons and Tactics Squadron One (MAWTS-1), and in Iraq, providing on-site analysis to deployed Marine forces there. CNA also assigns analysts to support the Deputy Commandants and their staffs as well as other Marine Corps organizations such as the Marine Corps Warfighting Lab, Marine Corps Systems Command, and the Commander, Marine Forces Reserve.

The program areas are linked to the Marine Corps Advocacy (prepotency), which are: (1) Logistics and Infrastructure; (2) Manpower and Training; (3) Research, Development and Acquisition; (4) Operations and Plans; (5) Programs and Resources; (6) Aviation; (7) Combat Development and Integration; and (8) Intelligence, Surveillance and Reconnaissance. Scientific Analyst support provides six scientific analysts for the following six focus areas: Deputy Commandant (DC), Plans, Policies and Operations; DC Aviation; DC Installation and Logistics; DC Programs and Resources; DC Manpower Reserve Affairs; and Director, Manpower Plans (MP) - Manpower and Reserve Affairs (M&RA).

The Marine Corps' portion of the CNA program is executed via the Marine Corps Studies System (MCSS) Annual Plan which is reviewed and updated on a quarterly basis. The MCSS maintains a comprehensive listing of all CNA studies performed for the Marine Corps. The MCSS ensures there are no duplicate analytical efforts within the Marine Corps. Additionally, the Operations Analysis Division of Combat Integration Division (CD&I, MCCDC) provides analytical review of all CNA products for the Marine Corps and integrates the results and recommendations into a quarterly newsletter for research and analysis.

Other evaluation processes are as follows:
A) Contract Status Meetings: The Marine Corps participates in contract status meetings. The Contracting Officer chairs monthly meetings with the Marine Corps, and members of the CNA Business Support Group to provide guidance regarding contract management to include reviewing the Defense Technical Information Center

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605154N / *Center For Naval Analyses*	**Project (Number/Name)** 0031 / *MCOAG*

(DTIC) database requirements to emphasize the contractual requirement that all ongoing research be submitted to DTIC to ensure against duplication to reviewing CNA's cost effectiveness and efficiency.

B) Marine Corps Three-Star Flag Officer Review: The Commanding General, CD&I, MCCDC and the Director, Operations Analysis Division (OAD) frequently to review the current research program and provide guidance to CNA regarding future research requirements. Meetings are essential to provide CNA to ensure that research conducted is of the greatest value to the Marine Corps. The meetings serve as a roadmap for future projects. The Marine Corps' research plan is consolidated with the DoN's Annual Plan that is submitted to the Deputy Chief of Naval Operations for Integration of Capabilities and Resources (N8) for final review and acceptance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605154N / *Center For Naval Analyses*	Project (Number/Name) 0148 / *Center For Naval Analyses (CNA)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0148: *Center For Naval Analyses (CNA)*	0.000	37.977	44.220	43.648	-	43.648	44.157	45.028	45.919	46.861	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program supports the Navy's portion of the CNA Research Program, which is primarily concentrated along thirteen Navy categories of study called product areas. These product areas include the following: (1) Manpower/Personnel, Medical and Training; (2) Intelligence, Information and Networks; (3) Plans, Policy, and Operations; (4) Infrastructure and Readiness; (5) Resources, Programs, and Assessments; (6) Capability Integration; (7) Research, Development and Acquisition; (8) Navy Field Program; (9) Navy Field Exercise Program; (10) Scientific Analyst Program; (11) Navy Quick Response Projects; (12) Navy General Concept Development and (13) CNA Initiated Projects. This program provides the Navy with independent and objective research and analysis of specific issues/topics appropriately performed by a FFRDC and includes studies support (to include quick response studies support), field support to fleet commanders, scientific analyst support to Deputy Chiefs of Naval Operations (DCNOs) and their staffs, exercise support, and ad hoc support. CNA's analyses have resulted in substantial improvements in force structure, fleet effectiveness, and significant cost avoidance

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: CENTER FOR NAVAL ANALYSES, NAVY	37.977	44.220	43.648	0.000	43.648
Articles:	-	-	-	-	-
Description: Funding in this project supports integrated research for the Department of Navy (DoN) and other DoD components across a broad range of issues including the development and evaluation of tactics, operations testing of new systems, assessment of current capabilities, logistics and readiness, work-force management, space and space-related activities, cyber operations, cost and operational program analysis, assessment of advanced technology, force planning, and strategies implications of political-military developments.					
FY 2018 Plans: CNA conducts individual analytic efforts for a wide range of DoN and DoD sponsors including: OPNAV and HQMC, the Navy Secretariat, Type Commanders, the numbered Fleets and Navy/Marine Corps component commanders, Combatant Commands, operational test and evaluation (OT&E) activities including OPTEVFOR and DOT&E, SYSCOMs, Office of the Secretary of Defense, Defense agencies and the Defense Intelligence Community. Priority Objectives: - Offensive and defensive cyber operations					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605154N / *Center For Naval Analyses*	**Project (Number/Name)** 0148 / *Center For Naval Analyses (CNA)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Electro-magnetic warfare - Support to the Navy and Marine Corps special operations communities - Great power dynamics with a special emphasis on China and Russia - Increased field representative support in the Warfighting Development Commands - Adversary analytics to better understand implications of Iran, North Korea, Russia, and other state actor's actions on USN strategy and operations - Navy future force architecture, related capabilities, and implications for CONOPs and acquisition strategy - China's military reorganization and its impact on USN as well partner nations in the Pacific and other AORs future - Recruiting and retaining the force of the future - Understanding and addressing new and every-changing threats from non-state actors - Improving the interoperability of Navy systems and greater use of the systems-of-systems concept - Implementing and assessing the effectiveness of new distributed lethality concepts - Applications and potential of big data to better understand and address complex operational and logistical challenges facing the USN - Cyber considerations into Operational Test & Evaluation (OT&E) of new Navy systems and better understanding how to best man the cyber force of the future - Recruiting and re-training the force of the future - Understanding and addressing new and every-changing threats from non-state actors - Improving and interoperability of Navy systems and greater use of the systems-of-systems concept - Implementing and assessing the effectiveness of new distributed lethality concepts - New applications for unmanned systems - Continue all efforts above in support of the following CNO 2018 priorities: - Maintaining maritime superiority for the future - Applying maritime power today - Navy strategy and policy - Strategic Workforce planning and management - Operating the Navy more efficiently and effectively - Balancing current and future readiness - Understanding great power dynamics - Increase work in offensive and defensive cyber operations - Increase work in Electromagnetic Maneuver Warfare (EMW)					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605154N / *Center For Naval Analyses*	**Project (Number/Name)** 0148 / *Center For Naval Analyses (CNA)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Increase support to the Navy and Marine Corps special operations communities - Increase work based on the 7 CNO approved FY 2017 priorities and FY 2018 revisions based on Navy emerging priorities and requirements ***FY 2019 Base Plans:*** Continue all efforts from FY18 in support of CNO priorities, and conduct new studies in the following priority areas: - Applying maritime power today - Maintaining maritime superiority for the future - Innovating to compete and win - Balancing current and future readiness - Understanding great power dynamics - Aligning ends, ways and means for Navy strategy and policy - Operating the Navy more efficiently and effectively - Strategic workforce planning - Enhanced support and increased capacity to address emerging CNO priorities including Russia's resurgence and implications for the Navy and its partners - Aligning the programming and budgeting process with Navy strategy - Enabling distributed networked operations - Leveraging autonomy and artificial intelligence to establish and maintain dominance over emerging threats - Using bid data/data science/predictive analytics to gain competitive advantage; and integrating gaming into Navy learning and research ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change between FY 2018 and FY 2019.					
Accomplishments/Planned Programs Subtotals	37.977	44.220	43.648	0.000	43.648

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605154N / *Center For Naval Analyses*	**Project (Number/Name)** 0148 / *Center For Naval Analyses (CNA)*

D. Acquisition Strategy

N/A

E. Performance Metrics

CNA is reviewed throughout the research year on several different levels to ensure that research produced is not duplicated elsewhere. The primary (and most effective) method of review for duplication is the Contracting Officer's Technical Representative (COTR) review and approval of each and every project proposal submitted by CNA. This method is highly effective in providing the necessary oversight to ensure that duplication of effort does not occur. The Marine Corps Studies System (MCSS) maintains a comprehensive listing of all CNA studies performed for the USMC. The MCSS ensures that there are no duplicate analytical efforts within the USMC. Additionally, the Studies and Analysis Division of the Marine Corps Combat Development Command (MCCDC) provides analytical review of all CNA products for the USMC and integrates the results and recommendations into a quarterly newsletter and an annual plan for research and analysis.
Other evaluation processes:

A) DoN Contract Status Meetings: As part of the CNA oversight process, the Office of Naval Research Contracting Officer chairs a monthly meeting with the COTR, the USMC, and the CNA's Chief Financial Office to provide guidance regarding contract management.

B) Two-Star Flag Officers and VCNO Corporate Board Meetings: DoN Two-Star and their equivalent civilian counterparts meet several times a year to review the current fiscal year's research and provide guidance to CNA regarding their future research for DoN. These high level meetings are essential to provide CNA with DoN's guidance to ensure that the research conducted is of the greatest value to DoN. The meetings also serve as the catalyst for the formation of the CNA Annual Plan, CNA's roadmap for research during the upcoming fiscal year. The CNA Annual Plan is then submitted to VCNO/N8 for final review and acceptance.

C) CNA Comprehensive Review: Prior to contract renewal, CNA, as an Federally Funded Research and Development Center (FFRDC), must be evaluated to ensure that the DoN wants to renew CNA's contract for an additional five year period. DoN completes an exhaustive review of sponsors' technical needs and mission requirements; DoN's consideration of other sources; CNA's efficiency and effectiveness; CNA's management and cost effectiveness; as well as the FFRDC establishment criteria and sponsorship agreement. The CNA Comprehensive Review is approved by ASN (RDA) and accepted by OSD (AT&L).

D) Navy-CNA Integration Board. DON 3-stars and CNA leadership meet quarterly to review the annual research program, discuss priorities and related implications for current and future work, and address issues impacting CNA's ability to execute its mission as an FFRDC. CNA research highlights are also briefed and discussed. The board meetings are chaired by the Director, Navy Staff.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605285N *I (U)Next Generation Fighter*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	1.394	0.000	5.000	-	5.000	5.100	5.202	5.306	5.412	Continuing	Continuing
2937: *Next Generation Fighter*	0.000	1.394	0.000	5.000	-	5.000	5.100	5.202	5.306	5.412	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program provides analytical support to the Secretary of the Navy and the Chief of Naval Operations as a basis for major policy, planning and acquisition program execution decisions. It supports research and development strategy development and planning. It supports studies in the areas of manpower, personnel, training, and aviation. It also develops analytical tools for evaluating effectiveness of U.S. weapons against potential foreign threat ships and submarines.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	1.200	0.000	0.000	-	0.000
Current President's Budget	1.394	0.000	5.000	-	5.000
Total Adjustments	0.194	0.000	5.000	-	5.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.232	0.000			
• SBIR/STTR Transfer	-0.038	0.000			
• Program Adjustments	0.000	0.000	5.000	-	5.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319 / 6					R-1 Program Element (Number/Name) PE 0605285N / *(U)Next Generation Fighter*				Project (Number/Name) 2937 / *Next Generation Fighter*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
2937: *Next Generation Fighter*	0.000	1.394	0.000	5.000	-	5.000	5.100	5.202	5.306	5.412	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the analysis of the advanced air dominance family of systems to replace capabilities lost with the end of service life of the F/A-18E/F and EA-18G.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Next Generation Air Dominance Analysis	1.394	0.000	5.000	0.000	5.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: Conduct systems engineering and mission effectiveness analysis to sufficiently review capabilities of the proposed family-of-system alternatives. Conduct cost estimates and affordability analysis with sufficient fidelity across the total life-cycle of the alternative courses of action to identify a preferred system concept. This includes analysis and support of AoA execution and Advanced Development Program Office planning. Products include data sets, automated tools, and decision aids necessary to provide OPNAV and OSD the information to perform acquisition planning in support of warfighter capability requirements. Conduct briefing support as required by excursions at the direction of the AoA executive steering group.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Increase in FY19 is due to a realignment fund NGAD development across the FYDP.					
Accomplishments/Planned Programs Subtotals	1.394	0.000	5.000	0.000	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605285N / *(U)Next Generation Fighter*	**Project (Number/Name)** 2937 / *Next Generation Fighter*

E. Performance Metrics

Produce and deliver FA-XX (Next Generation Air Dominance) Analysis of Alternatives and Initial Capabilities Document development in accordance with Office of the Secretary of Defense Cost Assessment and Program Evaluation guidance. Analysis performed will be used to identify known warfighter capability gaps and support acquisition planning requirements associated with potential solutions. Analysis provides coherent and integrated cost, risk, and effectiveness data to support long-term planning for Naval Aviation consistent with DOD 5000 series instructions.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605502N *I Small Business Innovative Research*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	370.665	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	370.665
1812: *NAVAIR SBIR Program*	0.000	112.223	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	112.223
1813: *SPAWAR SBIR Program*	0.000	9.248	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.248
1814: *NAVSEA SBIR Program*	0.000	64.782	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	64.782
1824: *USMC SBIR Program*	0.000	11.152	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.152
1862: *SSPO SBIR Program*	0.000	6.076	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.076
1863: *NAVSUP SBIR Program*	0.000	2.200	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.200
1864: *ONR SBIR Program*	0.000	87.344	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	87.344
1865: *SBIR ADMIN - ONR*	0.000	4.663	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.663
2016: *NAVFAC SBIR Program*	0.000	2.200	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.200
2204: *Small Business Tech Transfer Program*	0.000	27.261	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	27.261
2240: *SBIR ADMIN - USMC*	0.000	0.535	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.535
2241: *SBIR ADMIN - SPAWAR*	0.000	0.457	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.457
2242: *SBIR ADMIN - NAVSEA*	0.000	4.288	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.288
2243: *SBIR ADMIN - NAVAIR*	0.000	5.494	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.494
2244: *SBIR ADMIN - NAVFAC*	0.000	0.140	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.140
2245: *SBIR ADMIN - NAVSUP*	0.000	0.075	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.075
2248: *SBIR ADMIN - SSPO*	0.000	0.302	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.302
2813: *NSMA SBIR Program*	0.000	3.500	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.500
2814: *SBIR ADMIN - NSMA*	0.000	0.250	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.250
3201: *SBIR CRP - NAVAIR*	0.000	1.169	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.169
3202: *SBIR CRP - SPAWAR*	0.000	0.096	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.096
3203: *SBIR CRP - NAVSEA*	0.000	0.671	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.671
3204: *SBIR CRP - USMC*	0.000	0.116	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.116
3205: *SBIR CRP - ONR*	0.000	1.055	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.055

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy													Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605502N *I Small Business Innovative Research*								
3213: *NAVAIR STTR Program*	0.000	16.442	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	16.442
3344: *SBIR Trial Admin Program*	0.000	8.926	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.926

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in
federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	370.665	0.000	0.000	-	0.000
Total Adjustments	370.665	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.017	0.000			
• SBIR/STTR Transfer	370.682	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 1812 / *NAVAIR SBIR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1812: *NAVAIR SBIR Program*	0.000	112.223	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	112.223
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: NAVAIR SBIR PROGRAM	112.223	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	112.223	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 1813 / *SPAWAR SBIR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1813: *SPAWAR SBIR Program*	0.000	9.248	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.248
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SPAWAR SBIR Program	9.248	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	9.248	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 1814 / *NAVSEA SBIR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1814: *NAVSEA SBIR Program*	0.000	64.782	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	64.782
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: NAVSEA SBIR Program	64.782	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	64.782	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 1824 / *USMC SBIR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1824: *USMC SBIR Program*	0.000	11.152	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.152
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: USMC SBIR Program	11.152	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	11.152	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 1862 / *SSPO SBIR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1862: *SSPO SBIR Program*	0.000	6.076	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.076
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SSPO SBIR Program	6.076	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	6.076	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 1863 / *NAVSUP SBIR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1863: *NAVSUP SBIR Program*	0.000	2.200	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.200
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: NAVSUP SBIR Program	2.200	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	2.200	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 1864 / *ONR SBIR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1864: *ONR SBIR Program*	0.000	87.344	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	87.344
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in
federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: ONR SBIR Program	87.344	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	87.344	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

None

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 1865 / *SBIR ADMIN - ONR*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1865: *SBIR ADMIN - ONR*	0.000	4.663	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.663
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small Business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SBIR Administration	4.663	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Small Business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	4.663	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

NONE

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2016 / *NAVFAC SBIR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2016: *NAVFAC SBIR Program*	0.000	2.200	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.200
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: New Accomplishment/Planned Program Entry	2.200	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	2.200	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2204 / *Small Business Tech Transfer Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2204: *Small Business Tech Transfer Program*	0.000	27.261	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	27.261
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Technology Transfer (STTR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $1,000,000,000 to set aside 0.45% for STTR in FY 2017. This funds cooperative R&D between small businesses and research institutions. The program goals are to create vehicles
from moving ideas from research institutions to market; enable researchers to pursue commercial application of technologies; and bridge funding gap between basic research and commercial product.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Small Business Tech Transfer Program	27.261	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	27.261	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605502N / *Small Business Innovative Research*	**Project (Number/Name)** 2204 / *Small Business Tech Transfer Program*

E. Performance Metrics

NONE

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2240 / *SBIR ADMIN - USMC*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2240: *SBIR ADMIN - USMC*	0.000	0.535	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.535
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: USMC SBIR Administration	0.535	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.535	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2241 / *SBIR ADMIN - SPAWAR*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2241: *SBIR ADMIN - SPAWAR*	0.000	0.457	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.457
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SPAWAR SBIR Administration	0.457	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.457	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2242 / *SBIR ADMIN - NAVSEA*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2242: *SBIR ADMIN - NAVSEA*	0.000	4.288	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.288
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: NAVSEA SBIR Administration	4.288	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	4.288	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2243 / *SBIR ADMIN - NAVAIR*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2243: *SBIR ADMIN - NAVAIR*	0.000	5.494	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.494
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small Business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: NAVAIR SBIR Administration	5.494	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	5.494	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2244 / *SBIR ADMIN - NAVFAC*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2244: *SBIR ADMIN - NAVFAC*	0.000	0.140	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.140
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: NAVFAC SBIR Administration	0.140	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.140	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2245 / *SBIR ADMIN - NAVSUP*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2245: *SBIR ADMIN - NAVSUP*	0.000	0.075	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.075
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: New Accomplishment/Planned Program Entry	0.075	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.075	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2248 / *SBIR ADMIN - SSPO*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2248: *SBIR ADMIN - SSPO*	0.000	0.302	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.302
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SSPO SBIR Administration	0.302	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.302	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2813 / *NSMA SBIR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2813: *NSMA SBIR Program*	0.000	3.500	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.500
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: New Accomplishment/Planned Program Entry	3.500	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	3.500	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 2814 / *SBIR ADMIN - NSMA*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2814: *SBIR ADMIN - NSMA*	0.000	0.250	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Small business Innovative Research (SBIR) Administration. Manage the program, technical efforts and award contracts related to SBIR.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: NSMA SBIR Program	0.250	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.250	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 3201 / *SBIR CRP - NAVAIR*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3201: *SBIR CRP - NAVAIR*	0.000	1.169	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.169
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Section 252 of the 2006 NDAA Public law No. 109-163 allowed up to 1% of the SBIR to be used to fund the administrative costs of the Commercialization Pilot Program (CPP). The pilot program transitioned to the Commercialization Readiness Program (CRP). CRP is part of the SBIR and STTR Reauthorization Act of 2012 (P. L. 112-81, Section 5001).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Commercialization Readiness Program (CRP) - NAVAIR	1.169	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	1.169	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 3202 / *SBIR CRP - SPAWAR*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3202: *SBIR CRP - SPAWAR*	0.000	0.096	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.096
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Section 252 of the 2006 NDAA Public law No. 109-163 allowed up to 1% of the SBIR to be used to fund the administrative costs of the Commercialization Pilot Program (CPP). The pilot program transitioned to the Commercialization Readiness Program (CRP). CRP is part of the SBIR and STTR Reauthorization Act of 2012 (P. L. 112-81, Section 5001).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SBIR Commercialization Readiness Program (CRP) SPAWAR	0.096	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.096	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 3203 / *SBIR CRP - NAVSEA*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3203: *SBIR CRP - NAVSEA*	0.000	0.671	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.671
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Section 252 of the 2006 NDAA Public law No. 109-163 allowed up to 1% of the SBIR to be used to fund the administrative costs of the Commercialization Pilot Program (CPP). The pilot program transitioned to the Commercialization Readiness Program (CRP). CRP is part of the SBIR and STTR Reauthorization Act of 2012 (P. L. 112-81, Section 5001).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SBIR Commercialization Readiness Program (CRP) NAVSEA	0.671	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.671	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 3204 / *SBIR CRP - USMC*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3204: *SBIR CRP - USMC*	0.000	0.116	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.116
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Section 252 of the 2006 NDAA Public law No. 109-163 allowed up to 1% of the SBIR to be used to fund the administrative costs of the Commercialization Pilot Program (CPP). The pilot program transitioned to the Commercialization Readiness Program (CRP). CRP is part of the SBIR and STTR Reauthorization Act of 2012 (P. L. 112-81, Section 5001).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SBIR Commercialization Readiness Program (CRP) USMC	0.116	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.116	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 3205 / *SBIR CRP - ONR*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3205: *SBIR CRP - ONR*	0.000	1.055	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.055
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Section 252 of the 2006 NDAA Public law No. 109-163 allowed up to 1% of the SBIR to be used to fund the administrative costs of the Commercialization Pilot Program (CPP). The pilot program transitioned to the Commercialization Readiness Program (CRP). CRP is part of the SBIR and STTR Reauthorization Act of 2012 (P. L. 112-81, Section 5001).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SBIR Commercialization Readiness Program (CRP) ONR	1.055	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	1.055	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

NONE

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 3213 / *NAVAIR STTR Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3213: *NAVAIR STTR Program*	0.000	16.442	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	16.442
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Technology Transfer (STTR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $1,000,000,000 to set aside 0.45% for STTR in FY 2017. This funds cooperative R&D between small businesses and research institutions. The program goals are to create vehicles
from moving ideas from research institutions to market; enable researchers to pursue commercial application of technologies; and bridge funding gap between basic research and commercial product.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: NAVAIR STTR Program	16.442	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	16.442	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605502N / *Small Business Innovative Research*	Project (Number/Name) 3344 / *SBIR Trial Admin Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3344: *SBIR Trial Admin Program*	0.000	8.926	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.926
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program requires each Federal agency that has an extramural budget for Research and Development (R&D) in excess of $100,000,000 to set aside 3.2% for SBIR in FY 2017. This funds R&D at small businesses. The program goals are to stimulate technological innovation; increase small business participation in
federally funded R&D; foster participation by minority and disadvantaged firms in technological innovation; and increase private sector commercialization of federal R&D.

This project provides funding for the pilot administrative program authorized by the FY 2012 National Defense Authorization Act (SEC. 5141. PILOT TO ALLOW FUNDING FOR
ADMINISTRATIVE, OVERSIGHT, AND CONTRACT PROCESSING COSTS.)

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SBIR Trial Admin Program	8.926	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	8.926	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605502N / *Small Business Innovative Research*	**Project (Number/Name)** 3344 / *SBIR Trial Admin Program*

D. Acquisition Strategy

N/A

E. Performance Metrics

NONE

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605804N / *Technical Information Services*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	1.494	0.782	1.029	-	1.029	1.009	0.961	0.971	0.990	Continuing	Continuing
0835: *Tech Info System*	0.000	0.878	0.782	1.029	-	1.029	1.009	0.961	0.971	0.990	Continuing	Continuing
2296: *Federal Lab Consortium*	0.000	0.616	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.616

A. Mission Description and Budget Item Justification

The Technical Information Services program provides support to achieve affordability in the development of Navy systems by reducing life-cycle costs through the facilitation of advanced technology associations between U.S. industry and the Navy. Warfighting effectiveness is enhanced through strategic relationships with industry to commercialize the science and technology developed by the Naval Research Enterprise and to gain strategic understanding of industry Research and Development Programs and plans; access concepts and technologies; and access to business practices within the civil sector.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.903	0.782	1.074	-	1.074
Current President's Budget	1.494	0.782	1.029	-	1.029
Total Adjustments	0.591	0.000	-0.045	-	-0.045
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	0.592	0.000			
• Rate/Misc Adjustments	-0.001	0.000	-0.045	-	-0.045

Change Summary Explanation

The FY 2018 request was reduced by -$0.171 million to account for the availability of prior year execution balances.
Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605804N / *Technical Information Services*	Project (Number/Name) 0835 / *Tech Info System*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0835: *Tech Info System*	0.000	0.878	0.782	1.029	-	1.029	1.009	0.961	0.971	0.990	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The goal for this project is to enhance warfighter effectiveness by: leveraging industry independent Research and Development science and technology base; developing strategic partnerships with industry to transition private sector technology; and transferring appropriate Navy-developed innovative concepts and inventions to the private sector for purposes of commercialization. (Public Law 96-480, Federal Technology Transfer Act of 1986.)

This project also provides the Department of the Navy (DON) interface to the Office of the Assistant Secretary of Defense for Rapid Fielding, and to the Assistant Secretary of Commerce for Technology Policy for matters relating to policy and reporting requirements for technology transfer.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: TECHNICAL INFORMATION SERVICES	0.878	0.782	1.029	0.000	1.029
Articles:	-	-	-	-	-
Description: Technical Information Services supports the spin-in and spin-out of research and development performed by Navy laboratories and industry. This program develops the tools and provides management oversight of the DON Domestic Technology Transfer (T2) Program. The Navy plans on initiating two new pilot programs per year with the objective of increasing the visibility and transfer of the Navy developed technologies.					
FY 2018 Plans: Continue the following efforts: - Two new pilot programs per year to support Technology Transfer (T2) efforts at Navy Office of Research and Technology Application (ORTA) activities across laboratories. - Efforts to raise visibility of Navy technologies through publications and/or videos. - Effort to improve Navy Defense Technology Transfer Information System (NDTTIS) database to continue additional value/impact of Cooperative Research and Development Agreements (CRADAs). - Effort to continue the Navy wide T2 Innovation Discovery/Intellectual Property Mining Program. - Effort to coordinate/support a regional technology transfer industry day. Initiate the following effort:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605804N / *Technical Information Services*	**Project (Number/Name)** 0835 / *Tech Info System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Two new pilot programs per year to support Technology Transfer (T2) efforts at Navy Office of Research and Technology Application (ORTA) activities across laboratories. - Revise and update Technology Transfer mechanisms (e.g., CRADAs. Partnership Intermediary Agreement (PIAs), and Educational Partnership Agreement (EPAs) templates, NDTTIS database, online training) and Policy Guidance. ***FY 2019 Base Plans:*** Continue all efforts of FY 2018 as appropriate. Revise and update Technology Transfer mechanisms (e.g., CRADAs. PIAs templates, NDTTIS database, online training), T2 Handbook and Policy Guidance. Execute two new pilot programs to support Technology Transfer (T2) efforts at Navy Office of Research and Technology Application (ORTA) activities across laboratories. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2018 request was reduced by -$0.171 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	0.878	0.782	1.029	0.000	1.029

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Demonstrate support for technological transitions from the Naval Research Enterprise into industrial and commercial enterprises supporting Navy programs of record and warfighter needs, by being responsive to Offices of Research and Technology Applications focal points for technology transfer in their development of Cooperative Research and Development Agreements (CRADA), and reducing transaction/information exchange timeframes by 25%.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605804N / *Technical Information Services*	Project (Number/Name) 2296 / *Federal Lab Consortium*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2296: *Federal Lab Consortium*	0.000	0.616	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.616
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Federal Laboratory Consortium for Technology Transfer (FLC) was established by Congress under the Federal Technology Transfer Act of 1986 (P.L. 99-502, 20 October 1986, as amended). The FLC, in cooperation with federal laboratories and the private sector, provides services to enhance the transfer of federally-developed technology to include activities such as: developing and administering technology transfer training courses and materials; assisting Federal agencies and laboratories in their technology transfer programs; and providing a clearinghouse for technology transfer requests.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: FEDERAL LAB CONSORTIUM	0.616	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The Federal Laboratory Consortium for Technology Transfer (FLC) was established by Congress under the Federal Technology Transfer Act of 1986 (P.L. 99-502, 20 October 1986, as amended). The FLC, in cooperation with federal laboratories and the private sector, provides services to enhance the transfer of federally-developed technology to include activities such as: developing and administering technology transfer training courses and materials; assisting Federal agencies and laboratories in their technology transfer programs; and providing a clearinghouse for technology transfer requests.					
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.616	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605804N / *Technical Information Services*	**Project (Number/Name)** 2296 / *Federal Lab Consortium*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

In accordance with the Federal Technology Transfer Act of 1986 (P.L. 99-502, 20 October 1986, as amended), disseminated funding judiciously.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605853N *I Management, Technical & Intl Supt*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	97.939	94.562	87.565	-	87.565	97.717	97.449	97.625	99.570	Continuing	Continuing
0149: *International Coop RDT&E*	0.000	3.544	3.000	3.575	-	3.575	3.658	3.513	3.549	3.623	Continuing	Continuing
1767: *Naval War Col Strategic Studies Supt*	0.000	4.044	4.434	5.263	-	5.263	5.658	5.769	5.879	5.991	Continuing	Continuing
2098: *Navy Postgraduate School (NPS) Studies Support*	0.000	12.755	13.122	11.588	-	11.588	11.559	11.961	12.099	12.348	Continuing	Continuing
2221: *JT Mission Assessment Studies*	0.000	20.256	24.889	25.767	-	25.767	26.937	27.522	27.835	28.364	Continuing	Continuing
2801: *Anti-Tamper*	0.000	1.389	1.385	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.774
3024: *Financial Auditability and Audit Readiness (FIAR)*	0.000	0.137	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.137
3027: *Defense Critical Infrastructure Program*	0.000	4.625	6.431	5.862	-	5.862	7.743	6.927	7.073	7.217	Continuing	Continuing
3312: *MTMD-Maritime Theater Missile Defense Forum*	0.000	8.455	7.776	7.045	-	7.045	8.596	8.674	8.498	8.670	Continuing	Continuing
3330: *Naval Research Laboratory (NRL) Facilities Modernization*	0.000	15.424	18.279	15.438	-	15.438	17.963	17.476	17.368	17.720	Continuing	Continuing
3363: *PACOM Initiative*	0.000	14.737	15.246	13.027	-	13.027	15.603	15.607	15.324	15.637	Continuing	Continuing
9999: *Congressional Adds*	0.000	12.573	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	12.573

A. Mission Description and Budget Item Justification

International Cooperative RDT&E: provide program management, execution, and support to implement a broad range of cooperative Naval Research and Development, Test and Evaluation initiatives to improve coalition interoperability, harmonize US Navy requirements with allied and friendly nations, and identify cooperative international opportunities, and improve coalition interoperability. In addition, it develops coherent approaches, coordinating with partner nations, to sea-based missile defense, command, control, communications, computers and intelligence (C4I), and cooperative acquisition programs while also identifying technology to support the Global Maritime Partnership initiative.

Naval War College Strategic Studies Support: Provides research, analysis and gaming activities which serve as a focal point, stimulus, and major source of strategic and operational thought within the Navy, joint and interagency communities. These efforts generate strategic and operational alternatives, quantitative analysis, war

gaming and political military assessments, and provide recommendations regarding the formulation and execution of maritime options . The War Gaming Department plans, designs, executes, analyzes and reports on the Navy's Title 10 war games. These war games provide analytical input to the Navy's Strategic Plan, assessments of future concepts, and recommendations to the Navy's Quadrennial Defense Review, force design, and strategy process. The War Gaming Department also designs, executes and analyzes war games for theater security cooperation plans and operational war fighting issues.

Assessment Program: The Navy Assessment Program provides capability-based planning assessment for Joint Capabilities Integration and Development System (JCIDS), conducts analysis to affect war fighting capability trades and enterprise resources, identifies needs, gaps, and overlaps, and assesses alternative solutions to Joint needs. The program supports both the development and use of modeling, simulation and analytically-based warfare and provides business analyses and analytic tools that provide the basis for decision making with respect to concepts of operations (CONOPS), Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Systems (Information Dominance); warfare systems (Sea Strike, Sea Shield, and Sea Basing) and analytical underpinnings/ basis for programmatic decisions of the Navy's top leadership regarding their architectures, force structure, and the Navy's core "organize, train, and equip mission" (the warfare and provider Enterprises). The program provides overarching Planning, Programming, Budgeting and Execution System (PPBES) analyses and guidance for PPBES which provides gap analysis and investment strategy and total obligation authority allocation. It provides independent capability analysis and assists in structuring follow-on Navy analyses. The program coordinates Navy's position for the enhanced planning process and conducts net assessments. It serves as the lead campaign analysis to approve Navy warfare and support requirements. The program supports "A Cooperative Strategy for 21st Century Seapower 21" as modified by the Maritime Strategy which charts a course for the Navy, Coast Guard and Marine Corps to work collectively with each other and international partners to prevent crises from occurring or reacting quickly should one occur to avoid negative impact to the United States. It serves as an independent assessor providing a broad-view perspective across the Navy staff apart from resource sponsors, with an integrated look at both war fighting and war fighting support programs. The program supports the world class modeling efforts to attain a level of Modeling and Simulation (M&S) capability that is world class and establishes the Navy as a leader in the Department of Defense (DoD) M&S community. It provides Navy alternatives in assessing the implications embedded within resource decisions in a quantified context of costs versus capability versus risk. The program provides independent analytic support to Navy leadership in conjunction with various executive level decision forums. It develops tools and analytical methodologies that assist in evaluating Navy programs and provides technical leadership for the analysis functional area of Naval Modeling and Simulation.

Mid-Range Financial Improvement Plans: This project supports the Research Development Test & Evaluation, Navy (RDTEN) portion of the larger DoD and Navy-wide effort to implement the financial improvement plan. Funding is for the sustainment of clean and auditable statements for RDTEN.

Operations Integration Group: Classified

CHENG: Develops and implements architecture-based systems engineering processes, methods and tools that assure integrated and interoperable systems are delivered to the fleet. This project provides the mission-oriented technical basis for implementing capability-based acquisition management within the Navy to engineer and field Navy and Marine Corps combat systems, weapon systems, and command, control, communications, computers and intelligence (C4I) programs that must operate as family-of-systems (FoS) or system-of-systems (SoS). The focus of this project is on identifying the functions, relationships, and connections between systems at both the force and unit level and across warfare mission areas, and encompasses three key elements: Systems Engineering to provide the framework for making engineering decisions by war fighting capability at the FoS/SoS level and supports consistent engineering and investment decision-making across Navy

and Marine Corps programs within capability-based acquisition portfolios. Naval Collaborative Engineering Environment development and implementation as a DON enterprise resource for Naval integration and interoperability information to enable collaboration and decision support among Fleet organizations, Program Executive Offices, Program Managers, Systems Commands, prime contractors, Resource/Warfare Sponsors and Comptroller organizations. Standards, Policies and Guidelines engineering and technical staff to implement DoN, Office of the Secretary of Defense (OSD) and Joint integration and interoperability and Anti-Tamper initiatives.

Naval Research Laboratory (NRL)Facilities Modernization: This program has been established to provide a systematic and planned approach to improve vital in-house science and technology (S&T) laboratory facilities which are reaching or have reached critical stages of deterioration. The program includes restoration and modernization (R&M) initiatives for about 350,000 net square feet, where the average age of the buildings is 67 years old.

The Joint Information Environment (JIE) initiative provides the supporting IT capability framework comprised of shared information technology infrastructure, enterprise services, interoperability with coalition partners and a single security architecture that enables mission commanders to execute mission partnered operations. JIE provides the U.S. configuration controls necessary for enterprise capabilities. By utilizing a U.S enterprise-wide secure Identity and Access Management system, JIE ensures that authorized users at the right classification level gain access to only the data and services they are entitled. The continued development and refinement of a Joint Information Environment will provide for a significant improvement in data sharing within, and between, coalition maritime elements.

MTMD - Maritime Theater Missile Defense Forum:

This project funds participation in Maritime Integrated Air and Missile Defense projects with other nations. Included is participation in the Maritime Missile Defense Projects Framework Memorandum of Understanding of 2004 (as amended 2009). Known as the Maritime Theater Missile Defense (MTMD) forum, it promotes interoperability with the Navies of ten participating nations (Australia, Canada, France, Germany, Italy, Netherlands, Norway, Spain, United Kingdom and the United States). This project funds participation in several Project Arrangements and includes maritime contribution to the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) project, now known as NATO Ballistic Missile Defense (BMD). Engineering analysis and recommendations from MTMD activities are provided to European, Pacific and Central Combatant Commands to influence present day operations. Specifically, the MTMD Forum is addressing challenges with "Maritime Allied Air Defense in Support of Ballistic Missile Defense Operations" that face the Combatant Commanders during present day operations.

The MTMD forum provides protection against the proliferation of short, medium and long-range Ballistic Missile (BM) and Advanced Anti-Ship Cruise Missile (ASCM) threats through the creation of an interoperable sea-based Integrated Air and Missile Defense (IAMD) capability among coalition nations. This includes protection across the full spectrum of these threats through the enhanced utilization of existing sea-based systems to protect against current threats while progressively improving and developing systems and system-of- systems to effectively counter evolving threats.

This project supports USN participation in several Maritime IAMD related Project Arrangements and Working Groups including:

(1) Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) to define and develop architectures as well as to perform engineering to address coalition capability gaps.
(2) Modeling & Simulation (M&S) to establish and maintain a maritime coalition M&S testbed and to perform legacy and future systems simulation testing.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605853N *I Management, Technical & Intl Supt*

(3) Coalition Distributed Engineering Plant (CDEP) to establish and maintain a maritime coalition Hardware-in-the Loop Testbed and to conduct CDEP testing.
(4) Open Architecture (OA) to develop Interface Standards and Data Models.
(5) Test Planning and Execution (TPEX) to develop Test Plans, oversee exercise participation and conduct post event data analysis and reporting.
(6) Operational Requirements (OR) to develop a Coalition Maritime Missile Defense Operational Concept Document and to identify operational constraints and tactical constructs surrounding coalition maritime missile defense activities.
(7) Reciprocal Use of Test Facilities agreements with other nations to support Maritime IAMD and MTMD related demonstrations.

Anti-Tamper (AT): The AT program performs as the Navy Technical Process Owner for the Anti-Tamper systems engineering activity that is intended to prevent and/or delay the exploitation of critical technologies in U.S. systems; manages the research, design, development, implementation, and testing of AT measures and coordinates with Department of Defense AT Executive Agent. Starting in FY19, funding for AT is realigned to PE 0605024N Anti-Tamper Technology Support.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	87.077	94.562	97.597	-	97.597
Current President's Budget	97.939	94.562	87.565	-	87.565
Total Adjustments	10.862	0.000	-10.032	-	-10.032
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.001	0.000			
• SBIR/STTR Transfer	-1.983	0.000			
• Program Adjustments	0.000	0.000	-6.828	-	-6.828
• Rate/Misc Adjustments	0.000	0.000	-3.204	-	-3.204
• Congressional General Reductions Adjustments	-0.154	-	-	-	-
• Congressional Add Adjustments	13.000	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 9999: *Congressional Adds*		
Congressional Add: *Printed Circuit Board Executive Agent*	12.573	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605853N *I Management, Technical & Intl Supt*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Congressional Add Subtotals for Project: 9999	12.573	0.000
Congressional Add Totals for all Projects	12.573	0.000

Change Summary Explanation

The funding decrease in FY19 reflects the realignment of the funding for Project 2801 Anti-Tamper (AT) to 0605024N Anti-Tamper Technology Support and the realignment of funding for Project 1767 Naval War College Strategic Studies Support to Operation and Maintenance, Navy (O&M,N) BA 3, Professional Development Education (3C3L) for the enhancement of Navy gaming and research.

The FY 2019 request was reduced by -$6.2 million to account for the availability of prior year execution balances. The FY 2019 funding request was further reduced by $0.460 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 0149 / *International Coop RDT&E*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0149: *International Coop RDT&E*	0.000	3.544	3.000	3.575	-	3.575	3.658	3.513	3.549	3.623	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Provides funding for program management, execution, and support activities to implement a broad range of cooperative naval Research and Development, Test and Evaluation (RDT&E) initiatives to improve coalition interoperability, harmonize US Navy requirements with allied and friendly nations,and identify cooperative international opportunities. The funding is used to develop approaches to international cooperation consistent with combatant commanders (COCOMs), CNO, and SECNAV priorities in the maritime domain.

Various cooperative RDT&E programs, projects and exchanges are pursued to identify cooperative acquisition programs, enhance OCO efforts and MDA development, fill capability gaps, improve US/coalition interoperability, and standardize defense capabilities with international partners. Such efforts have resulted in:
1. Negotiating and developing approximately 57 international RDT&E Agreements annually with allied and friendly nations;
2. Executing approximately 300 Information Exchange Annexes (IEAs) with foreign partners;
3. Improving IEA information dissemination with allied and friendly countries and within Department of the Navy (DoN);
4. Coordinating Navy inputs to the Office of the Under Secretary of Defense (OUSD) Acquisition, Technology, and Logistics (AT&L) Foreign Comparative Test (FCT) Program, and Coalition Warfare Program (CWP) as well as the DoN Technology Transfer Security Assistance Review Boards (TTSARB).
5. Represent the US Navy in Office of the Secretary of Defense (OSD) directed Armaments Cooperation Forums, including the Conference of NATO Armaments Directors' groups {NATO Naval Armaments Group (NNAG)}, and Senior National Representative(SNR);
6. Funding of various international RDT&E support databases including Technical Project Officer (TPO), International Agreement Generators, Information/Data Exchange Agreements, and Project Agreements/Memorandums of Understanding;
7. Funding for Engineering and Scientist Exchange Program (ESEP).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: International Coop RDT&E	3.544	3.000	3.575	0.000	3.575
Articles:	-	-	-	-	-
FY 2018 Plans: -Continue ongoing efforts from prior FY17 -Continue to support Maritime Missile Defense (MTMD) Forum system engineering and BMD interoperability activities, including Forum staff support, and ongoing PA activities for Battle Management C4I, Coalition Distributed Engineering Plant, Modeling and Simulation, Force Level Open Architecture Standards, and At-Sea Demonstration					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 0149 / *International Coop RDT&E*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue execution of approximately 150 Information Exchange Agreements/Data Exchange Agreements (IEA/DEA) with more than 30 countries -Continue execution and support in placement of U.S. Navy and partner nation engineers and scientists under OSD's Engineer and Scientist Exchange Program (ESEP) -Continue to coordinate U.S. Navy participation in OUSD (AT&L) Coalition Warfare Program (CWP) selection processes to meet emerging military capability requirements -Support U.S.-India Defense Technology and Trade Initiative Working Groups, including the Joint Working Group on Aircraft Carrier Technology Cooperation (JWGACTC), the Jet Engine Technology Joint Working Group (JETJWG), and the Joint Working Group on Naval Systems (JWGNS). -Support U.S.-India Defense Technology and Trade Initiative Information Exchange and Terms of Reference (TOR) exchanges to promote cooperative opportunity development. -Navy International Agreement Database maintenance and support -Execution of Above Water Working Group (AWWG) -Continue to support NATO Naval Armaments Group (NNAG) and Five Power Groups on cooperative programs					
FY 2019 Base Plans: -Continue all efforts from prior FY's -Identify potential from an International Theater ASW Forum with foreign partners, similar in structure to the existing MTMD Forum. -Continue to support Maritime Missile Defense (MTMD) Forum system engineering and BMD interoperability activities, including Forum staff support, and ongoing PA activities for Battle Management C4I, Coalition Distributed Engineering Plant, Modeling and Simulation, Force Level Open Architecture Standards, and At-Sea Demonstration -Continue execution of approximately 150 Information Exchange Agreements/Data Exchange Agreements (IEA/DEA) with more than 30 countries -Continue execution and support in placement of U.S. Navy and partner nation engineers and scientists under OSD's Engineer and Scientist Exchange Program (ESEP) -Continue to coordinate U.S. Navy participation in OUSD (AT&L) Coalition Warfare Program (CWP) selection processes to meet emerging military capability requirements -Support U.S.-India Defense Technology and Trade Initiative Working Groups, including the Joint Working Group on Aircraft Carrier Technology Cooperation (JWGACTC), the Jet Engine Technology Joint Working Group (JETJWG), and the Joint Working Group on Naval Systems (JWGNS).					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 0149 / *International Coop RDT&E*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Support U.S.-India Defense Technology and Trade Initiative Information Exchange and Terms of Reference (TOR) exchanges to promote cooperative opportunity development. -Navy International Agreement Database maintenance and support -Execution of Above Water Working Group (AWWG) -Continue to support NATO Naval Armaments Group (NNAG) and Five Power Groups on cooperative programs ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2018 request was reduced by $0.6 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	3.544	3.000	3.575	0.000	3.575

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The Navy International Cooperative RDT&E project supports the implementation of many international cooperative program activities throughout the Department of the Navy (DoN) RDT&E communities. The project funds DoN participation in NATO and OSD lead Armaments Cooperation as well as DoN lead international cooperation that promotes coalition interoperability and set standards with international partners. The focused activities under this project maximize the DoN's efforts by leveraging international technologies and funding to fill capabilities gaps, gain access to foreign research and testing data, and avoid duplication of research and development efforts. The performance goals and metrics are, in cooperation with Maritime Partner nations, to set and harmonize requirements, utilize respective technologies, encourage financial contributions and facilities use, and support forums and work that reduce DoN funding requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 1767 / *Naval War Col Strategic Studies Supt*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1767: *Naval War Col Strategic Studies Supt*	0.000	4.044	4.434	5.263	-	5.263	5.658	5.769	5.879	5.991	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Naval War College (NWC) research, analysis and gaming activities serve as a focal point, stimulus, and major source of strategic and operational thought within the Navy, Joint and Interagency communities. These efforts generate strategic and operational alternatives, tactical imperatives, quantitative analysis, war gaming, political-military assessments, and provide recommendations to the Chief of Naval Operations (CNO), Fleet Commanders and numbered Fleet Commanders regarding the formulation and execution of maritime options for the President of the United States.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Strategic Studies	1.249	0.512	0.522	0.000	0.522
Articles:	-	-	-	-	-
Description: Naval War College (NWC) conducts research in strategic studies in response to tasking from the Secretary of the Navy (SECNAV), Chief of Naval Operation (CNO), Fleet Commanders, numbered Fleet Commanders, and Combatant Commanders. NWC also hosts the activities of the CNO's Strategic Studies Group (SSG). The CNO SSG is a select group of senior naval officers handpicked by the CNO, who report to him in the development of revolutionary warfighting and operational concepts, such as Sea Strike and FORCEnet.					
FY 2018 Plans: - Conduct research and analysis projects and provide d supporting events for OPNAV, the numbered Fleets, Navy Component Commanders, and the Combatant Commanders. - Continued to support the OPNAV Staff on tasked research projects. - Conduct research into the Chinese Maritime capabilities and affairs in order to enhance understanding of global developments and provide studies and advice for the CNO and the fleet.					
FY 2019 Base Plans: - Conduct research and analysis projects and provide d supporting events for OPNAV, the numbered Fleets, Navy Component Commanders, and the Combatant Commanders. - Continued to support the OPNAV Staff on tasked research projects.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 1767 / *Naval War Col Strategic Studies Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue to conduct research into the Chinese Maritime capabilities and affairs in order to enhance understanding of global developments and provide studies and advice for the CNO and the fleet. -Conduct limited research into North Korea capabilities/affairs and the future of the Arctic Region order to enhance understanding of global developments and provide studies and advice for the CNO and the fleet. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change from FY 2018 to FY 2019.					
Title: Naval War Gaming Support	2.411	3.350	4.157	0.000	4.157
Articles:	-	-	-	-	-
Description: Naval War College (NWC) conducts strategic and operational war gaming and research for Office of the Chief of Naval Operations (OPNAV), the numbered Fleets, Fleet Commanders, and the Combatant Commanders. Each year, 45-60 major war games and associated events provide support to efforts that explore and analyze military, political,informational and economic aspects of differing strategic and operational scenarios and tactical imperatives. ***FY 2018 Plans:*** - Conduct 60-65 major war games and related events in support of OPNAV, the numbered Fleets, and the Combatant Commands. - Continue to support CNO and OPNAV with Navy Title X war games, research, and analysis. Continue to provide war gaming expertise to other services Title 10 war games. - Continue to provide research, analysis, and war gaming support to senior Navy leadership in areas as directed, such as MDA, Irregular Warfare, cyber, and C4ISR. - Continue to conduct research, analysis, and war gaming of emerging concepts such as anti access and area denial and air sea battle. - Continue to foster and sustain cooperative relationships with international partners through the use of war gaming, research, and analysis. - Continue to conduct analytic research on maritime security cooperation planning for forward based fleets.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 1767 / *Naval War Col Strategic Studies Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue to lead the effort to conduct analytical research in operational concepts of Cyber Warfare. - Continue to support Fleet Commanders and advance concepts in war fighting areas of interest, such as critical infrastructure protection and counter piracy. - Continue to support Fleet Commanders and advance concepts in war fighting areas of interest, such as critical infrastructure protection. - Continue to support Fleet Commanders with high quality Course of Action Analysis and war games of operational plans. - Continue to conduct advanced research and analysis for OPNAV on determining measures of effectiveness for implementation of Cooperative Strategy for 21st Century Sea power. - Continue war gaming, research and analytical support for Navy core capabilities, such as deterrence, maritime security, and sea control. - Continue to conduct research and analysis on key operational challenges such as theater ASW, IAMD, global maritime security, maritime homeland defense, MDA, and sea basing. - Continue to increase the level of directed high security research war gaming at the operational level of war. Intent of the high security research games will be to inform current and future Navy programs regarding focus issues and capabilities.					
FY 2019 Base Plans: - Conduct 60-65 major war games and related events in support of OPNAV, the numbered Fleets, and the Combatant Commands. - Continue to support CNO and OPNAV with Navy Title X war games, research, and analysis. Continue to provide war gaming expertise to other services Title 10 war games. - Continue to provide research, analysis, and war gaming support to senior Navy leadership in areas as directed, such as MDA, Irregular Warfare, cyber, and C4ISR. - Continue to conduct research, analysis, and war gaming of emerging concepts such as anti access and area denial and air sea battle. - Continue to foster and sustain cooperative relationships with international partners through the use of war gaming, research, and analysis. - Continue to conduct analytic research on maritime security cooperation planning for forward based fleets. - Continue to lead the effort to conduct analytical research in operational concepts of Cyber Warfare. - Continue to support Fleet Commanders and advance concepts in war fighting areas of interest, such as critical infrastructure protection and counter piracy.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 1767 / *Naval War Col Strategic Studies Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue to support Fleet Commanders and advance concepts in war fighting areas of interest, such as critical infrastructure protection. - Continue to support Fleet Commanders with high quality Course of Action Analysis and war games of operational plans. - Continue to conduct advanced research and analysis for OPNAV on determining measures of effectiveness for implementation of Cooperative Strategy for 21st Century Sea power. - Continue war gaming, research and analytical support for Navy core capabilities, such as deterrence, maritime security, and sea control. - Continue to conduct research and analysis on key operational challenges such as theater ASW, IAMD, global maritime security, maritime homeland defense, MDA, and sea basing. - Continue to increase the level of directed high security research war gaming at the operational level of war. Intent of the high security research games will be to inform current and future Navy programs regarding focus issues and capabilities. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase from FY 2018 to FY 2019 supports the 60-65 major war games and related events in support of OPNAV, the numbered Fleets, and the Combatant Commands.					
Title: Warfare Analysis and Research	0.305	0.533	0.544	0.000	0.544
Articles:	-	-	-	-	-
Description: Naval War College (NWC) supports senior decision-makers from the Department of Defense, Department of the Navy, the numbered Fleets, Fleet Commanders and Combatant Commanders in reaching well-informed, objective decisions on strategic, operational and programmatic issues through collaborative research which integrates traditional research and analysis with advanced decision support tools. ***FY 2018 Plans:*** - Continue to conduct major decision events in support of OPNAV, the numbered Fleets, Fleet Commanders, and the Combatant Commanders. Projects were in direct support of warfighting analysis requirements for numbered fleet commanders and were expanded to include Commander Seventh Fleet (C7F) with particular focus on India and the Indian Ocean.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 1767 / *Naval War Col Strategic Studies Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Conduct analytical research on key strategic and operational challenges such as maritime ballistic missile defense, proliferation security initiative, global maritime security, maritime situational awareness, maritime operations headquarters, interconnectivity, and multi-service force deployment. - Continue additional evaluation of concepts and decision events in conjunction with war gaming center. - Conduct research targeted at the strategic and policy level decision making within China. - Continue to provide direct support to NWC student research groups and war gaming. - Approximately 20 major decision events will be conducted in support of there efforts. ***FY 2019 Base Plans:*** - Continue to conduct major decision events in support of OPNAV, the numbered Fleets, Fleet Commanders, and the Combatant Commanders. Projects were in direct support of warfighting analysis requirements for numbered fleet commanders and were expanded to include Commander Seventh Fleet (C7F) with particular focus on India and the Indian Ocean. - Conduct analytical research on key strategic and operational challenges such as maritime ballistic missile defense, proliferation security initiative, global maritime security, maritime situational awareness, maritime operations headquarters, interconnectivity, and multi-service force deployment. - Continue additional evaluation of concepts and decision events in conjunction with war gaming center. - Conduct research targeted at the strategic and policy level decision making within China. - Continue to provide direct support to NWC student research groups and war gaming. - Approximately 20 major decision events will be conducted in support of there efforts. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant increase from FY 2018 to FY 2019.					
Title: NWC Student Research Projects	0.079	0.039	0.040	0.000	0.040
Articles:	-	-	-	-	-
Description: Selected top performing Naval War College (NWC) students to conduct focused research and analysis of current and future strategic and operational challenges and tactical imperatives. These students are organized under the supervision of the Mahan Scholars Program and the Halsey Group Program. ***FY 2018 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 1767 / *Naval War Col Strategic Studies Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Conduct focused research, analysis and war gaming of current and future strategic/operational challenges and tactical imperatives by the Halsey Groups and Mahan Scholars programs. - Research groups continue to conduct focused research, analysis and free-play war gaming of current and future operational challenges and tactical imperatives arising from regional threats, homeland defense and access denial efforts at the high end of the conflict spectrum in the Pacific, European Command (EUCOM), Central Command (CENTCOM) and Northern Command (NORTHCOM) area of responsibility (AOR). Research and analysis efforts continue in those areas above, and will be expanded to include a detailed focus on counter-targeting, operational deception, and countering information denial and missile defense at the theater joint operational level. - Conduct research for Deputy Secretary of Defense (DEPSECDEF) on matters tasked to the College. ***FY 2019 Base Plans:*** - Conduct focused research, analysis and war gaming of current and future strategic/operational challenges and tactical imperatives by the Halsey Groups and Mahan Scholars programs. - Research groups continue to conduct focused research, analysis and free-play war gaming of current and future operational challenges and tactical imperatives arising from regional threats, homeland defense and access denial efforts at the high end of the conflict spectrum in the Pacific, European Command (EUCOM), Central Command (CENTCOM) and Northern Command (NORTHCOM) area of responsibility (AOR). Research and analysis efforts continue in those areas above, and will be expanded to include a detailed focus on counter-targeting, operational deception, and countering information denial and missile defense at the theater joint operational level. - Conduct research for Deputy Secretary of Defense (DEPSECDEF) on matters tasked to the College. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	4.044	4.434	5.263	0.000	5.263

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 1767 / *Naval War Col Strategic Studies Supt*

D. Acquisition Strategy

N/A

E. Performance Metrics

This project provides research, analysis and war gaming to meet the needs of the Secretary of the Navy, the Chief of Naval Operations, and Fleet Commanders. Performance is measured in terms of both the quantity and quality of war games, analysis and the extent to which demand for war games and research products can be accommodated within funding levels. Results of research products and war games are evaluated through customer feedback and the extent to which findings are incorporated into follow-on research and practical applications such as Navy doctrine, operational tactics, and programming decisions made during the Planning, Programming, Budgeting & Execution (PPBE) process.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 2098 / *Navy Postgraduate School (NPS) Studies Support*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2098: *Navy Postgraduate School (NPS) Studies Support*	0.000	12.755	13.122	11.588	-	11.588	11.559	11.961	12.099	12.348	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Navy Postgraduate School (NPS) research and analysis activities serve as a focal point, stimulus, and major source of strategic, tactical and operational thought within the Navy communities. These efforts generate strategic and operational alternatives, tactical imperatives, quantitative analyses, technical developments and assessments, and political-military assessments. Also, provide recommendations to the Chief of Naval Operations (CNO), Fleet Commanders and numbered Fleet Commanders regarding the formulation and execution of maritime options for the President of the United States. Research will be conducted that will enhance graduate education for Naval Officers and potentially provide students with areas of studies for theses and faculty projects. These research activities also serve as a means for OPNAV Resource Sponsors and Major Commands to have analysis and decision support research conducted in the uses of the applied, soft, and hard sciences in solving diverse and complex resource allocation and strategic issues facing the Navy today and envisioned in the future.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Faculty and Student Studies, Analysis and Research	12.755	13.122	11.588	0.000	11.588
Articles:	-	-	-	-	-
Description: Navy Postgraduate School (NPS) supports senior decision-makers from the Department of the Navy, the Office of the Chief of Naval Operations, Budget Submission Offices and Fleet Commanders in reaching well-informed, objective decisions on strategic, operational and programmatic issues through collaborative research which integrates traditional research and analysis with advanced decision support tools. Student Theses will be an integral part of this program in support of the critical analysis and research conducted by the Faculty.					
FY 2018 Plans: - Conduct studies in support of OPNAV N1 - Conduct studies in support of OPNAV N2/N6 - Conduct studies in support of OPNAV N3/N5 - Conduct studies in support of OPNAV N4 - Conduct studies in support of OPNAV N8 - Conduct studies in support of OPNAV N9 - Conduct studies in support of US Fleet Forces Command					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 2098 / *Navy Postgraduate School (NPS) Studies Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Conduct studies in support of the Secretary of the Navy ***FY 2019 Base Plans:*** - Conduct studies in support of OPNAV N1 - Conduct studies in support of OPNAV N2/N6 - Conduct studies in support of OPNAV N3/N5 - Conduct studies in support of OPNAV N4 - Conduct studies in support of OPNAV N8 - Conduct studies in support of OPNAV N9 - Conduct studies in support of US Fleet Forces Command - Conduct studies in support of the Secretary of the Navy ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The decrease from FY 2018 to FY 2019 reflects fewer studies being conducted in FY 2019.					
Accomplishments/Planned Programs Subtotals	12.755	13.122	11.588	0.000	11.588

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This Project provides funding to support continuing need for studies and analysis to meet the needs of the Secretary of the Navy, the Chief of Naval Operations, Resource Sponsors, Major Commands and Fleet Commanders. Performance is measured in terms of both the quantity and quality of the studies, research and analysis products that can be accommodated within funding levels. Results of research products are evaluated through customer feedback and the extent to which findings are incorporated into follow-on research and practical applications such as Navy doctrine, operational tactics, and programming decisions made during the Planning, Programming, Budgeting & Execution (PPBE) process. This project supports research of both Naval Postgraduate School faculty and students.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 2221 / *JT Mission Assessment Studies*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2221: *JT Mission Assessment Studies*	0.000	20.256	24.889	25.767	-	25.767	26.937	27.522	27.835	28.364	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Navy Assessment Program provides capability-based planning assessment for Joint Capabilities Integration and Development System (JCIDS), conducts analysis to affect warfighting capability trades and enterprise resources, identifies needs, gaps and overlaps, and assesses alternative solutions to Joint needs. The program supports both the development and use of modeling, simulation and analytically-based warfare and provides business analyses and analytic tools that provide the basis for decision making with respect to concepts of operations, Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance Systems (Information Warfare); warfare systems (Expeditionary Warfare & Combat Logistics, Sea Control, and Power Projection) and analytical underpinnings/basis for programmatic decisions of the Navy's top leadership regarding their architectures, force structure, and the Navy's core "organize, train, and equip mission" (the warfare and provider Enterprises). The program provides overarching Planning, Programming, Budgeting and Execution System (PPBES) analyses and guidance for PPBES which provides gap analysis and investment strategy and total obligation authority allocation. It provides independent capability analysis and assists in structuring follow-on Navy analyses. The program coordinates Navy's position for the enhanced planning process and conducts net assessments. It serves as the lead campaign analysis to approve Navy warfare and support requirements. The program supports "A Cooperative Strategy for 21st Century Seapower 21" as modified by the Maritime Strategy which charts a course for the Navy, Coast Guard and Marine Corps to work collectively with each other and international partners to prevent crises from occurring, or reacting quickly should one occur to avoid negative impact to the United States. It serves as an independent assessor providing a broad-view perspective across the Navy staff apart from resource sponsors, with an integrated look at both warfighting and warfighting-support programs. The program supports the world class modeling efforts to attain a level of Modeling and Simulation (M&S) capability that is world class and establishes the Navy as a leader in the Department of Defense M&S community. It provides Navy alternatives in assessing the implications embedded within resource decisions in a quantified context of costs versus capability versus risk. The program provides independent analytic support to Navy leadership in conjunction with various executive level decision forums.

CONFORM/CDE for ships, boats and unmanned maritime vehicles must be continuously exercised to remain viable. It takes years to train competent practitioners, and knowledge currency is quickly lost without practice. Evolving threats and technologies drive concepts (and the tools, processes, and skills needed to produce them) towards obsolescence without constant attention. Capability Based Assessments and Analysis of Alternatives (AoA) timelines are insufficient for establishing potential material solution cost versus capability relationships without significant concept formulation work beforehand. Active collaboration between the Office of the Chief of Naval Operations requirement sponsors, Program Offices, and the various System Commands (Naval Sea Systems Command, Naval Air Systems Command and Space and Naval Warfare Systems Command) engineers is critical for fully exploring the trade space by conducting analysis for affordability, effectiveness and risk.
- The majority of Total Ownership Cost (TOC) is locked into a design before it is even a program. In the later stages of a program it becomes much more costly to make changes that will significantly impact TOC. Investment up front in concept design can have a high payoff in TOC reduction over the life of a platform class.
- This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship and associated platform force structure along with development of the tools to accomplish these efforts. Advanced platform concept studies and systems technology assessments will be conducted as will the development and upgrade of concept design and engineering tools, methods, and criteria.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 2221 / *JT Mission Assessment Studies*

- Outputs include concept costing and performance parameterization for comparative assessment against capability objectives and synthesis to quantify overall (Fleet) capabilities. These products (expressions of cost vs. capability) will serve as the basis of requirements and Joint Capabilities Integration and Development System analysis, define the trade space for AoA efforts, and underpin discussion of force architecture/structure during Quadrennial Defense Review, Long Range Shipbuilding Strategy builds, and Joint Requirements Oversight Council reviews.

Capabilities-Based Assessment (CBA) is the Joint Capabilities Integration and Development System (JCIDS) analysis process that includes three phases: Functional Area Analysis (FAA), Functional Needs Analysis (FNA), and Functional Solution Analysis (FSA). The results of the CBA are used to develop a joint capabilities document (based on the FAA and FNA) or initial capabilities document (based on the full analysis). CBA funding provides the resource sponsors the means to develop the analytic underpinning required by Chairman of the Joint Chiefs of Staff Instruction 3170.01G to support the determination of Naval warfighting capabilities and force structure needed to support the Joint Requirements Oversight Council (JROC)/JCIDS requirements validation process and to inform Program Objective Memorandum programming decisions. This analysis includes evaluation of integration and interoperability gaps of both current and future Navy platforms and systems capabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Navy Standard Scenarios with Warfare and Warfare Support Analyses	0.990	1.126	1.148	0.000	1.148
Articles:	-	-	-	-	-
FY 2018 Plans: Continue to develop, update and maintain detailed level Navy Standard scenarios based on DPG. -Continue to develop alternative scenarios in support of Defense Review guidance, Joint studies, and Navy resource analyses. -Continue to develop, update and maintain analytic baselines for the MCO based on DPG. -Continue to develop details required to execute analysis of designated Defense Planning Scenarios and their respective Multi-Service Force Deployment Plans. -Continue to develop and maintain a framework and common set of processes to ensure that essential elements of warfare analyses, including scenarios, operational concepts, tactics, capabilities of platforms and systems (for Navy, Joint, coalition and threat forces), key assumptions and input data are defined and traceable to government approved/provided source material. -Continue to develop scenarios and operational concepts based on government inputs that are sufficiently detailed for use in naval and joint campaign analyses. -Continue to develop MOPs and MOEs and recommend appropriate modeling/methodology to support analyses. -At the mission level, continue to script OPSITS or TACSITS for use in effectiveness analyses in specific warfare mission areas.					
FY 2019 Base Plans: Continue to develop, update and maintain detailed level Navy Standard scenarios based on DPG. -Continue to develop alternative scenarios in support of Defense Review guidance, Joint studies, and Navy resource analyses.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue to develop, update and maintain analytic baselines for the MCO based on DPG. -Continue to develop details required to execute analysis of designated Defense Planning Scenarios and their respective Multi-Service Force Deployment Plans. -Continue to develop and maintain a framework and common set of processes to ensure that essential elements of warfare analyses, including scenarios, operational concepts, tactics, capabilities of platforms and systems (for Navy, Joint, coalition and threat forces), key assumptions and input data are defined and traceable to government approved/provided source material. -Continue to develop scenarios and operational concepts based on government inputs that are sufficiently detailed for use in naval and joint campaign analyses. -Continue to develop MOPs and MOEs and recommend appropriate modeling/methodology to support analyses. -At the mission level, continue to script Operational Situations (OPSITS) or Tactical Situations (TACSITS) for use in effectiveness analyses in specific warfare mission areas. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change from FY 2018 to FY 2019.					
Title: Capability Based Assessments with Campaign Mission Analyses Analytical and Technical Support	2.730	3.116	3.097	0.000	3.097
Articles:	-	-	-	-	-
FY 2018 Plans: -Continue to perform collaborative assessment with capability sponsors. -Continue to proactively participate in Capability Sponsors' Integrated Process Teams. -Continue to present opposing analytically-based points of view to the CNO and Navy senior leadership. -Continue to provide analytically-based decision recommendations to CNO for both warfighting and support areas. -Continue to develop CNO investment strategy recommendations and assessments for Program Review and Program Objective Memorandum. -Continue to assess capability sponsors' products for senior leadership decision forums. -Continue to conduct Verification, Validation & Accreditation of warfare, performance, and pricing models. -Continue to conduct OCO CBAs that provide a rapid and scalable process to utilize a Concept of Operation, developed investment strategies, and capabilities roadmaps.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue to conduct Tactical Aircraft Recapitalization alternatives and Theater Ballistic Missile Defense cost capability trade off assessments. -Continue to conduct independent assessment of Anti-Submarine Warfare. -Continue to conduct weapons safety and sea basing capability assessments. -Continue to conduct ISR and METOC assessments to determine the optimal mix of Naval ISR and METOC sensors, platforms, and processing, analysis and fusion disposition to support MCOs, the OCO, and intelligence preparation of the environment for both MCOs and OCO. -Continue to support CBAs to meet the requirements of current and future scenarios, and make strategic decisions within a constrained economic framework. -Continue to perform rigorous, time critical naval and joint campaign and mission-level analyses, usually based on modeling and simulation that illuminate complex warfare issues which support decision-making in the PPBE process. -Continue to perform analyses including joint campaign analysis that examine the ability to counter a range of coordinated threat capabilities, high level tradeoffs between service capabilities, or impact of large-scale architecture, mission-level effectiveness analyses that determine system capabilities; conduct analyses of alternative force structures that determine the ability to meet peacetime deployment or steady-state requirements and respond to transition to war and contingency operations. -Continue to conduct cost-effectiveness analyses and analyses of new technologies in support of Sponsor Program Proposal, Navy Program Objective Memorandum or Warfare Capability Plan. -Continue to develop innovative analysis techniques that evaluate the effectiveness of operations on the Long War focus on Irregular Warfare and Sea Shaping (influence) activities such as Theater Security Cooperation. -Continue to provide rigorous business case assessments of complex issues relating to the warfighting support processes, manpower and personnel, training and education, infrastructure, both afloat and ashore readiness, Naval Medical Program and provider enterprise operations. -Continue to perform analyses for accreditation of models, use estimated cost and performance of performance-based modeled programs such as the Flying Hour Program, ship operations, ship and aircraft maintenance, spares, facilities, and base operation support.					
FY 2019 Base Plans: -Continue to perform collaborative assessment with capability sponsors. -Continue to proactively participate in Capability Sponsors' Integrated Process Teams. -Continue to present opposing analytically-based points of view to the CNO and Navy senior leadership.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue to provide analytically-based decision recommendations to CNO for both warfighting and support areas. -Continue to develop CNO investment strategy recommendations and assessments for Program Review and Program Objective Memorandum. -Continue to assess capability sponsors' products for senior leadership decision forums. -Continue to conduct Verification, Validation & Accreditation of warfare, performance, and pricing models. -Continue to conduct OCO CBAs that provide a rapid and scalable process to utilize a Concept of Operation, developed investment strategies, and capabilities roadmaps. -Continue to conduct Tactical Aircraft Recapitalization alternatives and Theater Ballistic Missile Defense cost capability trade off assessments. -Continue to conduct independent assessment of Anti-Submarine Warfare. -Continue to conduct weapons safety and sea basing capability assessments. -Continue to conduct ISR and METOC assessments to determine the optimal mix of Naval ISR and METOC sensors, platforms, and processing, analysis and fusion disposition to support MCOs, the OCO, and intelligence preparation of the environment for both MCOs and OCO. -Continue to support CBAs to meet the requirements of current and future scenarios, and make strategic decisions within a constrained economic framework. -Continue to perform rigorous, time critical naval and joint campaign and mission-level analyses, usually based on modeling and simulation that illuminate complex warfare issues which support decision-making in the PPBE process. -Continue to perform analyses including joint campaign analysis that examine the ability to counter a range of coordinated threat capabilities, high level tradeoffs between service capabilities, or impact of large-scale architecture, mission-level effectiveness analyses that determine system capabilities; conduct analyses of alternative force structures that determine the ability to meet peacetime deployment or steady-state requirements and respond to transition to war and contingency operations. -Continue to conduct cost-effectiveness analyses and analyses of new technologies in support of Sponsor Program Proposal, Navy Program Objective Memorandum or Warfare Capability Plan. -Continue to develop innovative analysis techniques that evaluate the effectiveness of operations on the Long War focus on Irregular Warfare and Sea Shaping (influence) activities such as Theater Security Cooperation. -Continue to provide rigorous business case assessments of complex issues relating to the warfighting support processes, manpower and personnel, training and education, infrastructure, both afloat and ashore readiness, Naval Medical Program and provider enterprise operations.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue to perform analyses for accreditation of models, use estimated cost and performance of performance-based modeled programs such as the Flying Hour Program, ship operations, ship and aircraft maintenance, spares, facilities, and base operation support. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change from FY 2018 to FY 2019.					
Title: Campaign Analysis-Modeling and Simulation	3.642	4.125	4.251	0.000	4.251
Articles:	-	-	-	-	-
FY 2018 Plans: -Continue to develop and maintain common baselines from which campaign excursions and mission-level analyses are executed. -Continue to identify, develop and improve data and modeling. -Continue to lead Navy's participation in OSD/Joint Staff analytic agenda, baseline development, and collection of data. -Continue to provide coordination across the Navy. -Continue to broker agreements upon assumptions, CONOPS, scenarios, and data. -Continue to lead campaign analysis for OPNAV. -Continue to conduct modeling and simulation support for ongoing OPNAV missile defense analysis requirements.					
FY 2019 Base Plans: -Continue to develop and maintain common baselines from which campaign excursions and mission-level analyses are executed. -Continue to identify, develop and improve data and modeling. -Continue to lead Navy's participation in OSD/Joint Staff analytic agenda, baseline development, and collection of data. -Continue to provide coordination across the Navy. -Continue to broker agreements upon assumptions, CONOPS, scenarios, and data. -Continue to lead campaign analysis for OPNAV.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue to conduct modeling and simulation support for ongoing OPNAV missile defense analysis requirements. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase from FY 2018 to FY 2019 supports increased need for modeling and simulation support for Campaign analysis and ongoing OPNAV missile defense analysis requirements.					
Title: OSD/Joint Staff Study Analysis and Assessment with Investment Strategy Development	1.273	1.517	1.555	0.000	1.555
Articles:	-	-	-	-	-
FY 2018 Plans: -Continue to coordinate and lead OSD/Navy's Analytic Agenda in Defense Planning Scenario, Multi-Service Force Deployment, Enhanced Planning Process, Strategic Planning Guidance, and participate in Capability Sponsors' Integrated Process Teams. -Continue to provide overarching PPBE analyses and guidance. -Continue to provide analytically-based decision recommendations to OPNAV for joint warfighting and support areas. -Continue to conduct net assessments and provide independent analytic support to Navy leadership in conjunction with various executive level decision forums. -Continue to serve as the Navy's lead to Joint Requirements Oversight Council, Joint Capabilities Board, and Functional Capabilities Board. -Continue to provide the lead requirements and acquisition for OPNAV. -Continue to coordinate and lead Navy's role in Defense Planning Guidance, Program Decision Memoranda, Quadrennial Defense Review, and Defense Science Board studies. -Continue to participate in OSD and JS analysis assessments and provide structure for coordination across the Navy. -Continue to coordinate and supported Joint Analytical Model Improvement Program. -Continue to develop new analytic techniques for informing resource allocation decisions; conduct all campaign and warfare mission-level analyses and developed investment strategies. ***FY 2019 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue to coordinate and lead OSD/Navy's Analytic Agenda in Defense Planning Scenario, Multi-Service Force Deployment, Enhanced Planning Process, Strategic Planning Guidance, and participate in Capability Sponsors' Integrated Process Teams. -Continue to provide overarching PPBE analyses and guidance. -Continue to provide analytically-based decision recommendations to OPNAV for joint warfighting and support areas. -Continue to conduct net assessments and provide independent analytic support to Navy leadership in conjunction with various executive level decision forums. -Continue to serve as the Navy's lead to Joint Requirements Oversight Council, Joint Capabilities Board, and Functional Capabilities Board. -Continue to provide the lead requirements and acquisition for OPNAV. -Continue to coordinate and lead Navy's role in Defense Planning Guidance, Program Decision Memoranda, Quadrennial Defense Review, and Defense Science Board studies. -Continue to participate in OSD and JS analysis assessments and provide structure for coordination across the Navy. -Continue to coordinate and supported Joint Analytical Model Improvement Program. -Continue to develop new analytic techniques for informing resource allocation decisions; conduct all campaign and warfare mission-level analyses and developed investment strategies. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase in FY 2019 supports development of new analytic techniques for informing resource allocation decisions.					
Title: World Class Modeling, Simulation, and Capability Analysis	3.836	4.282	4.980	0.000	4.980
Articles:	-	-	-	-	-
FY 2018 Plans: -Continue to develop and improve the Navy's analysis capabilities which support Joint and Navy analytic agendas and resource-allocation decision making by refining the linkages between cost and performance in performance-modeled programs in support of OPNAV analysis and assessment. Areas of tool development and improvement included mission- and campaign-level warfighting models, active and reserve manpower, afloat and ashore readiness, and medical capabilities.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue to focus on integrated analysis capabilities that cut across business and program accounts. Specific efforts address cyber warfare and security, optimizing the training pipeline, integrating ship maintenance and operations price performance models, and improving mission- and campaign-level C5ISR models and representations. -Continue to develop medical analysis that links to campaign analysis including movement of injured between care facilities, life-saving treatment of injured and recuperation support of injured to support Navy Medical Program decisions. -Continue to update the high-level readiness model that fully integrates all aspects of warfighting support (operational utilization, training cycles, training centers, depots, etc.) and personnel (recruitment, training, development, deployment, retention, etc.) across the Navy's warfighting platforms (aircraft, ships, submarines, etc.), facilities and personnel development centers.					
FY 2019 Base Plans: -Continue to develop and improve the Navy's analysis capabilities which support Joint and Navy analytic agendas and resource-allocation decision making by refining the linkages between cost and performance in performance-modeled programs in support of OPNAV analysis and assessment. Areas of tool development and improvement included mission- and campaign-level warfighting models, active and reserve manpower, afloat and ashore readiness, and medical capabilities. -Continue to focus on integrated analysis capabilities that cut across business and program accounts. Specific efforts address cyber warfare and security, optimizing the training pipeline, integrating ship maintenance and operations price performance models, and improving mission- and campaign-level C5ISR models and representations. -Continue to develop medical analysis that links to campaign analysis including movement of injured between care facilities, life-saving treatment of injured and recuperation support of injured to support Navy Medical Program decisions. -Continue to update the high-level readiness model that fully integrates all aspects of warfighting support (operational utilization, training cycles, training centers, depots, etc.) and personnel (recruitment, training, development, deployment, retention, etc.) across the Navy's warfighting platforms (aircraft, ships, submarines, etc.), facilities and personnel development centers.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The funding increase from FY 2018 to FY 2019 reflects the continued development of a new model to improve the Navy's capabilities in Anti-Submarine Warfare (ASW) mission-level analysis.					
Title: CONFORM	4.582	5.994	6.219	0.000	6.219
Articles:	-	-	-	-	-
FY 2018 Plans: -Continue to conduct ship, boat, and unmanned marine vehicle concept studies in preparation for Capabilities Based Assessments (CBAs) and Analysis of Alternatives (AoAs). Studies will be performed in a continuous manner to support future recapitalization of Surface Combatants, Amphibious Ships, Carriers, Auxiliary Ships and other emerging program requirements. -Continue to collaborate with Warfare Systems design experts to perform continuous Warfare Systems analysis at the ship and fleet level. Warfare Systems effectiveness assessment tools are being continually developed and enhanced as required to address future concepts and to incorporate improvements in information technology systems. Additionally, collaborate with aircraft, C4ISR, and networks by continuing dialog and collaboration between NAVSEA, NAVAIR, and SPAWAR systems commands which refines fleet level requirements. -Continue to refine platform concept stage cost analysis tools to predict costs better in areas where weight-based algorithms may not be appropriate. Continually enhance tools to estimate total ownership costs more accurately at the ship and weapons system concept development stage. Conduct cost estimates in support of future concept design exploration, CBA, and AoA efforts. Further develop Cost Estimating Relationships (CERs) to accommodate emerging technologies incorporated in future platforms. Continue to develop cost estimating tools which incorporate emerging technologies applicable to future platforms. -Continue to conduct future force structure concept formulation. Fleet synthesis and analysis will be conducted, which includes capabilities requirements, platform design and cost and quantitative tracking of the long-term evolution of the fleet as new platforms are introduced and old ones are retired. Areas to be examined include interoperability concepts, force architecture impact studies, Long Range Shipbuilding Schedule (LRSS) support, and operational employment concept studies.					
FY 2019 Base Plans: -Continue to conduct ship, boat, and unmanned marine vehicle concept studies in preparation for Capabilities Based Assessments (CBAs) and Analysis of Alternatives (AoAs). Studies will be performed in a continuous manner to support future recapitalization of Surface Combatants, Amphibious Ships, Carriers, Auxiliary Ships and other emerging program requirements.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 2221 / *JT Mission Assessment Studies*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue to collaborate with Warfare Systems design experts to perform continuous Warfare Systems analysis at the ship and fleet level. Warfare Systems effectiveness assessment tools are being continually developed and enhanced as required to address future concepts and to incorporate improvements in information technology systems. Additionally, collaborate with aircraft, C4ISR, and networks by continuing dialog and collaboration between NAVSEA, NAVAIR, and SPAWAR systems commands which refines fleet level requirements. -Continue to refine platform concept stage cost analysis tools to predict costs better in areas where weight-based algorithms may not be appropriate. Continually enhance tools to estimate total ownership costs more accurately at the ship and weapons system concept development stage. Conduct cost estimates in support of future concept design exploration, CBA, and AoA efforts. Further develop Cost Estimating Relationships (CERs) to accommodate emerging technologies incorporated in future platforms. Continue to develop cost estimating tools which incorporate emerging technologies applicable to future platforms. -Continue to conduct future force structure concept formulation. Fleet synthesis and analysis will be conducted, which includes capabilities requirements, platform design and cost and quantitative tracking of the long-term evolution of the fleet as new platforms are introduced and old ones are retired. Areas to be examined include interoperability concepts, force architecture impact studies, Long Range Shipbuilding Schedule (LRSS) support, and operational employment concept studies. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase from FY 2018 to FY 2019 reflects the need for concept studies to inform Fleet architecture and future force structure.					
Title: Joint Mission Assessment Studies	3.203	4.729	4.517	0.000	4.517
Articles:	-	-	-	-	-
Description: CBA - The CBA is the JCIDS analysis process that includes three phases: the FAA, the FNA, and the FSA. The results of the CBA are used to develop a joint capabilities document (based on the FAA and FNA) or initial capabilities document (based on the full analysis). CBA funding provides the resource sponsors the means to develop the analytic underpinning required by Chairman of the Joint Chiefs of Staff Instruction 3170.01G to support the determination of Naval war fighting capabilities and force structure needed to support the JROC/JCIDS requirements validation process and to inform Program Objective Memorandum programming decisions.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 2221 / *JT Mission Assessment Studies*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: Continue CBA's such as advanced Naval surface fires and Naval aviation training to identify future capability requirements. Develop metrics to describe the effectiveness of solutions, and evaluate current and programmed systems ability to meet capability requirements to determine capability gaps. Expand warfighting gap assessments addressing interaction of mission area kill chain platforms, sensors, and weapons in a system-of-system construct. ***FY 2019 Base Plans:*** Continue Capabilities-Based Assessments (CBA) such as advanced Naval surface fires and Naval aviation training to identify future capability requirements. Develop metrics to describe the effectiveness of solutions, and evaluate current and programmed systems ability to meet capability requirements to determine capability gaps. Expand warfighting gap assessments addressing interaction of mission area kill chain platforms, sensors, and weapons in a system-of-system construct. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	20.256	24.889	25.767	0.000	25.767

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A.

E. Performance Metrics

The overall goal is to conduct analysis to support the Navy decisions needed to turn strategy and guidance into the Fleet capabilities we need within acceptable risk. METRIC: Risks are balanced across capability that delivers the right capabilities within the resources available to Navy. Navy Assessment Program supports the development of platform specific studies and Capabilities Based Assessments, an analytical effort resulting in Functional Area Analysis, Functional Needs Analysis, and Functional Solution Analysis. Efforts provide added analytical rigor relative to program's maturation under the Joint Capabilities Integration and Development System (JCIDS) and support warfare integration initiatives.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 2221 / *JT Mission Assessment Studies*

-Navy Standard Scenarios with Warfare and Warfare Support Analyses: Goal: To ensure that essential elements of warfare analyses, including scenarios, operational concepts, tactics, capabilities of platforms and systems (for Navy, Joint, coalition and threat forces), key assumptions and input data are defined and traceable to government approved source material. METRIC: Consistency with other ongoing analyses as directed, develop Measures of Performance and Measures of Effectiveness and recommend appropriate modeling/methodology to support analysis. Models/methodology used reflect study objects, level of fidelity required and time constraints.

-Capability Based Assessments with Campaign Mission Analyses Analytical and Technical Support: Goal: To provide analyses and technical and engineering support including, but not limited to, joint campaign analysis that examines the ability to counter a range of coordinated threat capabilities, high level tradeoffs between service capabilities, or impact of large-scale architecture, force structure of modernization decision; mission-level effectiveness analyses to determine system capabilities; analyses of alternative force structures to determine ability to meet peacetime deployment or steady-state requirements and respond to transition to war and contingency operations; cost-effectiveness and analyses; Acquisition Category Program Office and Systems Command assessments; and analyses of new technologies. METRIC: Develop analysis plans; determine proposed alternatives for analysis; and research performance data on current and future threats, coalition and own force systems; perform technology investigations and forecasts; develop or obtain cost data for current or planned systems; develop and use Cost Estimating Relationships to determine cost for conceptual or future systems for which no cost data is available; identify analysis assumptions, limitations and uncertainties; use established models or develop new models or methodologies to perform analyses; and interpret and analyze results.

-Campaign Analysis-Modeling and Simulation: Goal: Develop and maintain a standard set of models for use in warfare analyses and analyses performed to support Planning Strategy that work at the campaign, mission, and engagement levels. METRIC: A combination of model design statements, model study reports, system specifications, updated model reports, model/database documents, model verification and validation plans, code, and Plan of Action and Milestones reports developed or updated that encompass all aspects of Sea Power 21 to include at a minimum air, land, sea, and Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance.

-Joint Assessments and Integration and Investment Strategy Development: Goal: Conduct assessments to determine shortfalls and redundancies in existing or planned operational or support capabilities; identify key issues including deficiencies in warfighting capability; determine priorities for needed capabilities; assesses affordability of high payoff systems and technologies; assess effectiveness and affordability of alternative force structures; and formulate investment strategies. Continue development and refinement of Navy program planning to determine the warfighting wholeness and cost effectiveness of alternative Navy strategies. METRIC: Identify shortfalls and redundancies in existing or planned capabilities. Determine the impact of variations in warfare systems and architectures in threat, U.S. and combined forces and strategies. Provide engineering and analytic support for the assessment and transition of technology for use in the Investment Strategy.

-World Class Modeling, Simulation, and Capability Analysis: Goal: Development of new models or model upgrades to meet requirements identified by the WCM requirements process that support the Program Objective Memorandum decision-making process, with the goal of creating a state-of-the art set of models for use in warfare and warfare support analyses. METRIC: Develop model design documents, model study reports, system specifications, updated model reports, model documentation, model verification and validation plans, code, Plan of Action and Milestones reports, and technical reports.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 2221 / *JT Mission Assessment Studies*

The May 2007 revision of the Joint Chiefs of Staff's Joint Capabilities Integration and Development System (JCIDS) instruction (CJCSI 3170.01F) requires a CBA to assess new requirements. A CBA instruction has been developed by the Chief Navy Office's warfare integration office that prescribes a procedure and structure to this warfighting requirements generation process (JCIDS). A CBA is required to address and validate capability shortfalls or gaps as defined by combatant commanders. It is an analytical process that includes three phases: the Functional Area Analysis, the Functional Needs Analysis, and the Functional Solution Analysis. This process is designed to address future warfighting requirements and analysis needs and improve the quality of Analysis of Alternatives. CBA supports Navy programming decisions and provides the means to develop the analytic underpinning to support the determination of Naval capabilities and force structure recapitalization investments required to fulfill the Maritime Strategy.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 2801 / *Anti-Tamper*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2801: *Anti-Tamper*	0.000	1.389	1.385	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.774
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Starting in FY19, funding for Project 2801 Anti-Tamper (AT) is realigned to 0605024N Anti-Tamper Technology Support.

A. Mission Description and Budget Item Justification

Anti-Tamper Program - performs as the Navy Technical Process Owner for the Anti Tamper systems engineering activity that is intended to prevent and/or delay the exploitation of critical technologies in U.S. systems; manages the research, design, development, implementation, and testing of Anti Tamper measures and coordinates with Department of Defense Anti Tamper Executive Agent.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Anti-Tamper (AT)	1.389	1.385	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Starting in FY19, funding for Project 2801 Anti-Tamper (AT) is realigned to 0605024N Anti-Tamper Technology Support.					
FY 2018 Plans: Continue championing new technology with a focused and disciplined approach of development, assessment, evaluation, and transition to meet Navy program AT requirements. Maintain role in AT policy development for implementation and execution by the SYSCOMs incorporating Navy program AT requirements. Provide secure facilities, networks, computers, video/telephone conference and support personnel for collateral and Special Program operational environments to enable Anti-Tamper implementation and execution by SYSCOM's programs, incorporating AT requirements.					
FY 2019 Base Plans: .					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 2801 / *Anti-Tamper*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Starting in FY19, funding for Project 2801 Anti-Tamper (AT) is realigned to 0605024N Anti-Tamper Technology Support.					
Accomplishments/Planned Programs Subtotals	1.389	1.385	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Manage the research, design, development, implementation and testing of Anti-Tamper measures for the Department of the Navy. Manage Information Security for all navy programs throughout their lifecycles.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 3024 / *Financial Auditability and Audit Readiness (FIAR)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3024: *Financial Auditability and Audit Readiness (FIAR)*	0.000	0.137	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.137
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding will support DON FIAR efforts to achieve audit readiness.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: FIAR Reimbursable Support	0.137	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The decrease in FY 2018 reflects the realignment of the Financial Auditability and Audit Readiness (FIAR) funding to PE 0605861N RDT&E Science & Technology Management.					
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.137	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3024 / *Financial Auditability and Audit Readiness (FIAR)*

E. Performance Metrics

Efforts will be in compliance with National Defense Authorization Act of 2010 that mandated auditable financial statements. Performance includes monitoring internal controls surrounding business processes at Office of Naval Research.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 3027 / *Defense Critical Infrastructure Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3027: *Defense Critical Infrastructure Program*	0.000	4.625	6.431	5.862	-	5.862	7.743	6.927	7.073	7.217	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funds received pursuant to the transfer of budget authority from OUSD Policy (OUSD (P)) Homeland Defense Mission Assurance Directorate will be used for infrastructure analysis, assessment, and research required to support execution of the Defense Critical Infrastructure and Mission Assurance Program (DCIP / MA). Additionally, the transferred budget authority will be used to provide in-depth/cross-cutting analysis to the Mission Assurance (MA)/DCIP programs at the Office of the Secretary of Defense (OSD), Joint Staff, Military Departments/Services, Defense Sector Lead Agencies (DSLAs), and Combatant Commands. NSWC-A40 will also perform cyber mission assurance research and provide expertise in infrastructure mitigation techniques.

The funding decrease in FY 2017 reflects the availability of prior year execution balances.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Mission Assurance Risk Management System (MARMS) Technical Support	1.145	1.700	1.679	0.000	1.679
Articles:	-	-	-	-	-
Description: The OSD (P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OSD (P). The work performed is in alignment with the 2014 Memorandum of Agreement (MOA) between Naval Surface Warfare Center Dahlgren Division (NSWCDD) (now known as CT&SSD A40) and the Under Secretary of Defense for Policy (USD (P) Mission Assurance Directorate. In accordance with (IAW) the MOA transferred funding the following tasks will be performed in fiscal year (FY) 2019. A40 shall provide capabilities to meet the below technical requirements in support of the developmental efforts for a current or future common operating picture for Mission Assurance supporting Joint Staff MARMS development team					
FY 2018 Plans: 3.1.1 Participate in MARMS technical working group (TWG). Provide assistance with the requirements development input and feedback from collected stakeholder user stories into Functional requirements for industry response to RFI					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3027 / *Defense Critical Infrastructure Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
3.1.2 Using MARMS Configuration Management Board (CMB)-approved requirements produce a set of MARMS Department of Defense (DoD) Architecture Framework (DoDAF) diagrams for program milestones by 31 May 2018. Deliverables will be based on the outcome of TWG requirements and rules for DoDAF articles necessary for programs of record detailed from existing acquisition standards 3.1.3 Analyze and map data elements between existing databases for information sharing and eventual transfer to an existing or future MARMS database per guidance from Joint Staff, TWG, and CMB: 3.1.3.1 Consolidate Strategic Mission Assurance Data System (SMADS) Tier 1 and 2 Task Critical Assets (TCAs), Baseline Elements of Information (BEI) and the CVAMP database into a singular database for insertion into an existing or future database as designated by Joint Staff and MARMS CMB / TWG requirements 3.1.3.2 Provide technical support to improve interim capability with existing Mission Assurance information technology (IT) systems. This task could include adjustments to SMADS asset data, review of classified hosting services and facilities from various defense agencies, or systems engineering analysis and code updates to enhance integration capabilities of existing MA IT systems. 3.1.3.3 Provide technical assistance to support and improve the web service to and from the United States Strategic Command (USSTRATCOM) Strategic Mission Assurance Data System (SMADS) to the family of CAMS, Joint Staff Anti-terrorism Vulnerability data extracted from the Core Vulnerability Assessment Management Program (CVAMP) to a yet-to-be-determined system, and other systems used by other MA-related programs.					
FY 2019 Base Plans: 1 MARMS TWG guidance & requirements traceability tracking and enforcement upon anticipated FY18 contract award 2 MARMS programmatic acquisition support to DoD CIO based on milestone decision authority phase entry and system engineering support 3 MARMS Architecture (DoDAF) tracking and incorporating data registry scheme between existing Joint Staff portals and MARMS developed user interface 4 Database mapping and analysis for MARMS and update of data from emerging analysis and assessment data for initial operational capability for MARMS use and implementation					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3027 / *Defense Critical Infrastructure Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
There is no significant change between FY 2018 and FY 2019.					
Title: Mission Assurance Assessments Support	0.910	1.000	0.882	0.000	0.882
Articles:	-	-	-	-	-

Description: The OSD (P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OSD (P). The work performed is in alignment with the 2014 Memorandum of Agreement (MOA) between Naval Surface Warfare Center Dahlgren Division (NSWCDD) (now known as CT&SSD A40) and the Under Secretary of Defense for Policy (USD (P) Mission Assurance Directorate. In accordance with (IAW) the MOA transferred funding the following tasks will be performed in fiscal year (FY) 2019. A40 shall provide capabilities to meet the below technical requirements for OSD (P)

FY 2018 Plans:
3.2.1 Conduct annual analysis on MAA reports for trends and/or common issues.
3.2.2 Conduct like asset analysis on mission or systems specific assessments in support of MA DCI, defense critical missions and/or Defense Planning Guidance (DPG) work.
3.2.3 Analyze designated Joint Staff processes for consistency, validity, and accuracy (mathematical formulas, weighting factors, and assessment processes using A40 analytical resources).

FY 2019 Base Plans:
1 Mission Assurance Trends Analysis Methodology finalization and continued refinement of data inputs from latest assessment results
2 Annual trends analysis on MAA reports conducted to ensure common vulnerabilities are identified, tracked, and enterprise solutions offered to enhance efficient use of limited budgets and funding for risk mitigations
3 Review of Joint Staff quantitative processes in Mission Assurance Assessments to ensure viable and verified risk estimates are defendable within the budget process and gain attention for immediate resolution from cyber and physical threats

FY 2019 OCO Plans:
N/A

FY 2018 to FY 2019 Increase/Decrease Statement:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3027 / *Defense Critical Infrastructure Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The funding decrease from FY 2018 to FY 2019 reflects a transition from on-site travel to assessments to more desktop assessments considering strategic implications of aggregate assessment data, and therefore lower travel costs.					
Title: Cyber Mission Assurance	0.915	1.000	0.925	0.000	0.925
Articles:	-	-	-	-	-
Description: The OSD (P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OSD (P). The work performed is in alignment with the 2014 Memorandum of Agreement (MOA) between Naval Surface Warfare Center Dahlgren Division (NSWCDD) (now known as CT&SSD A40) and the Under Secretary of Defense for Policy (USD (P) Mission Assurance Directorate. In accordance with (IAW) the MOA transferred funding the following tasks will be performed in fiscal year (FY) 2019. A40 shall provide capabilities to meet the below technical requirements for OSD (P)					
FY 2018 Plans: A40 will continue to work with OSD Cyber Policy and OASD HD on the Cyber dependencies of critical infrastructure assets. A40 will be asked to provide follow on analysis of additional cyber studies in COCOM regions and specific defense mission assets. They will also assist in looking at how to better synchronize nascent cyber processes and capabilities, such as cyber assessments, cyber key terrain analysis, and Control System inventories into the DCIP methodology. A40 will engage with CCMDs and Sector Agencies on identifying and developing cyber key terrain data and resilience metrics as they pertain to key critical assets in both public and private domains. A40 will analyze technical and situational Cyber Security information (all threats, particularly industrial control systems) from intelligence message traffic, internet, private sources, other government agencies, national labs, and industry that address cyber control system infrastructure threats and vulnerabilities. A40 will provide guidance, analysis, and technical evaluation and experimentation for Aurora Rotating Equipment Isolation Device (REID) utility engagements and test beds; maintain test data on REIDs with public sector utility companies and utilize private sector engagements to enhance knowledge about the Aurora threat and develop mitigations					
FY 2019 Base Plans: 1 Best Practices report for risk reduction to PIT-CS will be expanded to encompass weapons platform IT constructs and other critical infrastructure platforms the DoD has dependencies on					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3027 / *Defense Critical Infrastructure Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
2 Annual ICS update to Best Practices Report will be conducted to identify enhanced methods and metrics to monitor progress and accomplishment towards categorizing entire inventory of critical DoD control systems and their known vulnerabilities 3 Research and develop cyber-specific infrastructure assessment methods to complement assessment teams and data incoming from ongoing assessments across DoD and Services 4 Technical Liaison Support to Cyber MA Enterprise will continue to identify paths for engaging MA partners on a collaborative tool that identifies cyber mission risks from assets identified as part of ongoing assessment efforts across multiple missions and cyber domains ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY 2018 to FY 2019 reflects the sunset of contractor support in this area due to deliverables being implemented, as part of future FY 2018/2019 task group planning.					
Title: Defense Critical Electric Infrastructure (DCEI)	0.520	0.750	0.644	0.000	0.644
Articles:	-	-	-	-	-
Description: The OSD (P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OSD (P). The work performed is in alignment with the 2014 Memorandum of Agreement (MOA) between Naval Surface Warfare Center Dahlgren Division (NSWCDD) (now known as CT&SSD A40) and the Under Secretary of Defense for Policy (USD (P) Mission Assurance Directorate. In accordance with (IAW) the MOA transferred funding the following tasks will be performed in fiscal year (FY) 2019. A40 shall provide capabilities to meet the below technical requirements for OSD (P) ***FY 2018 Plans:*** 3.4.1 Produce briefing outlining findings and methodology used to identify Defense Critical Electric Infrastructure to DoD and interagency audiences. 3.4.2 Brief DoD and interagency audiences, as requested. 3.4.3 Update analysis to improve accuracy, pending DoD and interagency feedback, as requested by OSD (P). 3.4.4 Provide courses of action (COAs) for how other entities can conduct the modeling Dahlgren conducted in this effort. At OSD (P) request, brief other entities in detail on the methodology used so they can replicate.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3027 / *Defense Critical Infrastructure Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
3.4.5 Provide recommendations on what DoD processes may be appropriate to use to engage with utilities to discuss analysis findings. 3.4.6 Provide recommendations on organizations and points of contact (POCs) for OSD (P) personnel to engage with to deepen understanding of utility operations and grid operations. 3.4.7 Other support as required related to assess energy infrastructure and other dependencies of select DoD installations. ***FY 2019 Base Plans:*** 1 Provide briefing outlining DCEI analysis findings to interagency partners across US in support of DHS and DOE initiatives related to power grid resiliency 2 Update DCEI analysis as requested per ongoing interagency collaborations in DoD cluster areas 3 Writing documentation recommending COAs for how other entities can replicate A40 analysis of the grid to enhance relationships with local utility and power providers 4 Provide recommendations on what DoD processes may be appropriate to use to engage with utilities to discuss analysis findings 5 Engage with other federal and private industry agencies to deepen understanding of utility operations and grid operations (FERC, NERC, NRECA, etc.) ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY 2018 to FY 2019 reflects the anticipated draw down of Energy Security analysis as previous FY analysis rolls out to DoD and Interagency entities for implementation and execution.					
Title: Mission Assurance Program Management	0.635	0.500	0.396	0.000	0.396
Articles:	-	-	-	-	-
Description: The OSD (P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OSD (P). The work performed is in alignment with the 2014 Memorandum of Agreement (MOA) between Naval Surface Warfare Center Dahlgren Division (NSWCDD) (now known as CT&SSD A40) and the Under Secretary of Defense for Policy (USD (P) Mission Assurance Directorate. In accordance with (IAW) the MOA transferred funding the					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3027 / *Defense Critical Infrastructure Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
following tasks will be performed in fiscal year (FY) 2019. A40 shall provide capabilities to meet the below technical requirements for OSD (P) ***FY 2018 Plans:*** 3.5.1 Provide a program manager and POC for all interaction with OSD (P) and A40 personnel to facilitate task execution and provide direction to A40 personnel on emerging tasking. 3.5.2 Provide IT support and A40 business office management to develop and maintain Mission Assurance analytical tools, standards, contract support, and knowledge management systems for DoD-wide mission assurance efforts. 3.5.3 Support for IT Non-Classified Internet Protocol Router Network (NIPRNet) and Secret Internet Protocol Router Network (SIPRNet) domains for DCI data analysis including Information Assurance (IA) processes, IT maintenance, infrastructure data licenses (e.g., Telecordia, PowerWorld, and ESRI ArcGIS). 3.5.4 Provide web services and host management for data sharing, visualization tools, and interagency collaboration via A40 Intelink portal and Inteldocs file management, and U.S. Army Aviation and Missile Research Development and Engineering Center (AMRDEC) file exchange process. ***FY 2019 Base Plans:*** 1 Enhance program management support to OSD to include financial tracking and updates to support reclama notices or budget execution data calls 2 Offer options for enhanced information sharing to MA community and related entities, potentially in support of COCOM exercises or real world events that showcases A40 expertise 3 Continue to discover ways to save funding via IT footprint consolidation and efficient use of network resources and database files ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY 2018 to FY 2019 reflects the anticipated reduction of oversight from management efforts as other tasks stand up management / leadership from within, as part of tasking initiative.					
Title: Defense Critical Infrastructure	0.250	0.450	0.347	0.000	0.347
Articles:	-	-	-	-	-
Description: The OSD (P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3027 / *Defense Critical Infrastructure Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OSD (P). The work performed is in alignment with the 2014 Memorandum of Agreement (MOA) between Naval Surface Warfare Center Dahlgren Division (NSWCDD) (now known as CT&SSD A40) and the Under Secretary of Defense for Policy (USD (P) Mission Assurance Directorate. In accordance with (IAW) the MOA transferred funding the following tasks will be performed in fiscal year (FY) 2019. A40 shall provide capabilities to meet the below technical requirements for OSD Mission Assurance Directorate initiatives in support of Joint Staff 33 personnel ***FY 2018 Plans:*** 3.6.1 Maintain and QA Joint Staff documents and data on the Global Mission Assurance Portal-JWICS and Global Mission Assurance Portal-SIPR. Maintain/update MA and protection contract list on GMAP. 3.6.2 Draft 20 DCI Criticality Assessments; submit and track status of DCI nominations. 3.6.3 Coordinate input of 12 Mission Mitigation Plans (MMPs). Coordinate input of 12 Risk Reduction Plans (RRPs). 3.6.4 Draft 12 Risk Assessment Plan (RMP) summaries based on MMPs and RRPs received. 3.6.5 Draft three updated RMP summaries based on updated MMPs and RRPs received. 3.6.6 Prepare and submit staffing nomination packages for the Defense Critical Assets Review Board (DCARB). 3.6.7 Prepare revalidation package for all Defense Critical Assets. ***FY 2019 Base Plans:*** 1 Maintain GMAP portal documentation requirements and help build out database solution and provide best practices / option in support and coordination with MARMS effort 2 DCI criticality assessments and nominations will continue to flow in and be reviewed / analyzed for completeness and prioritized for review 3 Mission Mitigation and Risk Reduction Plan coordination and review of new or existing nominated assets and need for budget prioritization of vulnerability solutions 4 Risk Management Plan draft summaries will be coordinated, edited, and reviewed for correctness, completeness and identified appropriate vulnerabilities and threats to justify risk management plan efforts cover the issues 5 Nomination package preparation for biannual update and finalization of critical defense assets and infrastructure 6 Revalidation packages for DCAs will be reviewed and nominated based on previous mission plan inputs and current Joint Staff and OSD defense planning guidance updates ***FY 2019 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3027 / *Defense Critical Infrastructure Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY 2018 to FY 2019 reflects a drawdown in focus on infrastructure specific asset analysis to a more overarching view of mission analysis and engineering.					
Title: Defense Critical Mission	0.250	1.031	0.989	0.000	0.989
Articles:	-	-	-	-	-
Description: The OSD (P) Mission Assurance Directorate and the Joint Staff will provide oversight to A40 for funding that will be used for infrastructure analysis, assessment, and research required in support of Mission Assurance and Defense Critical Infrastructure (DCI) programs at the Joint Staff and OSD (P). The work performed is in alignment with the 2014 Memorandum of Agreement (MOA) between Naval Surface Warfare Center Dahlgren Division (NSWCDD) (now known as CT&SSD A40) and the Under Secretary of Defense for Policy (USD (P) Mission Assurance Directorate. In accordance with (IAW) the MOA transferred funding the following tasks will be performed in fiscal year (FY) 2019. A40 shall provide capabilities to meet the below technical requirements for OSD Mission Assurance Directorate initiatives in support of Joint Staff 33 personnel ***FY 2018 Plans:*** 3.7.1 Further develop 15 Mission Maps to include collaboration with stakeholders for designated missions and enhance with current assessment data to identify potential weak links or lack of knowledge on critical links to mission accomplishment 3.7.2 Develop briefings to inform senior leaders about DCM processes and provide support to establishing DCM identification and methodologies to focus annual assessment efforts on critical information gaps 3.7.3 Develop DPG responses to OSD taskings and update briefs to the Mission Assurance Senior Steering Group (MA SSG) to decide on dedicated best path forward for utilizing the DCM concept and implementing it as part of the assessment process. ***FY 2019 Base Plans:*** 1 Continuous update of Mission Maps to maintain awareness of existing and new DCMs and the assets supporting multiple AORs and across mission owners (and de-conflict) 2 Provide DCM process briefings to MA community to enhance awareness of critical mission assets and their importance on executing in multiple mission domains 3 Support DPG response briefings and papers to Joint Staff led initiatives incorporating the concept into doctrine or best practices					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3027 / *Defense Critical Infrastructure Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
4 Update Defense Critical Mission Methodology Brief to include Plan of Action and Milestones and execute tasks to provide a more holistic concept of mission assurance and protection of assets in support of multiple missions ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	4.625	6.431	5.862	0.000	5.862

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Program cost, schedule, and performance are measured using a systematic approach with approved program management methods. The results are presented in a monthly financial execution status report. Reports are to be submitted to the Director, MA and the Policy Resource Management Office in OSD Policy by the 15th of each succeeding month. The reports will reflect the progress made on each of the project tasks by deliverable and a separate accumulated cost report. Actual versus planned costs will be reflected in the reports at the request of the sponsor.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 3312 / *MTMD-Maritime Theater Missile Defense Forum*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3312: *MTMD-Maritime Theater Missile Defense Forum*	0.000	8.455	7.776	7.045	-	7.045	8.596	8.674	8.498	8.670	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds participation in Maritime Integrated Air and Missile Defense projects with other nations. Included is participation in the Maritime Missile Defense Projects Framework Memorandum of Understanding of 2004 (as amended 2009, 2015, and 2016). Known as the Maritime Theater Missile Defense (MTMD) Forum, it promotes interoperability with the Navies of eleven participating nations (Australia, Canada, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, United Kingdom and the United States). This project funds participation in multiple Projects and includes maritime contribution to the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) project, now known as NATO Ballistic Missile Defense (BMD). Engineering analysis and recommendations from MTMD activities are provided to European, Pacific and Central Combatant Commands to influence present day operations. Specifically, the MTMD Forum is addressing challenges with "Maritime Allied Air Defense in Support of Ballistic Missile Defense Operations" that face the Combatant Commanders during present day operations. The MTMD Forum is leveraging At-Sea Demonstration (ASD) test events and operational Fleet Exercises to integrate technology with concepts of operations developed within MTMD Forum working groups.

The MTMD Forum develops systems and techniques that enhance protection and defense against the proliferation of short, medium and long-range Ballistic Missile (BM) and Advanced Anti-Ship Cruise Missile (ASCM) threats through the creation of an interoperable sea-based Integrated Air and Missile Defense (IAMD) capability among coalition nations. This includes protection across the full spectrum of these threats through the enhanced utilization of existing sea-based systems to protect against current threats while progressively improving and developing systems and system-of- systems to effectively counter evolving threats.

This project supports USN participation in several Maritime IAMD related Project Arrangements and Working Groups including:

(1) Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) to define and develop architectures as well as to perform engineering to address coalition capability gaps.
(2) Modeling & Simulation (M&S) to establish and maintain a maritime coalition M&S testbed and to perform legacy and future systems simulation testing.
(3) Coalition Distributed Engineering Plant (CDEP) to establish and maintain a maritime coalition Hardware-in-the-Loop Testbed and to conduct CDEP testing.
(4) Open Architecture (OA) to develop Interface Standards and Data Models.
(5) Test Planning and Execution (TPEX) to develop Test Plans, oversee exercise participation and conduct post event data analysis and reporting.
(6) Operational Requirements (OR) to develop a Coalition Maritime Missile Defense Operational Concept Document and to identify operational constraints and tactical constructs surrounding coalition maritime missile defense activities.
(7) Reciprocal Use of Test Facilities agreements with other nations to support Maritime IAMD and MTMD related demonstrations.

Starting in FY17, funding for MTMD is realigned from Program Element 0603582N Combat System Integration.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3312 / *MTMD-Maritime Theater Missile Defense Forum*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: MTMD-Martime Theater Missile Defense Forum	8.455	7.776	7.045	0.000	7.045
Articles:	-	-	-	-	-
FY 2018 Plans: (1) BMC4I will continue engineering analysis and multi-national interoperability gap assessment for the Target Architecture based on test results and complete development of the Target Architecture based on requests for information input from member nations. BMC4I will evaluate Recommended Point Solutions and provide recommendations for the implementation in correcting coalition interoperability gaps. BMC4I will finalize information exchange requirements in preparation for at-sea demonstrations. BMC4I will develop updates to MTMD Coalition Capabilities and Interoperability (CCI) and Systems Tactical Data Links Interoperability Report (STIR), as appropriate. (2) M&S will continue analysis of Target Architectures and conduct further assessments in support of providing recommendations to improve information exchange requirements identified by BMC4I and the Systems Engineering Team (SET). M&S will model future Target Architectures and provide training in support of future at-sea demonstrations. In support of the MTMD Forum's future capability development, the M&S Working Group will continue to work on expansion and development of the M&S lab and integration of new simulation software and further development of virtualization capabilities for the test bed. In support of concept development and experimentation, M&S will develop plans for testing of Target Architecture 2, as developed by BMC4I. M&S will develop Mission Models to support future concepts such as Force Threat Evaluation (FTE) and Force Weapon Assignment (FWA) (FTEWA) and other Proposed Point Solutions. Development of Mission Models allows the M&S Working Group to illustrate the operational impact of proposed solutions in a variety of operational settings relevant to IAMD capability development. (3) CDEP will work with BMC4I and OR working groups to update the Coalition Capabilities and Interoperability (CCI) document and develop test plans to assess capabilities suitable for land-based testing. CDEP will also characterize risks of future at-sea demonstrations such as ASD 20. CDEP will prepare for and conduct hardware-in-the-loop tests and provide assessments and recommendations to improve information exchanges required to conduct at-sea demonstrations or to evaluate performance as an effective and efficient alternative to costly at-sea demonstrations. CDEP will execute its Second Annual Test Event (ATE2) with a focus on Link-22, Force Threat Evaluation and Weapons Assignment (FTEWA) and Interrogate Friend or Foe (IFF) Mode 5.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3312 / *MTMD-Maritime Theater Missile Defense Forum*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
(4) Open Architecture will begin developing the Force Data Model by analyzing the Data Requirements document and evaluating inputs from other WGs such as; the Mission Threads, Target and Reference Architecture, Ichart, as well as existing data models such as implemented in OARIS. The Force Data model will be used to develop the Force Level Function component interfaces. The OAWG will collaborate with BMC4I, OR and the SEM to ensure the Force Data model aligns with the Target and Reference Architecture as well as selected Possible Point Solutions (PPS) in developing the Force Level Open Architecture Technical Standard (FLOATS). Open Architecture will generate a follow on FLOATS PA. (5) TPEX will continue preparations for MTMD participation as part of ongoing at-sea test event continuums. Formidable Shield 17 execution will occur at the beginning of FY18. Pac Dragon 2018 will occur in the fourth quarter of FY18. These at-sea demonstrations will include live tracking events and a combination of live and simulated engagements. Integrated Air Defense and Ballistic Missile Defense test scenarios will be conducted among the nations with a fleet exercise and interoperability focus. Planning for At-Sea Demonstrations and follow-on at-sea testing will continue into future years and include target configuration/procurement. Future planning in FY18 will include Formidable Shield 2019 and Pac Dragon 2020 exercises which will include target procurement. Also, long range planning will occur for major At Sea Demonstration (ASD) missions notionally in 2020 and 2025 as well as Formidable Shield 2021 including procurement of long lead target items. (6) Operational Requirements group will continue to provide fleet inputs and operator oversight to test and evaluation events. The Operational Concept Document will be updated as will final tactics, techniques and procedures in support of ongoing at-sea demonstrations.					
FY 2019 Base Plans: (1) BMC4I will continue engineering analysis and multi-national interoperability gap assessment for the Target Architecture based on test results and complete development of the Target Architecture based on requests for information input from member nations. BMC4I will evaluate new Recommended Point Solutions and provide recommendations for the implementation in correcting coalition interoperability gaps. BMC4I will update information exchange requirements in preparation for at-sea demonstrations. BMC4I will develop updates to MTMD Coalition Capabilities and Interoperability (CCI), as appropriate. (2) M&S will continue analysis of Target Architectures and conduct further assessments in support of providing recommendations to improve information exchange requirements identified by BMC4I and the SET. M&S will model future Target Architectures and provide analysis in support of future at-sea demonstrations. The M&S					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3312 / *MTMD-Maritime Theater Missile Defense Forum*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
team will continue development of the test bed and add additional computing power to the test environment to provide faster and more powerful analytical capability to the Forum System Engineering Team. The M&S Working Group will continue development of the Mission Models in support of capability development to illustrate operational impact of proposed solutions to complex IAMD problems. (3) CDEP will integrate joint air and land assets for the first time in the Third Annual Test Event (ATE3). CDEP will work with BMC4I and OR working groups to update the Coalition Capabilities and Interoperability (CCI) document and develop test plans to assess capabilities suitable for land-based testing. CDEP will also characterize risks of future at-sea demonstrations such as At-Sea Demonstration (ASD) 2020. CDEP will prepare for and conduct hardware-in-the-loop tests with allied partners, and will provide assessments and recommendations to improve information exchanges required to conduct at-sea demonstrations or to evaluate performance as an effective and efficient alternative to costly at-sea demonstrations. CDEP will continue to align with the stated objectives within the MTMD Forum Capability Roadmap. (4) Open Architecture will develop the Force Level Function (FLF) component interfaces based on the Force Level data model and other inputs as required. The OAWG will collaborate with BMC4I, OR and the SEM to ensure these interfaces align with the Target and Reference Architectures as well as selected Possible Point Solutions (PPS) in developing the Force Level Open Architecture Technical Standard (FLOATS). The OAWG will collaborate with M&S as well to ensure the FLF component interfaces are testable. (5) TPEX will continue preparations for MTMD participation as part of ongoing at-sea test event continuums. Exercise Formidable Shield 19 execution will commence at the end of FY19. These at-sea demonstrations will include live tracking events and a combination of live and simulated engagements. Integrated Air Defense and Ballistic Missile Defense test scenarios will be conducted among the nations with a fleet exercise and interoperability focus. Planning for At-Sea Demonstrations and follow-on at-sea testing will continue into future years and include target configuration/procurement. Future planning in FY19 will include Exercise Formidable Shield 2021 and Exercise Pacific Dragon 2020 which will each include target procurement. Additionally, planning will continue for major MTMD Forum ASD test events, notionally in 2020 and 2025, which require procurement of long-lead targets and support equipment. (6) Operational Requirements group will continue to provide current fleet inputs while also providing operational subject matter expertise and oversight for test and evaluation events. The Operational Concept Document and					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3312 / *MTMD-Maritime Theater Missile Defense Forum*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
tactics, techniques, and procedures will be updated for distribution to MTMD Forum nations as well as NATO through Executive Committee action. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2019 funding request was reduced by $0.848 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	8.455	7.776	7.045	0.000	7.045

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Program Reviews and Baseline Assessments

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 3330 / *Naval Research Laboratory (NRL) Facilities Modernization*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3330: *Naval Research Laboratory (NRL) Facilities Modernization*	0.000	15.424	18.279	15.438	-	15.438	17.963	17.476	17.368	17.720	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program has been established to provide a systematic and planned approach to improve vital in-house science and technology (S&T) laboratory facilities which are reaching or have reached critical stages of deterioration. The program includes restoration and modernization (R&M) initiatives for about 350,000 net square feet, where the average age of the buildings is 67 years old.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: NRL Facilities Modernization	15.424	18.279	15.438	0.000	15.438
Articles:	-	-	-	-	-
Description: Critical Science and Technology research cannot be sustained or succeed in deteriorated facilities. World class research can only be accomplished in facilities that are at a minimum "adequate", but preferably "state-of-the-art." Due to their advanced age and deterioration, funds are planned to restore/modernize various laboratory facilities at the Naval Research Laboratory.					
FY 2018 Plans: Areas of focus for FY 2018 will be air handling and distribution systems in the center for Bio molecular Sciences, Information Technology Division, Optical Sciences Division, Acoustics Chamber and Electra Laser facilities. Continue modernization of laboratories to ensure they can meet future technological threats. Conduct specific studies, evaluations, and the special handling of highly critical and sensitive laboratories that are being relocated into refurbished buildings. Continue planning, consolidating and relocating of over 100 laboratories into less than 80 laboratories; careful disassembly of one-of-a-kind facilities and equipment by in-house scientists and experts and contractor support with specialized skills to devise unique plans to disassemble, transport, and reassemble the facilities; and the recalibration and specialized reassembly of the highly specialized equipment (e.g., solid-state electronic devises, lasers, vacuum tubes, electrical connections, reactors, gas sensors and chambers, and chemical connectors and distribution systems).					
FY 2019 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3330 / *Naval Research Laboratory (NRL) Facilities Modernization*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue modernization of laboratories to ensure they can meet future technological threats. Conduct specific studies, evaluations, and the special handling of highly critical and sensitive laboratories that are being relocated into refurbished buildings. Continue planning, consolidating and relocating of over 100 laboratories into less than 80 laboratories; careful disassembly of one-of-a-kind facilities and equipment by in-house scientists and experts and contractor support with specialized skills to devise unique plans to disassemble, transport, and reassemble the facilities; and the recalibration and specialized reassembly of the highly specialized equipment (e.g., solid-state electronic devises, lasers, vacuum tubes, electrical connections, reactors, gas sensors and chambers, and chemical connectors and distribution systems). ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2019 funding request was reduced by $0.320 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government. The funding was further reduced by $0.657 million to reflect the availability of prior year execution balances. The additional funding decrease reflects projected cost reductions.					
Accomplishments/Planned Programs Subtotals	15.424	18.279	15.438	0.000	15.438

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

None

E. Performance Metrics

Restoration and modernization of the laboratory facilities will begin in a phased approach until completion.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 3363 / *PACOM Initiative*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3363: *PACOM Initiative*	0.000	14.737	15.246	13.027	-	13.027	15.603	15.607	15.324	15.637	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

China Strategic Initiative (CSI) (LI 0605853N). The CSI became a DoD RDTE program in FY14. The CSI program is USPACOM's first Asia Rebalance initiative and provides critical support to operational planning efforts. The CSI program is a command-directed program that provides the Commander, USPACOM and his staff critical support at all levels of planning and decision-making for military operations within the PACOM Area Of Responsibility (AOR). The CSI program provides: Effects Emulations, PACOM Media Project, Operational Modeling and Simulation and a Critical Factors Analysis Tool.
This funding is for a classified effort.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: PACOM Initiative	14.737	15.246	13.027	0.000	13.027
Articles:	-	-	-	-	-
Description: The China Strategic Initiative (CSI) program is USPACOM's first Asia Rebalance initiative and provides critical support to operational planning efforts. The CSI program is a command-directed program that provides CDR, USPACOM and his staff critical support at all levels of planning and decision-making for military operations within the PACOM AOR. ***FY 2018 Plans:*** Continued development of: Effects Emulations, PACOM Media Project, Operational Modeling and Simulation, and the Critical Factors Analysis Tool. ***FY 2019 Base Plans:*** Continued development of: Effects Emulations, PACOM Media Project, Operational Modeling and Simulation, and the Critical Factors Analysis Tool. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2019 funding request was reduced by $2.219 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	14.737	15.246	13.027	0.000	13.027

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3363 / *PACOM Initiative*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Operational Emulation (OE). Successfully achieve Initial Operating Capability on OE sub Line of Effort (LOE) with at least 80% of initial objectives being met after proof of concept test run in late FY17; successfully implement quarterly OE events beginning 1QTR FY18

OE provides funding to support continuing requirement for extensive studies and analysis of issues critical to operational and intelligence contingency planning required by the China Strategic Roundtable (whose members include all Combatant Commanders, Service Chiefs, Deputy Secretary of Defense, Policy leadership, the Director of Defense Intelligence Agency, and Director of the National Security Agency). This PE directly supports the China Strategic Initiative (CSI) Strategic Emulations LOE, expanding those outputs to the operational level, making insights timely and relevant to USPACOM (and other Combatant Commands), Functional Component Force Commanders across all strategic domains (e.g. cyber, air and space, sea etc.) in support of national-level mandated operational and strategic-level contingency planning.

Operational Decision Analysis (ODA). Successfully achieve Initial Operating Capability on ODA sub Line of Effort support effort with at least 80% of initial objectives being achieved by 3QTR FY18.

ODA provides funding to support continuing requirement for studies and analysis of issues critical to operational and intelligence contingency planning required by the China Strategic Roundtable (whose members include all Combatant Commanders, Service Chiefs, Deputy Secretary of Defense, Policy leadership, the Director of Defense Intelligence Agency, and Director of the National Security Agency). The PE directly support CSIs Strategic Emulation LOE and will provide critical technical inputs and strategic insights that complement the programs OE output database, which is still under development. ODA outputs will significantly enhance Combatant Component Command staffs with their operational and intelligence planning and global synchronization across multiple domains amongst all geographic and functional combatant commands.

Decision Support Elements to Operational Emulation Modeling and Simulation (DSEOMS). Successfully achieve Initial Operating Capability on this major LOE with at least 80% of initial objectives being met by 3QTR FY19.

DSEOMS provides funding to support all four major LOEs for the CSI program and all its sub-LOEs. This effort will provide a comprehensive and campaign-quality decision support toolset to decision makers across the entire CSI enterprise: OSD, Joint Staff, Combatant Commands, Intelligence Community, and the Whole of US Government (Interagency). This PE will create a set of enhanced automated and doctrinal decision- making tools to assist key policy- and strategic leaders on a full spectrum of contingencies related to competitor nations. DSEOMS will provide analytic modeling and simulation tools that take inputs from all major CSI program

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 3363 / *PACOM Initiative*

LOEs; the goal being to present decision- and policy-makers and their planning staffs with a rich dataset of information that is relevant, timely, and substantive for their respective problem sets. The current scope and focus across all LOEs is to support emerging near-term and longer-term planning to both significantly enhance war planning orientation and force posture considerations but also to significantly enhance more informed strategic choices regarding future joint/service capability investments and joint/service operational concepts across all strategic domains. Ultimately, fully integrated program deliverables will guide a deliberative process for identifying efficiencies in major service platform decisions to ensure they are optimized for the full-spectrum of projected adversary capabilities in the future.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605853N / *Management, Technical & Intl Supt*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	12.573	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	12.573
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funds execution of DoD's Executive Agent (EA) for Printed Circuit Board (PrCB) Technologies as established by the 2009 National Defense Authorization Act (Section 256, PL 110-417). The primary deliverable from this effort will be a PrCB and Interconnect Technology Roadmap, or strategic plan, identifying domestic technology gaps, future research and development needs, and any policy changes required to ensure that the DoD has access to PrCB manufacturing capabilities and technical expertise necessary to meet future military requirements. As mandated, the EA will also address DoD PrCB supply chain issues, including diversity and vulnerabilities, and develop trustworthiness requirements for PrCBs used in defense systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: Printed Circuit Board Executive Agent	12.573	0.000
FY 2017 Accomplishments: Refined draft "Trusted Supplier" requirements addressing printed circuit board design, fabrication, and assembly with broader DOD security community of interest. Completed 3 of 5 beta-site audits with industry suppliers for fabrication and assembly in order to assist in further refinement of the requirements and accreditation process structures. Completed an assessment of counterfeit parts on field failures across the Department in response to Section 238 of the 2016 National Defense Authorization Act. Migrating DoN Counterfeit Material Process Guidebook to a DOD Handbook for Counterfeit Electronic Parts; Avoidance, Detection, Mitigation and Disposition Standard. Developing 2017 technology roadmap update with industrial base health input data from the Department of Commerce. Collaborating with trade associations and the industrial base focused on the development and revision of commercial and defense applicable standards, the creation of a trusted network of suppliers for defense printed circuit and interconnect technology needs, assessment of and reaction to supply chain and industrial base topics and issues, and evaluation and assessment of emerging technologies and current and future defense needs. Collaborating with defense organizations providing input and information pertinent to supply chain and industrial base topics and issues. Performed an assessment of advanced high density interconnect structures (stacked and staggered microvia's) due to both industry and DOD identified failures and reliability issues. Participating in commercial and military standards development and training for Intellectual Property Standard (IPC-1071) rewrite and J-STD-001 Space and Military Addendum development.		

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605853N / *Management, Technical & Intl Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Monitoring and reviewing impending policy and guidance directives. ***FY 2018 Plans:*** N/A		
Congressional Adds Subtotals	12.573	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

In 2005, the National Academies national research council (NRC) conducted a study and subsequently issued a report relating to manufacturing trends in printed circuit technology. Within that report, the NRC detailed four critical issue areas that needed to be addressed in the interest of national security. Those issue areas included; Trust, Supply Chain, Organic (DoD) Capability Sustainment, and Technology Development.

Intense global competition in the Printed Circuit Board (PrCB) industry has resulted in a significant reduction in the number of United States PrCB companies, leaving the domestic PrCB industrial base "fragile" and progressively declining in capability and health. Implementation of the strategies developed by the EA for PrCB Technologies will proactively ensure that the U.S. PrCB industry is capable of supporting future DoD electronics requirements. The strategic plan is expected to indentify technology gaps and research and development needs, as well as identify and recommend policy changes.

In addition to benefiting DoD by ensuring access to leading edge PrCB technology, it is expected that the EA program will help the struggling domestic PrCB industry by indentifying future technology research and development needs and securing the domestic military market.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605856N / *Strategic Technical Support*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	3.460	4.313	4.231	-	4.231	4.242	4.315	4.406	4.497	Continuing	Continuing
0128: *Mgmt/Tech Supt Strategic*	0.000	1.169	1.226	1.210	-	1.210	1.226	1.252	1.278	1.305	Continuing	Continuing
1038: *Acoustic & Non-Acoustic Analysis Supt*	0.000	2.291	3.087	3.021	-	3.021	3.016	3.063	3.128	3.192	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element supports technical studies and analyses as directed by the Director for Submarine Warfare to support major policy and procurement decisions. This program is divided into two elements to support decision making in the areas of submarine and antisubmarine warfare and undersea surveillance.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	3.597	4.313	4.370	-	4.370
Current President's Budget	3.460	4.313	4.231	-	4.231
Total Adjustments	-0.137	0.000	-0.139	-	-0.139
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.137	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.139	-	-0.139

Change Summary Explanation

Decrease from FY18 to FY19 reflects efficiencies within Integrated Undersea Surveillance Engineering Measurement and Supplemental EIS Programs (SEMP & SEIS) from faster than anticipated scientific and engineering analysis of active and passive acoustic IUSS systems.

Technical: N/A

Schedule: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605856N / *Strategic Technical Support*	Project (Number/Name) 0128 / *Mgmt/Tech Supt Strategic*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0128: *Mgmt/Tech Supt Strategic*	0.000	1.169	1.226	1.210	-	1.210	1.226	1.252	1.278	1.305	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides analytical support to the Director, Undersea Warfare Division as a basis for major policy, planning and acquisition program decisions. It supports the development of the Submarine Force strategic vision to guide research and development investment strategy and future planning. Additionally, this line supports studies in the area of submarine and undersea surveillance missions, force structure, payloads and sensors and force employment. The FY 2019 funding request was reduced by $0.001 million to account for the availability of prior year execution balances.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: MANAGEMENT AND TECHNICAL SUPPORT, STRATEGIC	1.169	1.226	1.210	0.000	1.210
Articles:	-	-	-	-	-
FY 2018 Plans: - Conduct technical investigations and quantitative assessments that identify needs and establish plans for the development of Undersea Warfare (USW) capabilities and requirements. - Develop solutions that reflect a broad, integrated view including operational effects, policy considerations, programmatic, business-case factors, strategic implications, and attention to past historical precedents.					
FY 2019 Base Plans: - Conduct analysis to identify and weigh options for addressing problems/challenges and assessing the impact across the strategic and conventional military spectrum; - Anticipate emerging and future Undersea Warfare (USW) challenges, and lead effective assessment efforts to proactively address those challenges.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: There is no significant change between FY18 and FY19.					
Accomplishments/Planned Programs Subtotals	1.169	1.226	1.210	0.000	1.210

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605856N / *Strategic Technical Support*	**Project (Number/Name)** 0128 / *Mgmt/Tech Supt Strategic*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This project supports studies in the area of undersea surveillance missions, sensor system, payloads, force employment, communications, acoustic performance prediction systems, environmental and medical effects of acoustics systems including installations/removals, operational security and future threat analysis. Project success is measured through analytical results and constant interaction with the contractors that enable the Director for Submarine Warfare to make decisions effectively.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605856N / *Strategic Technical Support*	Project (Number/Name) 1038 / *Acoustic & Non-Acoustic Analysis Supt*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1038: *Acoustic & Non-Acoustic Analysis Supt*	0.000	2.291	3.087	3.021	-	3.021	3.016	3.063	3.128	3.192	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides analytical support to the Director, Intelligence, Surveillance, and Reconnaissance (ISR) Division, the Battlespace Awareness Division of DCNO Information Warfare, and the Integrated Undersea Surveillance System (IUSS) Branch as a basis for major policy, planning, and acquisition program decisions. It supports studies in the area of undersea surveillance missions, sensor system communications, and acoustic performance prediction systems, environmental and medical effects of acoustic systems, operational security, and future threat analysis. Supports synthetic mission lay down simulations for IUSS strategic planning and resource allocation. Supports continued development and documentation of architecture for future undersea surveillance capabilities and systems. Supports studies to determine long-term impact of IUSS active sensors on marine animals and development of Surveillance Towed Array Sensor system (SURTASS) Low Frequency Active (LFA), Compact LFA (CLFA) and the Supplemental Environmental Impact Statement (SEIS).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: ACOUSTIC AND NON-ACOUSTIC ANALYSIS SUPPORT	2.291	3.087	3.021	0.000	3.021
Articles:	-	-	-	-	-
Description: The increase from FY17 to FY18 supports development of Draft and Final Scientific Research Plan for field research using SURTASS Low Frequency Active (LFA) sonar system in oceanic environment to support development of the 2022 SURTASS LFA sonar new Environmental Impact Statement (EIS).					
FY 2018 Plans: -Continue to execute the Surveillance Engineering Measurements Program (SEMP) providing critical analytic insight into engineering and operational performance components of the IUSS shore based and mobile systems. Working with fixed and mobile surveillance projects; emphasizing the feedback to all stackholders. -Continue comprehensive case analyses to establish a basis for understanding what impact, both positive and negative, our legacy tactical sonar systems and new Advanced Surveillance Build (ASB) capability deliveries have on fleet operations. Operator Workload Reductions (OWR) is a thrust of this effort for the IUSS community. -Continue Data Set identification and production as the sole source for real-world data to enable these advanced development initiatives which span Defense Advanced Research Projects Agency (DARPA), Office of Naval Research (ONR), Integrated Warfare Systems (IWS), Space & Naval Warfare Systems Command (SPAWAR),					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605856N / *Strategic Technical Support*	**Project (Number/Name)** 1038 / *Acoustic & Non-Acoustic Analysis Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Naval Research Laboratory (NRL), and others to bring critically needed new capabilities and capability improvements to the IUSS community. -Continue oversight and execution of the IUSS Marine Mammal Monitoring (M3) Program. -Continue to provide environmental compliance documentation development, generation, revision, adjudication, and submission of Draft Supplemental Environmental Impact Statements (SEIS) enabling continuing fleet operations of SURTASS Low Frequency Active systems. -Continue to provide analytic and Subject Matter Expert (SME) support to facilitate Naval Litigation Office (NLO) and Department of Justice (DoJ) efforts in litigation from environmental NGOs in order to ensure no gap in SURTASS LFA sonar vessel operations. -Provide passive acoustic monitoring, which must occur whenever the SURTASS LFA sonar is operational, to support continued fleet Low Frequency Active operations worldwide. -Continue oversight and data/document management control during the 5-year development of the 2022 EIS. -Develop Draft and Final Scientific Research Plan for field research using SURTASS LFA sonar system in oceanic environment to support development of the 2022 SURTASS LFA sonar new EIS; transition to OPNAV N45 and Fleet as the action proponent. -Continue development of the 2022 EIS, which is essentially a full EIS rewrite, no carrying forward of previous conclusions/information/data as has been done with the four supplemental EISs between 2007 and 2017, and which will include the input from the public scoping meetings. -Provide daily SITREPs during field research to pertinent Navy personnel; and upon completion provide Hot Wash brief; and within three months of conclusion of the field research, provide Quicklook report and brief. -With support from the SWG, initiate the updating of information on the following elements of the new 2022 EIS: 1) non-acoustic alternatives to LFA sonar; 2) effects of LFA sonar on human divers; 3) efficacy of LFA sonar mitigation measures; 4) potential effects of exposure to LFA sonar on marine mammals, sea turtles, and fish; and 5) effects on recreational marine activities, such as diving. -On direction, plan for public hearings in at least five locations. -Provide support for requirements development for the Integrated Undersea Surveillance Systems family of systems provided by fixed, mobile, deployable sensors, integrated common processor, and the advanced surveillance builds. -Provide support on TAGOS(X) in the gate and JCIDS process, as well as other IUSS systems including deployable sensor.					
FY 2019 Base Plans: -Continue to execute the Surveillance Engineering Measurements Program (SEMP) providing critical analytic insight into engineering and operational performance components of the IUSS shore based and mobile systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605856N / *Strategic Technical Support*	**Project (Number/Name)** 1038 / *Acoustic & Non-Acoustic Analysis Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Working to incorporated both fixed and mobile surveillance case studies and support transitions of analysis to program office. Emphasizing the feedback to all stakeholders. -Continue oversight and execution of the IUSS Marine Mammal Monitoring (M3) Program. -Continue comprehensive case analyses to establish a basis for understanding what impact, both positive and negative, our legacy tactical sonar systems and new Advanced Surveillance Build (ASB) capability deliveries have on fleet operations. Operator Workload Reductions (OWR) is a thrust of this effort for the IUSS community. -Continue Data Set identification and production as the sole source for real-world data to enable these advanced development initiatives which span Defense Advanced Research Projects Agency (DARPA), Office of Naval Research (ONR), Integrated Warfare Systems (IWS), Space & Naval Warfare Systems Command (SPAWAR), Naval Research Laboratory (NRL), and others to bring critically needed new capabilities and capability improvements to the IUSS community. -Provide support for requirements development for the Integrated Undersea Surveillance Systems family of systems provided by fixed, mobile, deployable sensors, integrated common processor, and the advanced surveillance builds. -Provide support on TAGOS(X) in the gate and JCIDS process, as well as other IUSS systems including deployable sensor. -Provide analyses in support of IUSS Future Plan. -Continue development of the 2022 EIS, which is essentially a full EIS rewrite, no carrying forward of previous conclusions/information/data as has been done with the four supplemental EISs between 2007 and 2017, and which will include the input from the public scoping meetings. With support from the SWG, initiate the updating of information on the following elements of the new 2022 EIS: 1) non-acoustic alternatives to LFA sonar; 2) effects of LFA sonar on human divers; 3) efficacy of LFA sonar mitigation measures; 4) potential effects of exposure to LFA sonar on marine mammals, sea turtles, and fish; and 5) effects on recreational marine activities, such as diving. -Continue to provide analytic and Subject Matter Expert (SME) support to facilitate Naval Litigation Office (NLO) and Department of Justice (DoJ) efforts in litigation from environmental NGOs in order to ensure no gap in SURTASS LFA sonar vessel operations. -Provide passive acoustic monitoring, which must occur whenever the SURTASS LFA sonar is operational, to support continued fleet Low Frequency Active operations worldwide. -Continue oversight and data/document management control during the 5-year development of the 2022 EIS.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605856N / *Strategic Technical Support*	**Project (Number/Name)** 1038 / *Acoustic & Non-Acoustic Analysis Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Develop Draft and Final Scientific Research Plan for field research using SURTASS LFA sonar system in oceanic environment to support development of the 2022 SURTASS LFA sonar new EIS; transition to OPNAV N45 and Fleet as the action proponent. -Continue to provide environmental compliance documentation development, generation, revision, adjudication, and submission of Draft Supplemental Environmental Impact Statements (SEIS) enabling continuing fleet operations of SURTASS Low Frequency Active systems. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease from FY18 to FY19 reflects efficiencies within Integrated Undersea Surveillance Engineering Measurement and Supplemental EIS Programs (SEMP & SEIS) from faster than anticipated scientific and engineering analysis of active and passive acoustic IUSS systems.					
Accomplishments/Planned Programs Subtotals	2.291	3.087	3.021	0.000	3.021

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This project supports studies in the area of undersea surveillance missions, sensor systems, and acoustic performance prediction systems, environmental and medical effects of acoustic systems, and future threat analysis. In addition, it provides research and reports necessary to support SURTASS LFA and Compact Low Frequency Active (CLFA) sonar compliance with Federal, State and Local environmental laws required for continued SURTASS LFA and CLFA operations, analysis of undersea technology for application to future undersea surveillance capabilities, and assessment of current and future IUSS warfare areas and potential allied Navy contributions. To this end, research is conducted by prominent educational and research institutions recognized for their expertise in the area, and by marine mammal biologists with extensive background in specific areas of underwater acoustics. This approach is deemed the most cost effective and efficient course of action for the Navy.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605861N / *RDT&E Science & Tech Mgmt*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	62.961	1.104	1.072	-	1.072	1.082	1.105	1.126	1.150	Continuing	Continuing
0135: *ONR Science & Technology Mgmt*	0.000	56.154	1.104	1.072	-	1.072	1.082	1.105	1.126	1.150	Continuing	Continuing
2353: *DFAS Billings*	0.000	1.465	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.465
3234: *Office of Naval Research - N-ERP*	0.000	1.078	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.078
3364: *ONR Global Management*	0.000	4.264	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.264

A. Mission Description and Budget Item Justification

This program element (PE) covers Office of Naval Research (ONR) corporate expenses including salaries, Information Technology (IT), Financial Improvement Plan (FIP) efforts and some of the day-to-day logistical costs. The vast majority of these items represent fixed costs associated with Scientists and Engineers supporting the Navy's Science and Technology (S&T) Programs.

The Defense Finance and Accounting Service (DFAS) Billings project 2353 funds accounting services provided to ONR and Navy Research and Development (R&D) activities.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	63.000	1.104	1.108	-	1.108
Current President's Budget	62.961	1.104	1.072	-	1.072
Total Adjustments	-0.039	0.000	-0.036	-	-0.036
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.243	0.000			
• SBIR/STTR Transfer	-0.093	0.000			
• Program Adjustments	-0.189	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	-0.036	-	-0.036

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605861N *I RDT&E Science & Tech Mgmt*

Change Summary Explanation

The decrease from FY 2017 to FY 2018 reflects a transfer of Non-MHA funding to PE 0602861N Science & Technology Management - ONR Field Accounts to consolidate ONR Science & Technology (S&T) Management in 6.2 Applied Research and improve reporting of Navy's S&T investment by including S&T management as part of the S&T topline.

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605861N / *RDT&E Science & Tech Mgmt*	Project (Number/Name) 0135 / *ONR Science & Technology Mgmt*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0135: *ONR Science & Technology Mgmt*	0.000	56.154	1.104	1.072	-	1.072	1.082	1.105	1.126	1.150	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports ONR leadership, management and direction for the Naval S&T program. This project funds ONR HQ Non-Management Headquarters Activities (Non-MHA) salaries, communications, and other fixed costs. In FY16 and out, the Mid-Range Financial Improvement Plan effort will be transferred into this project from PE 0605853N Project 3025 to support ONR's goal of attaining a clean and auditable financial statement. ONR sponsors scientific advances, which lead to Future Naval Capabilities (FNCs), supporting the Fleet's ability to operate from a position of technological superiority. Functions performed include (1) scientific and technical direction of the nationwide 6.1 basic research program with colleges, universities, non-profit organizations and Naval Laboratories and Warfare Centers; (2) scientific and technical direction of the 6.2 applied research program through the Naval R&D laboratories and Warfare Centers and industry; (3) scientific and technical direction of the Naval 6.3 advanced technology development program through the Navy's R&D laboratories, Warfare Centers and industry; (4) management, resource formulation, program assessment, and contract negotiation/administration of the Navy basic research, applied research and advanced technology development program; and (5) coordination of the Navy's Technology Base program within the context of total DoD/Government (e.g., National Science Foundation, National Academy of Sciences) R&D initiatives in order to maximize scientific advances. This project also supports ONR Non-MHA management and direction for the following Navy-wide programs: Small Business Innovation Research, Naval Research Advisory Committee, Navy Patent Program, Historically Black Colleges and Universities/Minority Institutions Program, Navy Manufacturing Technology Program and the Ballistic Missile Submarine Nuclear (SSBN) Security Technology Program.

Additionally, this project funds ONR field salaries, communications, and other fixed costs. Functions performed support ONR's Navy-wide responsibilities in the negotiation and establishment of indirect cost rates for DoD-assigned universities and performance of contract administration for all DoD contracts/grants at all colleges and universities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: S&T MANAGEMENT SUPPORT	56.154	1.104	1.072	0.000	1.072
Articles:	-	-	-	-	-
Description: This project provides for Non-MHA costs of ONR Headquarters in support of the entire Navy S&T program. Most all the funds in this project are fixed costs, such as salaries and communications. Specifically, it pays the salaries of Scientific and Engineering and corporate business personnel who direct the execution of the Navy's basic research, applied research, and advanced technology development programs at the nation's universities/colleges, Navy laboratories, Warfare Centers, and private industry.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605861N / *RDT&E Science & Tech Mgmt*	**Project (Number/Name)** 0135 / *ONR Science & Technology Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
This project also provides for Non-MHA costs of ONR's field activities to include fixed costs, such as salaries and communications. The decrease from FY 2017 to FY 2018 reflects a transfer of Non-MHA funding to PE 0602861N Science & Technology Management - ONR Field Accounts to consolidate ONR Science & Technology (S&T) Management in Applied Research and improve reporting of Navy's S&T investment by including S&T management as part of the S&T topline, offset by the transfer of funding from 0605853N Management, Technical and International Support to support Financial Auditability and Audit Readiness (FIAR). Effective in FY18 this PE Project will only fund NGEN Corporate requirements and FIAR Civilian Salary (1 FTE). ***FY 2018 Plans:*** This PE project funds NGEN Corporate requirements and FIAR Civilian Salary (1 FTE) ***FY 2019 Base Plans:*** This PE project funds NGEN Corporate requirements and FIAR Civilian Salary (1 FTE) ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	56.154	1.104	1.072	0.000	1.072

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This PE funds operating costs for ONR's mission. Program performance is measured by attaining financial benchmarks for planned obligations vs. actual obligations and planned expenditures vs. actual expenditures.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605861N / *RDT&E Science & Tech Mgmt*	Project (Number/Name) 2353 / *DFAS Billings*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2353: *DFAS Billings*	0.000	1.465	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.465
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides funding for accounting services provided to the Office of Naval Research and other Navy research and development activities by the Defense Finance and Accounting Service (DFAS).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: TRANSACTIONS PROCESSED IN SUPPORT OF DON R&D	1.465	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: This project funds the DFAS bill for transactions processed in support of Department of the Navy R&D activities. Specific services include payroll, transportation, commercial invoices, travel, maintenance of trial balances, associated accounting and reporting. The decrease from FY 2017 to FY 2018 reflects a transfer of Non-MHA funding to PE 0602861N Science & Technology Management - ONR Field Accounts to consolidate ONR Science & Technology (S&T) Management in 6.2 Applied Research and improve reporting of Navy's S&T investment by including S&T management as part of the S&T topline. ***FY 2018 Plans:*** Effort and associated funding was realigned to 0602861N Science & Technology Management - ONR Field Accounts. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	1.465	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605861N / *RDT&E Science & Tech Mgmt*	**Project (Number/Name)** 2353 / *DFAS Billings*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This PE funds operating costs for ONR's mission. Program performance is measured by attaining financial benchmarks for planned obligations vs. actual obligations and planned expenditures vs. actual expenditures.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605861N / *RDT&E Science & Tech Mgmt*	Project (Number/Name) 3234 / *Office of Naval Research - N-ERP*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3234: *Office of Naval Research - N-ERP*	0.000	1.078	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.078
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides funding to support the site implementation costs for the Office of Naval Research transition to Navy's Enterprise Resource Planning (ERP) and to administratively track this continuing effort.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: OFFICE OF NAVAL RESEARCH NAVY ERP	1.078	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: This project funds N-ERP implementation and sustainment. The decrease from FY 2017 to FY 2018 reflects a transfer of Non-MHA funding to PE 0602861N to consolidate ONR Science & Technology (S&T) Management in 6.2 and improve reporting of Navy's S&T investment by including S&T management as part of the S&T topline. ***FY 2018 Plans:*** Effort and associated funding was realigned to 0602861N Science & Technology Management - ONR Field Accounts. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	1.078	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605861N / *RDT&E Science & Tech Mgmt*	**Project (Number/Name)** 3234 / *Office of Naval Research - N-ERP*

D. Acquisition Strategy

N/A

E. Performance Metrics

This PE funds operating costs for ONR's mission. Program performance is measured by attaining financial benchmarks for planned obligations vs. actual obligations and planned expenditures vs. actual expenditures.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605861N / *RDT&E Science & Tech Mgmt*	Project (Number/Name) 3364 / *ONR Global Management*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3364: *ONR Global Management*	0.000	4.264	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.264
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds ONR Global salaries. Functions performed support ONR Navy-wide responsibilities in promoting the development of research in the international S&T community.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: ONR Global	4.264	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: This project funds ONR Global salaries. Functions performed support ONR Navy-wide responsibilities in promoting the development of research in the international S&T community. The decrease from FY 2017 to FY 2018 reflects a transfer of Non-MHA funding to PE 0602861N Science & Technology Management - ONR Field Accounts to consolidate ONR Science & Technology (S&T) Management in 6.2 Applied Research and improve reporting of Navy's S&T investment by including S&T management as part of the S&T topline. ***FY 2018 Plans:*** Effort and associated funding was realigned to 0602861N Science & Technology Management - ONR Field Accounts. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	4.264	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605861N / *RDT&E Science & Tech Mgmt*	**Project (Number/Name)** 3364 / *ONR Global Management*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605863N *I RDT&E Ship & Aircraft Support*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	105.693	105.666	97.471	-	97.471	100.567	101.858	102.994	105.592	Continuing	Continuing
0568: *RDT&E Acft Flt Hours*	0.000	32.283	33.655	34.026	-	34.026	35.237	36.081	36.758	37.774	Continuing	Continuing
0569: *RDT&E Acft Supt*	0.000	36.408	34.339	40.206	-	40.206	38.566	38.647	39.393	40.313	Continuing	Continuing
2924: *SDTS*	0.000	11.465	11.421	10.524	-	10.524	12.053	12.207	12.133	12.409	Continuing	Continuing
3206: *T&E Enterprise*	0.000	25.537	26.251	12.715	-	12.715	14.711	14.923	14.710	15.096	Continuing	Continuing

A. Mission Description and Budget Item Justification

This continuing program provides support for ships and aircraft required to accommodate Research, Development, Test and Evaluation (RDT&E) of new systems. The RDT&E ship and aircraft inventory is required to adequately test new and improved weapon systems, stay current with threats, and increase warfighting capability of the fleet. The program provides integrated logistics support for aircraft at selected field activities; provides depot-level rework of aircraft, engines, and components for the Navy inventory of RDT&E aircraft; and provides support for ships and aircraft bailed to contractors for Navy RDT&E projects. Costs covered under this element include aircrew training and proficiency, fuel, supplies, equipment, repair, Aviation Depot Level Repairables, overhaul of ships and aircraft, as well as organizational, intermediate, and depot maintenance of ships and aircraft in the Navy RDT&E inventory.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	106.093	105.666	98.985	-	98.985
Current President's Budget	105.693	105.666	97.471	-	97.471
Total Adjustments	-0.400	0.000	-1.514	-	-1.514
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.400	0.000			
• Program Adjustments	0.000	0.000	-1.863	-	-1.863
• Rate/Misc Adjustments	0.000	0.000	0.349	-	0.349

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605863N *I RDT&E Ship & Aircraft Support*

Change Summary Explanation

Project 3206: The FY 2018 to FY 2019 decrease is due to full funding of FY18 requirements to the T&E event schedule and some testing above core Enterprise capability with FY19 supporting maintenance of core Enterprise capability only. The FY 2019 funding request was reduced by $1.128 million to account for the availability of prior year execution balances.

Project 2924: The FY 2019 funding request was reduced by $0.735 million to account for the availability of prior year execution balances

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605863N / *RDT&E Ship & Aircraft Support*	Project (Number/Name) 0568 / *RDT&E Acft Flt Hours*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0568: *RDT&E Acft Flt Hours*	0.000	32.283	33.655	34.026	-	34.026	35.237	36.081	36.758	37.774	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Research, Development, Test and Evaluation (RDT&E) Aircraft Flight Hours. This non-acquisition project supports direct flight hour costs, including organizational and intermediate level maintenance, as well as associated consumables, including petroleum, oil, and lubricants. These flight hours are used for post-maintenance test flights, aircrew training, and the accomplishment of pilot proficiency requirements (approximately three hours per pilot per month), in support of Research and Development programs at four Naval Air Systems Command/Naval Surface Warfare Center/Office of Naval Research flight activities.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: RDT&E Acft Flt Hours	32.283	33.655	34.026	0.000	34.026
Articles:	-	-	-	-	-
FY 2018 Plans: Continue to provide planned organizational and intermediate-level maintenance, supply and petroleum, oil and lubricants in support of RDT&E aircraft operations.					
FY 2019 Base Plans: Continue to provide planned organizational and intermediate-level maintenance, supply and petroleum, oil and lubricants in support of RDT&E aircraft operations.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The increase from FY 2018 to FY 2019 is attributed to the anticipated increased costs of the maintenance contract in support of aircrew readiness.					
Accomplishments/Planned Programs Subtotals	32.283	33.655	34.026	0.000	34.026

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605863N / *RDT&E Ship & Aircraft Support*	**Project (Number/Name)** 0568 / *RDT&E Acft Flt Hours*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

This Research, Development, Test and Evaluation (RDT&E) Aircraft program supports approximately three hours per pilot per month of post-maintenance test flights, aircrew training and the accomplishment of pilot proficiency requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605863N / *RDT&E Ship & Aircraft Support*	Project (Number/Name) 0569 / *RDT&E Acft Supt*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0569: *RDT&E Acft Supt*	0.000	36.408	34.339	40.206	-	40.206	38.566	38.647	39.393	40.313	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Research, Development, Test and Evaluation (RDT&E) Aircraft Support. This continuing project funds costs associated with RDT&E fixed and rotary wing aircraft which accommodate test and evaluation of aircraft/weapon systems. Testing aboard these platforms reduces the number of fleet units required to support RDT&E efforts. Included in these costs are Aviation Depot-Level Repairables (AVDLR), which are spare and replacement aircraft parts and components to support overhead maintenance related flight operations, aircrew training, and proficiency flight hours. This project also funds airframe Standard Depot Level Maintenance (SDLM), the Integrated Maintenance Concept (IMC) and Phased Depot Maintenance (PDM), in-service repairs, emergency repairs, and engine repairs, as well as aircraft material condition and field inspections. Additionally, it funds Aircraft Structure Periodic Adjustments (ASPA), Individual Material Readiness List (IMRL) tools and support equipment, Aviation Climate Assessment Survey System (ACASS) and other systems for application to and compatibility with RDT&E requirements.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Aircraft/Engine Maintenance and AVDLR/IMRL Support	35.808	33.739	39.606	0.000	39.606
Articles:	-	-	-	-	-
FY 2018 Plans: Continue planned transition from ASPA/SDLM to the IMC/PDM program for depot maintenance requirements, while sustaining the following programs: AVDLR/IMRL, engine repairs, support of aircraft in the RDT&E inventory. Continue operation and implementation of maintenance and material management programs at Naval Air Warfare Center activities.					
FY 2019 Base Plans: Continue planned transition from ASPA/SDLM to the IMC/PDM program for depot maintenance requirements, while sustaining the following programs: AVDLR/IMRL, engine repairs, support of aircraft in the RDT&E inventory. Continue operation and implementation of maintenance and material management programs at Naval Air Warfare Center activities.					
FY 2019 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605863N / *RDT&E Ship & Aircraft Support*	**Project (Number/Name)** 0569 / *RDT&E Acft Supt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increase from FY 2018 to FY 2019 is associated with rising cost of RDT&E engines, rising costs of AVDLR requirements associated with readiness, and anticipated increases in DEPOT cost.					
Title: In-Service Repairs	0.600	0.600	0.600	0.000	0.600
Articles:	-	-	-	-	-
FY 2018 Plans: Continue to provide planned In-Service Repair funds for emergent repair requirements to aircraft performing mission critical test and evaluation projects. ***FY 2019 Base Plans:*** Continue to provide planned In-Service Repair funds for emergent repair requirements to aircraft performing mission critical test and evaluation projects. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no funding change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	36.408	34.339	40.206	0.000	40.206

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The RDT&E Aircraft Support program goal is to provide the required funds to meet NAVAIR Aircraft Controlling Custodian aircraft sustainment requirements. These sustainment costs include providing annual support for required Planned Depot Maintenance events, In-service Repairs (P&E, Repairs, Mods), Depot Engine Inductions, IMRL Repairs, along with the funding of management oversight of the aircraft and the AVDLR costs associated with pilot readiness requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605863N / *RDT&E Ship & Aircraft Support*	Project (Number/Name) 2924 / *SDTS*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2924: *SDTS*	0.000	11.465	11.421	10.524	-	10.524	12.053	12.207	12.133	12.409	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the Hull Mechanical and Electrical (HM&E) and remote control system maintenance aboard the Self-Defense Test Ship (SDTS) in support of the Navy RDT&E of ship self-defense systems. Testing aboard this ship provides the capability to safely test self-defense weapon systems within their minimum range and reduces the number of fleet units required to support RDT&E efforts.

Funds are used to purchase expendable supplies, routine equipment maintenance, and repairs and supporting services.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: SDTS	11.465	11.421	10.524	0.000	10.524
Articles:	-	-	-	-	-
FY 2018 Plans: NSWC PHD continues to conduct management, operation, maintenance and repair/upgrade of ship HM&E critical items to ensure ongoing safe operation, and performance of the SDTS. Maintain, operate, configure and upgrade the TSRCS and associated infrastructure in support of T&E requirements onboard SDTS to support the AW SSD Enterprise TEMP efforts as well as Navy development test programs. Develop work package for SDTS dry dock, currently scheduled for FY20.					
FY 2019 Base Plans: NSWC PHD continues to conduct management, operation, maintenance and repair/upgrade of ship HM&E critical items to ensure ongoing safe operation, and performance of the SDTS. Maintain, operate, configure and upgrade the TSRCS and associated infrastructure in support of T&E requirements onboard SDTS to support the AW SSD Enterprise TEMP efforts as well as Navy development test programs.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605863N / *RDT&E Ship & Aircraft Support*	**Project (Number/Name)** 2924 / *SDTS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The FY 2019 funding request was reduced by $0.735 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	11.465	11.421	10.524	0.000	10.524

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This line of accounting is for recurring HM&E and ship maintenance.

E. Performance Metrics

1. Ability to successfully remain safe and operationally available to support testing and evaluation of systems while in an unmanned, remotely controlled mode.
2. Successful development of applicable operation and maintenance documentation and reporting of installations.
3. Successful and timely delivery of funding status, schedule and technical delays and other issues.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605863N / *RDT&E Ship & Aircraft Support*	Project (Number/Name) 3206 / *T&E Enterprise*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3206: *T&E Enterprise*	0.000	25.537	26.251	12.715	-	12.715	14.711	14.923	14.710	15.096	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The T&E Enterprise consolidates all Air Warfare (AW) Ship Self Defense (SSD) at-sea testing across multiple class ships, beginning with LHD 8, LSD 52, LHA 6, DDG 1000, CVN 78, and Littoral Combat Ship (LCS) versions 12 and 17. This consolidated AW SSD test and evaluation approach meets the Probability of Raid Annihilation (PRA) (PRA is defined as a required surface ship defense against Anti-Ship Cruise Missiles), Self Defense Test Ship (SDTS) testing requirements as outlined in Air Warfare Ship Self Defense Enterprise TEMP 1714, and lead/operational ship testing requirements for Extended Sea Sparrow Missile (ESSM) TEMP 1471, Rolling Airframe Missile (RAM) Blk 2 TEMP 286-2, DDG 1000 TEMP 1560, CVN 78 TEMP 1610, Cooperative Engagement Capability (CEC) TEMP 1415, SSDS TEMP 1400, LHA 6 TEMP 1697, AN/SPQ-9B TEMP 1463, Surface Electronic Warfare Improvement Program (SEWIP) TEMP 1658 (Block 1A), and LCS TEMP 1695.

Enterprise Cost elements:
a) SDTS Acquisition includes the direct procurement costs of major Combat Systems (CS) elements which will be installed on the SDTS.

b) SDTS Summary includes installation, check-out and stage testing of the major combat systems elements on the SDTS.

c) SDTS Test includes tracking and firing exercises versus single and dual, subsonic and supersonic Anti-Ship Cruise Missile (ASCM) threat surrogates for ship classes in the Enterprise TEMP from the SDTS including: LHA 6, LSD 50, DDG 1000, LCS 12, LCS 17 and CVN 78.

d) Lead Ship Test includes tracking and firing exercises versus single and dual, subsonic and supersonic ASCM threat surrogates for ship classes in the Enterprise TEMP from the Lead Ship including: LHA 6, LSD 50, LCS 12, LCS 17 and CVN 78.

e) Testbed includes all modeling and simulation (M&S) costs required to create OT-quality digital representations of shipboard combat system performance including infrastructure, distributed secure network, common environmental services for Developmental Test (DT) and Operational Test (OT).

f) Enterprise Testing and Planning includes the contractor and government costs to administer the Enterprise, collect and distribute data from live events, maintain Information Assurance (IA) certifications, and financial management.

g) Maintenance of CS includes the costs for the routine preventive maintenance and repairs of the Combat Systems elements on the SDTS.

The T&E Enterprise merges common ship, element, and system requirements into the least number of test events while leveraging planned Combat System Ship Qualification Trials (CSSQTs) to accomplish Developmental Testing (DT) and Operational Testing (OT) requirements. All tests on the SDTS require the sharing of infrastructure, missile range allocations, execution time and underway time to eliminate duplicative testing. T&E Enterprise preserves end-to-end mission Operational

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605863N / *RDT&E Ship & Aircraft Support*	**Project (Number/Name)** 3206 / *T&E Enterprise*

Testing in a realistic operational environment, capitalizing on Probability of Raid Annihilation Modeling and Simulation (M&S) data validated with results of that Operational Testing, and ensuring a consistent approach across ship classes. Applicability of all test events is beneficial across multiple ship classes with the same variation under test.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: T&E Enterprise	25.537	26.251	12.715	0.000	12.715
Articles:	-	-	-	-	-
FY 2018 Plans: Complete final OT PRA Assessment runs for score of the LHA 6 configuration (ET-15). Complete pier side industrial availability to conduct Installation and Checkout (INCO) of DDG1000 equipment to include Multi-Function Radar (MFR), and INCO CVN 78 configurations on the SDTS. Conduct SDTS testing in the DDG 1000, LCS 16 and LSD 52 configurations. Conduct PRA Testbed Developmental Test (DT) of the LCS 12 and CVN 78 configurations. The Enterprise will continue routine maintenance, IA/Cybersecurity Certification and Accreditation on combat systems elements and the remote control system on the SDTS. Continue to facilitate the integration of systems into the PEO IWS M&S framework Aircraft services support for CVN 78 SBDTs					
FY 2019 Base Plans: At the current control we will maintain base ET&E operations. No at sea testing will be conducted. Continue to conduct test planning in support of CVN 78, LSD 52, LCS 16, LCS 19 and DDG 1000. The Enterprise will continue routine maintenance, IA/Cybersecurity Certification and Accreditation on combat systems elements and the remote control system on the SDTS. Continue to facilitate the integration of systems into the PEO IWS M&S framework.					
FY 2019 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605863N / *RDT&E Ship & Aircraft Support*	**Project (Number/Name)** 3206 / *T&E Enterprise*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY18 to FY19 decrease is due to full funding of FY18 requirements to the T&E event schedule and some testing above core Enterprise capability with FY19 supporting maintenance of core Enterprise capability only. The FY 2019 funding request was reduced by $1.128 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	25.537	26.251	12.715	0.000	12.715

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Successfully complete required documentation and reporting for Enterprise installations and required check out and testing of installations. Successfully complete all Enterprise Operational Test Readiness Reviews (OTRR). Successfully complete required Enterprise developmental testing/operational testing DT/OT testing and combat system ship qualification trials (CSSQT) related tests with 0 casualty delays. Successfully collect related test result data and distribute accordingly.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	398.972	373.667	373.834	-	373.834	395.811	402.515	402.409	409.433	Continuing	Continuing
0541: *AUTEC*	0.000	52.024	55.439	53.196	-	53.196	55.016	55.880	56.866	58.004	Continuing	Continuing
0566: *NAVAIR Environmental Compliance*	0.000	4.205	4.382	4.428	-	4.428	4.572	4.663	4.756	4.851	Continuing	Continuing
0653: *NAWC Weapons Division*	0.000	137.842	140.001	143.497	-	143.497	157.706	154.366	157.199	159.320	Continuing	Continuing
0654: *NAWC Acft Division*	0.000	94.395	96.653	97.001	-	97.001	99.638	101.608	103.809	105.886	Continuing	Continuing
2921: *Pacific Missile Range Facility*	0.000	5.171	5.385	5.219	-	5.219	5.394	5.499	5.610	5.722	Continuing	Continuing
2922: *MRTFB Maint & Repair*	0.000	81.992	44.378	45.383	-	45.383	41.454	43.903	44.725	45.620	Continuing	Continuing
3154: *Nanoose and Dabob Bay Ranges*	0.000	11.404	11.556	12.018	-	12.018	12.391	12.640	12.899	13.154	Continuing	Continuing
3386: *MRTFB Marine Vessels*	0.000	11.939	15.873	13.092	-	13.092	19.640	23.956	16.545	16.876	Continuing	Continuing

A. Mission Description and Budget Item Justification

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under RESEARCH, DEVELOPMENT, TEST and EVALUATION MANAGEMENT SUPPORT because it supports efforts directed toward sustaining or modernizing installations or operations required for general research, development, test and evaluation.

This program provides institutional maintenance and operations support for: the Naval Undersea Warfare Center Detachment Atlantic Undersea Test and Evaluation Center, Andros Island, Bahamas; the Environmental Compliance Program; Naval Air Warfare Center Weapons Division, Point Mugu and China Lake, CA; Naval Air Warfare Center Aircraft Division, Patuxent River, MD; Test and Evaluation related capabilities at the Pacific Missile Range Facility, Barking Sands, HI; Maintenance and Repair at Naval Air Warfare Center Weapons Division, Naval Air Warfare Center Aircraft Division, and Naval Undersea Warfare Center Detachment Atlantic Undersea Test and Evaluation Center; and the Naval Undersea Warfare Center Keyport Nanoose and Dabob Bay Ranges. Project Unit 3386, Major Range and Test Facility Base Marine Vessels provides the overhauls and preventative maintenance of the 23 Major Range and Test Facility Base marine vessels located at Naval Air Warfare Center Weapons Division, Point Mugu, CA, Pacific Missile Range Facility, Honolulu, HI, Naval Undersea Warfare Center Keyport Nanoose and Dabob Bay Ranges, Keyport, WA, Naval Air Warfare Center Aircraft Division, Patuxent River, MD, and Naval Undersea Warfare Center Detachment Atlantic Undersea Test and Evaluation Center. The Test and Evaluation activities make up the Navy portion of the Department of Defense's Major Range and Test Facility Base. These activities are chartered to perform Test and Evaluation for the development and acquisition of technology advanced weapons systems. Core Test and Evaluation capabilities and capacity are operated to obtain weapons system performance documentation for acquisition program milestone decisions to provide operational forces with effective weapons systems. This program provides Navy Acquisition Program Managers required test capabilities; lowers cost of Test and Evaluation; removes cost and scheduling impact of providing their own Test and Evaluation resources; and retains the physical airspace, land space and sea space needed to conduct testing.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy					Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*			
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	413.446	373.667	375.362	-	375.362
Current President's Budget	398.972	373.667	373.834	-	373.834
Total Adjustments	-14.474	0.000	-1.528	-	-1.528
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.474	0.000			
• Program Adjustments	-12.000	0.000	1.021	-	1.021
• Rate/Misc Adjustments	0.000	0.000	-2.549	-	-2.549

Change Summary Explanation

The FY 2018 funding increase supports a comprehensive life extension and repair of the Major Range and Test Facility Base hangars, projects to improve security at the Atlantic Undersea Test and Evaluation Center, and sustainment of six new advanced high fidelity threat emitters at the Naval Air Warfare Center Weapons Division .

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*	Project (Number/Name) 0541 / *AUTEC*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0541: *AUTEC*	0.000	52.024	55.439	53.196	-	53.196	55.016	55.880	56.866	58.004	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

As a detachment of Naval Undersea Warfare Center, Division Newport, the mission of the Atlantic Undersea Test and Evaluation Center is to provide the US Navy an underwater range facility for full-spectrum test and evaluation of Undersea Warfare systems and for Fleet training and readiness assessment. The Atlantic Undersea Test and Evaluation Center Program Office is headquartered at Newport, RI. Atlantic Undersea Test and Evaluation Center's administrative offices are located at West Palm Beach, Florida. Test facilities are located at Andros Island, Sites 1 through 4, and the Berry Islands in the Bahamas. Atlantic Undersea Test and Evaluation Center aircraft make scheduled daily flights between West Palm Beach and Andros Town Airport.

Atlantic Undersea Test and Evaluation Center manages and, under service contract, maintains and operates a 500 square nautical miles deep-water and a 100 square nautical miles shallow-water range; air-target tracking capabilities; sonobuoy simulation systems; electronic warfare threat simulation systems; rotary wing aircraft; aircraft ground support facilities; acoustic targets; torpedo retrieval and flushing capabilities; open-ocean range craft; marine support facilities; and data processing and analysis capabilities.

Major test facilities on Andros Island are located at Site 1. The Command Control Building houses the range tracking displays and replay centers, the computer center, operations support functions, communications center, and the central timing system. The Range Support Facility houses a torpedo post-run workshop, Mark 46 /Mark 50 lightweight torpedo Intermediate Maintenance Activity, a Mark 30 undersea target Intermediate Maintenance Activity, a Mark 48 heavyweight torpedo Research and Development Turnaround facility and related technical facilities. The complex includes electrical and physical calibration labs, a complete electronics maintenance shop, a dive locker, a precision machine shop, and logistics support areas.

Atlantic Undersea Test and Evaluation Center has a 285-foot concrete pier with a controlling depth of 17 feet (5.2 meters) at mean low tide. An adjacent wharf is approximately 240 feet in length (72 meters) with a controlling depth of 15 feet at mean low tide. Power is available at both locations. Facilities at the pier/marine area include fully equipped machine /fabrication and marine overhaul shops. Also at Site 1, six Range User Buildings are maintained for assembling test equipment and equipment check-out during test mobilization or dockside periods. These staging areas are equipped with a variety of power sources, gantry cranes, compressed air and security features. A fully equipped range user hanger for ground maintenance and storage of helicopters is located at the Atlantic Undersea Test and Evaluation Center helicopter airstrip. Sites 2, 3, and 4 are small instrumented areas located south of Site 1 used to extend tracking of sonobuoys, communications, and air target track.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Atlantic Undersea Test and Eval Ctr Facility	40.268	43.683	41.440	0.000	41.440
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0541 / *AUTEC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: Atlantic Undersea Test and Evaluation Center is a Test and Evaluation facility for collecting selected underwater, surface and air tracking data on test participants. This project funds the overhead/ institutional costs required to sustain the Major Range and Test Facility capabilities at Atlantic Undersea Test and Evaluation Center in accordance with Department of Defense Directive 3200.11. ***FY 2018 Plans:*** Continue to maintain and operate mission essential/core test support resources, instrumentation systems and marine craft required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain MRTFB operations. Reimburse the Command for General and Administrative support services. Continue to support resolution of policy compliance issues resulting from a Naval Sea Systems Command Inspector General/Newport Office of Counsel and Contracting review. ***FY 2019 Base Plans:*** Continue to maintain and operate mission essential/core test support resources, instrumentation systems and marine craft required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations. Reimburse the Command for General and Administrative support services. Continue to support resolution of policy compliance issues resulting from a Naval Sea Systems Command Inspector General/Newport Office of Counsel and Contracting review. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY 2018 to FY 2019 resulted from completion of one-time compliance improvements within the range control center and at Site 2 instrumentation complex.					
Title: Bahamian Lease	11.756	11.756	11.756	0.000	11.756
Articles:	-	-	-	-	-
Description: Rental payments to the Bahamian government for use of land and ocean in the Bahamas. ***FY 2018 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0541 / *AUTEC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue to provide rental payments to the Bahamian government for use of land and ocean in the Bahamas. ***FY 2019 Base Plans:*** Continue to provide rental payments to the Bahamian government for use of land and ocean in the Bahamas. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A					
Accomplishments/Planned Programs Subtotals	52.024	55.439	53.196	0.000	53.196

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Maintain Major Range and Test Facility Base infrastructure in a ready state to provide between 2,500-2,900 range hours in support of multiple Navy and Department of Defense acquisition programs and fleet training.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*	Project (Number/Name) 0566 / *NAVAIR Environmental Compliance*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0566: *NAVAIR Environmental Compliance*	0.000	4.205	4.382	4.428	-	4.428	4.572	4.663	4.756	4.851	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This continuing project supports environmental compliance, conservation and pollution prevention related efforts at the Navy Major Range and Test Facility Base located at Patuxent River, MD, China Lake, CA, Point Mugu, CA, and Atlantic Undersea Test and Evaluation Center, Bahamas. The Navy Major Range and Test Facility Base environmental projects include ongoing efforts to comply with Federal, State, and local environmental requirements.

The MRTFB are test and evaluation facilities that provide for Department of Defense test and evaluation support missions. These missions include: Weapons system testing, military operational squadron training on new weapon systems, and validation of performance or operational characteristics.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Environmental Compliance	4.205	4.382	4.428	0.000	4.428
Articles:	-	-	-	-	-
Description: Projects supporting level 1 compliance requirements at Naval Air Systems Command Ranges inclusive of hazardous waste disposal, Resource Conservation & Recovery Act, Subtitle C - 40 CFR 260 through 279, and Emergency Planning and Community Right-to-Know Act, Sections 311-312; solid waste disposal, Resource Conservation & Recovery Act, Subtitle D - 40 CFR Parts 239 through 259; natural & cultural resources programs, National Environmental Policy Act, Environmental Protection Act, Marine Mammal Protection Act, Endangered Species Act, Archeological and Historic Preservation Act, maintaining of environmental permits, Clean Air Act, Clean Water Act, and environmental monitoring. Resource Conservation & Recovery Act, 42 U.S.C. Section 6901 et sequens 1976; Emergency Planning and Community Right-to-Know Act, 42 U.S.C. Section 11001-11050 et sequens 1986; National Environmental Policy Act, 42 U.S.C. Section 4331 et sequens 1969; Marine Mammal Protection Act, 16 U.S.C. Section 1361 et sequens 1972; Clean Water Act, 33 U.S.C. Section 1251-1387 1972; ESA, 7 U.S.C. Section 136, 16 U.S.C. Section 1531 et sequens 1973; Archeological and Historic Preservation Act, 16 USC Section 469-469c-2 1960; and Clean Air Act, Title V, 33 U.S.C. Section 1251 et sequens 1972.					
FY 2018 Plans: Continue the identification and funding of level 1 requirements that support compliance projects at NAVAIR Ranges to					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0566 / *NAVAIR Environmental Compliance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
ensure applicable laws and regulations are met and Range mission/operations proceed unencumbered. Global Information Systems Encroachment Data Supporting Testing & Training, 0.2 Cultural Surveys Supporting Testing & Training, 0.1 ***FY 2019 Base Plans:*** Continue the identification and funding of level 1 requirements that support compliance projects at Naval Air Systems Command Ranges to ensure applicable laws and regulations are met and Range mission/operations proceed unencumbered. Global Information Systems Encroachment Data Supporting Testing & Training, 0.2 Cultural Surveys Supporting Testing & Training, 0.1 ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	4.205	4.382	4.428	0.000	4.428

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Funding and execution of 37 level 1 compliance projects with quarterly project reviews, and monthly monitoring of expenditures vs. execution of project deliverables/ objectives. Primary metric gauging performance of these projects is the maintaining of compliance with pertinent laws and regulations as noted in section B.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*	Project (Number/Name) 0653 / *NAWC Weapons Division*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0653: *NAWC Weapons Division*	0.000	137.842	140.001	143.497	-	143.497	157.706	154.366	157.199	159.320	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project provides continuing maintenance and operational support for the Naval Air Warfare Center Weapons Division Test and Evaluation capabilities. These capabilities include the Pacific Ranges and Facilities, consisting of China Lake Ranges and the Point Mugu Sea Range, aerial and surface targets, test instrumentation, and Test and Evaluation aircraft. The Pacific Ranges use China Lake's 1.1 million acres of land and 17,000 square miles of military restricted (R-2508) airspace together with Point Mugu's 125,000 square miles of instrumented sea range and 36,000 square miles of controlled overlying airspace, and airfield and test instrumentation at San Nicolas Island to perform its Test and Evaluation mission. Included in the China Lake ranges is the Electronic Combat Range, which provides outdoor free space development and operational testing of airborne electronic warfare systems and tactics against shipboard and land based air defense systems. These ranges perform metric radar, multilateration and optical tracking of test objects; command, control, and destruct for range safety purposes; communications; frequency interference control and analysis; collection processing and display of telemetered data; real-time data processing and display; and the operation of a sub scale aerial target launch capability. Other test capabilities include sled tracks, measurement facility; propulsion, warhead, environmental, rocket motor, and other missile component test facilities; and gun ranges. This project funds costs that are not chargeable to customers.

The funding increase in FY19 support sustainment of four additional advanced high fidelity threat emitters at Naval Air Warfare Center Weapons Division ranges.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Pacific Ranges	56.740	57.192	59.762	0.000	59.762
Articles:	-	-	-	-	-
Description: In accordance with Department of Defense Directive 3200.11., this project funds the overhead/ institutional costs required to sustain the Major Range and Test Facility Base capabilities at the Pacific Ranges and Facilities located at China Lake and Point Mugu, CA. These facilities provide safe, instrumented, controlled open air testing utilizing the Land Range, Sea Range, Electronic Combat Ranges, and San Nicholas Island. Increased funding supports the sustainment of four additional (#7-10) advanced high fidelity threat emitters at Naval Air Warfare Center Weapons Division ranges. ***FY 2018 Plans:*** Continue to maintain and operate mission/core test support resources. These resources include test article instrumentation and systems required to safely conduct flight and ground test missions as well as schedule and control air, land, sea and associated range operating areas required to meet customer test workload. Fund					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0653 / *NAWC Weapons Division*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased services contracts, annual utilities and any costs necessary to manage and sustain the MRTFB operations. The funding increase from FY 2017 to FY 2018 supports the sustainment of six new advanced high fidelity threat emitters at NAWCWD ranges (five open loop Active Emitter Scan Array and one closed loop Passive Emitter Scan Array) operating in the C and S Radio Frequency Bands and E, F & G Electronic Warfare Bands. ***FY 2019 Base Plans:*** Continue to maintain and operate mission/core test support resources. These resources include test article instrumentation and systems required to safely conduct flight and ground test missions as well as schedule and control air, land, sea and associated range operating areas required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased services contracts, annual utilities and any costs necessary to manage and sustain the Major Range and Test Facility Base operations. Increased funding supports the sustainment of four additional (#7-10) advanced high fidelity threat emitters at Naval Air Warfare Center Weapons Division ranges. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase in FY19 supports the China Lake Locality pay increase and sustainment of four additional advanced high fidelity threat emitters.					
Title: Navy Test Wing Pacific	20.964	21.337	22.681	0.000	22.681
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the Major Range and Test Facility Base capabilities of the Naval Test Wing Pacific located at China Lake and Point Mugu, CA. These facilities provide the Navy's principal Pacific test activity for Naval Aviation Systems Team aircraft, engaged in or supporting Test & Evaluation of aircraft, weapons and weapons systems. The funding increase from FY18 to FY19 supports the locality pay increase at China Lake and the maintenance contract for the new C-20 aircraft. ***FY 2018 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0653 / *NAWC Weapons Division*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue to maintain and operate mission essential/core test support resources associated with 10 aircraft and related systems and flight test safety required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain MRTFB operations. ***FY 2019 Base Plans:*** Continue to maintain and operate mission essential/core test support resources associated with 10 aircraft and related systems and flight test safety required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations. Complete maintenance start up for C-20 aircraft and transition to regular maintenance. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase in FY19 supports the China Lake Locality pay increase and stand up of the C-20G Range Support Aircraft Maintenance Facility.					
Title: Threat/Target Systems	11.226	10.944	11.536	0.000	11.536
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the Major Range and Test Facility Base capabilities of the Threat/Target Systems facilities. These facilities provide the airborne and seaborne threats for test and evaluation. ***FY 2018 Plans:*** Continue to maintain and operate mission essential/core test support resources associated with airborne and seaborne targets required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain the Major Range and Test Facility Base (MRTFB) operations. ***FY 2019 Base Plans:*** Continue to maintain and operate mission essential/core test support resources associated with airborne and seaborne targets required to meet customer test workload. Fund civilian labor, travel, transportation, equipment,					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0653 / *NAWC Weapons Division*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain the Major Range and Test Facility Base operations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase in FY19 supports the China Lake Locality pay increase and sustainment of the BQM177A target.					
Title: Test and Evaluation Ordnance ***Articles:*** ***Description:*** This project funds the overhead/institutional costs required to sustain the Major Range and Test Facility Base capabilities of the Test and Evaluation Ordnance facilities. These facilities provide test and evaluation of All-Up live ordnance and components. ***FY 2018 Plans:*** Continue to maintain and operate mission essential/core test support resources associated propulsion, warhead, environmental, rocket motor, and other missile component test facilities required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain MRTFB operations. ***FY 2019 Base Plans:*** Continue to maintain and operate mission essential/core test support resources associated propulsion, warhead, environmental, rocket motor, and other missile component test facilities required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase in FY19 supports the China Lake Locality pay increase and support of radiation and explosive safety policy.	3.329 -	3.089 -	3.565 -	0.000 -	3.565 -
Title: Naval Air Warfare Center Weapons Division Command	45.583	47.439	45.953	0.000	45.953

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0653 / *NAWC Weapons Division*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the Naval Air Warfare Center Weapons Division Major Range and Test Facility Test and Evaluation capabilities. The funding increase from FY 2017 to FY 2018 reflects a one-time cost to complete Pt. Mugu certification as a Gulfstream main operation base in preparation for maintenance support of the C-20 aircraft. ***FY 2018 Plans:*** Continue to reimburse the Command for General and Administration Support services. Continue to fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities, Navy Marine Corps Intranet, and any costs necessary to manage and sustain MRTFB operations. Added maintenance start up for C-20 aircraft. ***FY 2019 Base Plans:*** Continue to reimburse the Command for General and Administration Support services. Continue to fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities, Navy Marine Corps Intranet, and any costs necessary to manage and sustain Major Range and Test Facility Base operations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decreased in FY19 due to completion of the AN/APS-143 Range Clearance radar installation in the C-20G Range Support Aircraft.					
Accomplishments/Planned Programs Subtotals	137.842	140.001	143.497	0.000	143.497

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0653 / *NAWC Weapons Division*

E. Performance Metrics

Maintain Major Range and Test Facility Base infrastructure in a ready state to provide between 4,300-4,800 range hours, 125-150 aerial target presentations, 400-450 surface target presentations, 11,000-11,500 ordnance test hours, and over 6,000 flight hours in support of multiple Navy and Department of Defense acquisition programs and fleet training.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*	Project (Number/Name) 0654 / *NAWC Acft Division*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0654: *NAWC Acft Division*	0.000	94.395	96.653	97.001	-	97.001	99.638	101.608	103.809	105.886	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides funds for the maintenance and operations of the Naval Air Warfare Center Aircraft Division's Major Range and Test Facility Base capabilities used to conduct test and evaluation for air platforms. Naval Air Warfare Center Aircraft Division has extensive airfield, flight test ranges, aircraft systems test facilities and simulation laboratories to support aircraft Research Development Test and Evaluation. This includes 50,000 square miles of airspace, 39,375 square miles of sea space, and 7,950 acres of land space. Product areas include aircraft systems flight test and evaluation, carrier suitability certification, test article preparation, installed system test and evaluation, and modeling and simulation support of the acquisition process. The Test and Evaluation Group, Patuxent River, performs development and operational test and evaluation of manned and unmanned air vehicle systems, including mission systems, equipment, subsystems, components, and support systems. This project also provides test and evaluation facilities for air-breathing propulsion systems and extensive facilities for conducting both installed and uninstalled aircraft engine development and test and evaluation. This project funds costs that are not chargeable to customers.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Atlantic Ranges	22.256	22.892	23.514	0.000	23.514
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the Major Range and Test Facility Base capabilities associated with the Atlantic Ranges and Facilities and Air Vehicle Modification and Instrumentation. These facilities provide safe, instrumented, controlled flight testing and training in air, sea, and land arenas.					
FY 2018 Plans: Continue to maintain and operate mission essential/core test support resources. These resources include test article instrumentation and/or modification for Flight Test Aircraft and Weapons Undersea Test as well as ground and flight test instrumentation systems, range instrumentation systems and data processing and communication systems required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base (MRTFB) operations.					
FY 2019 Base Plans: Continue to maintain and operate mission essential/core test support resources. These resources include test article instrumentation and/or modification for Flight Test Aircraft and Weapons Undersea Test as well as ground and flight test instrumentation systems, range instrumentation systems and data processing and					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0654 / *NAWC Acft Division*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
communication systems required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase in FY19 supports the sustainment of MILCON P-155 and sustainment of three Broadband Emitter and Antenna Measurement Systems.					
Title: Electromagnetic Environmental Effects and Air Combat Environment Test and Evaluation Facility	19.329	19.667	20.331	0.000	20.331
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the Major Range and Test Facility Base capabilities associated with Electromagnetic Environmental Effects and Air Combat Environment Test and Evaluation Facility. These facilities provide Test and Evaluation support with integrated, interactive, and repeatable synthetic environments and reduce the risk and cost for programs with the use of installed systems tests to include simulation and stimulation tools, techniques and technologies. ***FY 2018 Plans:*** Continue to maintain and operate mission essential/core test support resources required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain MRTFB operations. ***FY 2019 Base Plans:*** Continue to maintain and operate mission essential/core test support resources required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0654 / *NAWC Acft Division*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The funding increase in FY19 supports the sustainment of four additional advanced high fidelity threat emitters and inflation.					
Title: Propulsion Systems Evaluation Facility	4.366	4.444	4.530	0.000	4.530
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the Major Range and Test Facility Base capabilities of the Propulsion Systems Evaluation Facility. These facilities perform Test and Evaluation of propulsion systems in the laboratories, engine test chambers and component test rigs of the Propulsion Systems Evaluation Facility and the Aircraft Test and Evaluation Facility. Propulsion Systems consists of engines, engine components and accessories.					
FY 2018 Plans: Continue to maintain and operate mission essential/core test support resources required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain MRTFB operations.					
FY 2019 Base Plans: Continue to maintain and operate mission essential/core test support resources required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: There is no significant change from FY 2018 to FY 2019.					
Title: Threat/Target Systems	1.645	1.675	2.300	0.000	2.300
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the Major Range and Test Facility Base capabilities of the Threat/Target Systems facilities. These facilities provide the airborne and seaborne threats for Test and Evaluation.					
FY 2018 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0654 / *NAWC Acft Division*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue to maintain and operate mission essential/core test support resources associated with airborne and seaborne targets required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain MRTFB operations. ***FY 2019 Base Plans:*** Continue to maintain and operate mission essential/core test support resources associated with airborne and seaborne targets required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase in FY19 supports the additional crane support and additional clearance vessel sustainment and inspection.					
Title: Naval Test Wing Atlantic	21.658	22.068	22.477	0.000	22.477
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the Major Range and Test Facility Base capabilities of the Naval Test Wing Atlantic. These facilities provide support for Naval Aviation Systems Team aircraft, engaged in or supporting Test and Evaluation aircraft systems. ***FY 2018 Plans:*** Continue to maintain and operate mission essential/core test support resources associated with 11 aircraft and related systems and flight test safety required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base (MRTFB) operations. ***FY 2019 Base Plans:*** Continue to maintain and operate mission essential/core test support resources associated with 11 aircraft and related systems and flight test safety required to meet customer test workload. Fund civilian labor, travel,					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0654 / *NAWC Acft Division*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change from FY 2018 to FY 2019.					
Title: Naval Air Warfare Center Aircraft Division Command ***Articles:*** ***Description:*** This project funds the overhead/institutional costs required to sustain the Naval Air Warfare Center Aircraft Division Major Range and Test Facility Base Test and Evaluation capabilities. ***FY 2018 Plans:*** Continue to reimburse the Command for General and Administrative support services. Continue to fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain MRTFB operations. ***FY 2019 Base Plans:*** Continue to reimburse the Command for General and Administrative support services. Continue to fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decreased in FY19 due to completion on one-time hangar maintenance project.	25.141 -	25.907 -	23.849 -	0.000 -	23.849 -
Accomplishments/Planned Programs Subtotals	94.395	96.653	97.001	0.000	97.001

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 0654 / *NAWC Acft Division*

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Maintain Major Range and Test Facility Base infrastructure in a ready state to provide between 8,700-9,200 range hours, 4,900-5,300 chamber hours, 9,500-10,000 Electromagnetic Environmental Effects test hours, and over 10,000 flight hours in support of multiple Navy and Department of Defense acquisition programs and fleet training.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*	Project (Number/Name) 2921 / *Pacific Missile Range Facility*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2921: *Pacific Missile Range Facility*	0.000	5.171	5.385	5.219	-	5.219	5.394	5.499	5.610	5.722	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program provides continuing maintenance and operations support for Test and Evaluation related capabilities at the Pacific Missile Range Facility located at Barking Sands on Kauai, HI. Pacific Missile Range Facility's Test and Evaluation capabilities include precision radar and telemetry assets, the Mobile Aerial Target Support System, and Stabilized High-accuracy Optical Tracking System. These assets support Navy, Department of Defense, and Army Missile Defense Test and Evaluation. This project funds costs not chargeable to customers.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Pacific Missile Range Facility	5.171	5.385	5.219	0.000	5.219
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the recognized Major Range and Test Facility Base capabilities at Pacific Missile Range Facility in accordance with Department of Defense Directive 3200.11.					
FY 2018 Plans: Continue to maintain and operate mission essential/core test support resources including the precision radar and telemetry assets, the MATSS, the SHOTS, and the Telemetry Systems required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain MRTFB operations. Reimburse the Command for General and Administrative support services.					
FY 2019 Base Plans: Continue to maintain and operate mission essential/core test support resources including three precision radars and eight telemetry antennas, the Mobile Aerial Target Support System barge, and the four Optical Systems required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain Major Range and Test Facility Base operations. Reimburse the Command for General and Administrative support services.					
FY 2019 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 2921 / *Pacific Missile Range Facility*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease in FY19 due to planned shutdown of the MK-74 radar system.					
Accomplishments/Planned Programs Subtotals	5.171	5.385	5.219	0.000	5.219

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Maintain Major Range and Test Facility Base infrastructure in a ready state to provide between 600-1,000 range hours in support of multiple Navy and Department of Defense acquisition programs and fleet training.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*	Project (Number/Name) 2922 / *MRTFB Maint & Repair*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2922: *MRTFB Maint & Repair*	0.000	81.992	44.378	45.383	-	45.383	41.454	43.903	44.725	45.620	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides funding for the maintenance and repair of the Major Range and Test Facility Base Real Property Maintenance Activities at the Naval Air Warfare Center Weapons Division, the Naval Air Warfare Center Aircraft Division, and the Atlantic Undersea Test and Evaluation Center. Funds mission critical emergency services, recurring maintenance and repair, and major repair projects. In addition it addresses priority items on the Backlog of Maintenance and Repair list.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Facility Maintenance and Repair	81.992	44.378	45.383	0.000	45.383
Articles:	-	-	-	-	-
Description: Maintenance and repair of the Major Range and Test Facility Base Real Property Maintenance Activities at Naval Air Warfare Center Weapons Division, Naval Air Warfare Center Aircraft Division, and the Naval Undersea Warfare Center Detachment Atlantic Undersea Test and Evaluation Center.					
FY 2018 Plans: Continue to support mission critical emergency services, recurring maintenance and repair, and minor and major repair efforts at NAWCWD, NAWCAD, and AUTEC. FY17 budget funds MRTFB facility to 80% of Department of Defense sustainment model and 23% of the Restoration and Modernization Model. Initiate NAVAIR Hangar recapitalization efforts and AUTEC Inspector General compliance projects to improve security. Improvements include fencing, security lighting and gate.					
FY 2019 Base Plans: Continue to support mission critical emergency services, recurring maintenance and repair, and minor and major repair efforts at Naval Air Warfare Center Weapons Division, Naval Air Warfare Center Aircraft Division, and the Naval Undersea Warfare Center Detachment Atlantic Undersea Test and Evaluation Center. FY19 budget funds Major Range and Test Facility Base facility to 75% of Department of Defense Facility Sustainment Model v19.1 with $11M to continue the Naval Air Systems Command Hangar recapitalization efforts and complete Atlantic Undersea Test and Evaluation Center Inspector General Compliance projects to improve security.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 2922 / *MRTFB Maint & Repair*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The funding increase in FY19 supports completion of AUTEC's Site 1 Security compliance issues.					
Accomplishments/Planned Programs Subtotals	81.992	44.378	45.383	0.000	45.383

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Maintain the 141, 357, and 784 building/structures at Naval Undersea Warfare Center Atlantic Undersea Test and Evaluation Center, Naval Air Warfare Center Aircraft Division, and Naval Air Warfare Center Weapons Division respectively. Execute 15-20 major repair projects per year to address mission critical services.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*	Project (Number/Name) 3154 / *Nanoose and Dabob Bay Ranges*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3154: *Nanoose and Dabob Bay Ranges*	0.000	11.404	11.556	12.018	-	12.018	12.391	12.640	12.899	13.154	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides maintenance and operations support for the Nanoose and Dabob Bay Ranges along with associated support systems to provide Test and Evaluation and readiness assessment services for acquisition programs and the Fleet. Operates ocean-based environment, measurement and support systems. Maintains and repairs systems that measure warfare system performance. Oversees test, training, and measurement facilities, equipment, operations and maintenance processes. Satisfies customer exercise and measurement requirements through the operation of ocean based test and measurement systems. Assures the readiness of systems through the implementation of calibration, maintenance, repair and life cycle processes. Performs exercise planning, exercise interpretation and development of surrogate environments, measurement and support systems. Assists in the design, fabrication and testing of systems for Undersea Warfare warfare environment simulation and performance measurement. Oversees the manning and maintenance of Naval Undersea Warfare Center Division Keyport range craft and range craft systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Undersea Ranges	11.404	11.556	12.018	0.000	12.018
Articles:	-	-	-	-	-
Description: This project funds the overhead/institutional costs required to sustain the Major Range and Test Facility Base capabilities at the Nanoose and Dabob Bay undersea tracking ranges.					
FY 2018 Plans: Continue to maintain and operate mission essential/core test support resources associated with the unique test environments for Test and Evaluation of undersea weapons, sensors, submarines and other undersea systems required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary to manage and sustain MRTFB operations. Reimburse the Command for General and Administrative support services.					
FY 2019 Base Plans: Continue to maintain and operate mission essential/core test support resources associated with the unique test environments for Test and Evaluation of undersea weapons, sensors, submarines and other undersea systems required to meet customer test workload. Fund civilian labor, travel, transportation, equipment, supplies, communication, equipment maintenance, purchased service contracts, annual utilities and any costs necessary					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 3154 / *Nanoose and Dabob Bay Ranges*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
to manage and sustain Major Range and Test Facility Base operations. Reimburse the Command for General and Administrative support services. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase in FY19 supports additional cyber security workforce to manage the Risk Management Framework.					
Accomplishments/Planned Programs Subtotals	11.404	11.556	12.018	0.000	12.018

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Maintain Major Range and Test Facility Base infrastructure in a ready state to provide between 1,600-2,000 range hours in support of multiple Navy and Department of Defense acquisition programs and fleet training.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605864N / *Test & Evaluation Support*	Project (Number/Name) 3386 / *MRTFB Marine Vessels*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3386: *MRTFB Marine Vessels*	0.000	11.939	15.873	13.092	-	13.092	19.640	23.956	16.545	16.876	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project is a new start FY17 program which funds the overhauls and preventative maintenance of the 23 Major Range and Test Facility Base marine vessels located at Naval Air Warfare Center Weapons Division, Point Mugu, CA, Pacific Missile Range Facility, Honolulu, HI, Naval Undersea Warfare Center Keyport, WA, Naval Air Warfare Aircraft Division, Patuxent River, MD, and Atlantic Undersea Test and Evaluation Center. These vessels are used to launch and recover torpedoes, acoustic systems, and other weapons, provide range surveillance and clearance, and can be configured as a target. Overhauls are required to operate ships over 300 tons overseas in compliance with American Bureau of Shipping "Load Line" certification requirements. Major preventative maintenance requiring shipyard support is also performed during these periods to mitigate risks of failures.

Funding in the amount of $2M was realigned on July 26, 2017, from FY17 Major Range and Test Facility Base Marine Vessels project (0605864N/3386) to Naval Air Warfare Center Weapons Division project (0605864N/0653) to cover cost associated with the FY17 locality pay increase that Congress approved for Naval Air Warfare Center Weapons Division China Lake inside the Navy budget cycle.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: MRTFB Marine Vessels	11.939	15.873	13.092	0.000	13.092
Articles:	-	-	-	-	-
Description: This project funds the overhauls and preventative maintenance of the 23 Major Range and Test Facility Base marine vessels located at Naval Air Warfare Center Weapons Division, Point Mugu, CA, Pacific Missile Range Facility, Honolulu, HI, Naval Undersea Warfare Center Keyport Keyport Nanoose and Dabob Bay Ranges, Keyport, WA, Naval Air Warfare Aircraft Division, Patuxent River, MD, and Naval Undersea Warfare Center Detachment Atlantic Undersea Test and Evaluation Center. The funding decrease from FY18 to FY19 reflects the phasing of Major Range and Test Facility Base marine vessel maintenance.					
FY 2018 Plans: Initiate overhauls and preventative maintenance on seven MRTFB vessels. Complete Service Life Extension Projects (SLEP) for YTT-10 and Transporter vessels, continue SLEP on YTT-11, and initiate SLEP of Rover vessel.					
FY 2019 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605864N / *Test & Evaluation Support*	**Project (Number/Name)** 3386 / *MRTFB Marine Vessels*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Perform overhauls of a Naval Undersea Warfare Center Keyport, Atlantic Undersea Test and Evaluation Center, Naval Air Warfare Aircraft Division, and Naval Air Warfare Center Weapons Division vessel. Continue Service Life Extension Projects of the Naval Undersea Warfare Center Atlantic Naval Air Warfare Aircraft Division Undersea Test and Evaluation Center Rover vessel. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY18 to FY19 reflects the phasing of time driven schedule for the Major Range and Test Facility Base marine vessel overhauls.					
Accomplishments/Planned Programs Subtotals	11.939	15.873	13.092	0.000	13.092

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Maintain Major Range Test and Facility Base marine vessels in a ready state to provide between 16,000-20,000 vessel hours in support of multiple Navy and Department of Defense acquisition programs and fleet training.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605865N / *Operational Test & Eval Capability*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	17.984	20.298	21.554	-	21.554	24.864	25.440	25.259	24.701	Continuing	Continuing
0831: *OPTEVFOR Support*	0.000	17.984	20.298	21.554	-	21.554	24.864	25.440	25.259	24.701	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funding in this project funds the civilian salaries and operating costs for the Commander, Operational Test and Evaluation Force (COMOPTEVOR). In addition, it supports several senior management initiatives aimed at increasing efficiencies in Test and Evaluation (T&E). These initiatives include IT database and decision making technology
upgrades; implementation of Integrated Testing and Mission Based Test Design across all programs; and improved staffing and expertise in the areas of DON acquisition processes, Modeling and Simulation, Statistical Studies, Cybersecurity, and similar disciplines. All of these initiatives are aimed at improving the quality of testing and evaluation, thus ensuring delivery to fleet units of fully tested and capable combat systems.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	18.199	20.298	21.950	-	21.950
Current President's Budget	17.984	20.298	21.554	-	21.554
Total Adjustments	-0.215	0.000	-0.396	-	-0.396
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.176	0.000			
• Program Adjustments	-0.039	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	-0.396	-	-0.396

Change Summary Explanation

The FY18 to FY19 funding increase supports additional Cyber Security manpower to meet the Program Cyber Security Operational Tests (OT) required by DoD. DoD mandated an increase in Cyber Security testing due to an increase in cyber intrusions from adversaries. Cyber intrusions continue to challenge our weapon systems' ability to detect threats, react to threats and restore system functionality after a cyber-attack. Cyber intrusion prevention requires specialized training, tool sets and increased proficiency in COMOPTEVFOR's cyber security test manpower.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605865N / *Operational Test & Eval Capability*

Technical: N/A

Schedule: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605865N / *Operational Test & Eval Capability*	Project (Number/Name) 0831 / *OPTEVFOR Support*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0831: *OPTEVFOR Support*	0.000	17.984	20.298	21.554	-	21.554	24.864	25.440	25.259	24.701	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element (PE) provides Commander, Operational Test and Evaluation Force (COMOPTEVFOR) general support funding for headquarters annual operating costs and ensures COMOPTEVFOR compliance with Secretary of Defense (SECDEF) and Secretary of the Navy (SECNAV) directives to conduct independent operational testing and evaluation. This funding supports planning, testing, and reporting on the operational effectiveness and suitability of new and improved systems and recommending fleet usage to the Chief of Naval Operations (CNO). Funding also supports recently instituted initiatives (including the manpower to execute) that improve COMOPTEVFOR's ability to develop "minimum, adequate" test strategies maximizing efficiencies and minimizing assets required to conduct planned operational testing, thereby driving down overall test and evaluation costs for the Navy. The CNO, as well as acquisition executives and managers at all levels, have a continuing need for expeditious and efficient conduct of Operational Test and Evaluation (OT&E) by COMOPTEVFOR in support of training and equipping fleet forces. To this end, this funding supports COMOPTEVFOR's continued pursuit of a variety of senior management initiatives aimed at increasing efficiencies in T&E; these senior management initiatives include IT database and decision making technology upgrades, implementation of Integrated Testing and Mission Based Test Design across all programs, and improved staffing and expertise in the areas of DON acquisition processes, Modeling and Simulation, Statistical Studies, Information Assurance, and similar disciplines. All of these initiatives are aimed at improving the quality of testing and evaluation, thus ensuring delivery to fleet units of fully tested and capable combat systems. OT&E issues have direct long term Navy-wide implications on the Fleet's readiness and warfighting capability. Rapid advances in technology, changes in fleet tactics, and increased complexity of weapons systems and platforms, combined with reductions in manpower, force structure, and budgets have created an increased need for technical and operational analyses that are sophisticated and timely in order to ensure an optimal return on investment of Navy resources.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: OPTEVFOR SUPPORT	17.984	20.298	21.554	0.000	21.554
Articles:	-	-	-	-	-
Description: Funding in this project funds the civilian salaries and operating costs for the Commander, Operational Test and Evaluation Force (COMOPTEVOR). In addition, it supports several senior management initiatives aimed at increasing efficiencies in Test and Evaluation (T&E). These initiatives include IT database and decision making technology upgrades; implementation of Integrated Testing and Mission Based Test Design across all programs; and improved staffing and expertise in the areas of DON acquisition processes, Modeling and Simulation, Statistical Studies, Information Assurance, and similar disciplines. All of these initiatives are aimed at improving the quality of testing and evaluation, thus ensuring delivery to fleet units of fully tested and capable combat systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605865N / *Operational Test & Eval Capability*	**Project (Number/Name)** 0831 / *OPTEVFOR Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: - This project funds civilian salaries and operating costs for COMOPTEVOR - Agile IT: Agile IT is a Continuous Process Improvement (CPI) underway for IT Management. Expect to continue Agile IT OT&E efforts; additional programs are under consideration for inclusion in this method. - Test and Product Processes: as a learning organization, COTF will continue efforts to enhance and improve test processes and products in support of increasing the value of OT&E. - Continue to provide Warfare Capability Baseline (WCB) assessments and report on the Navy's capability across all platforms, networks, weapons, or sensors. The Warfare Capability Baseline assessment report distills the large volume of operational test data into clear, concise annotated charts that assist senior leaders in quickly identifying critical issues. - Continue electronic database efforts associated with Project for Holistic Evaluation for Navy Test Information Exchange (PHOENIX) - Increased CIVPERS end strength will support increased operational tempo in cyber security testing. - 8th increment of Warfare Capability Baseline (WCB) is expected to be completed. - Total Force Management Council is working towards workforce development for test and evaluation and support personnel.					
FY 2019 Base Plans: - This project funds civilian salaries and operating costs for COMOPTEVOR - Agile IT: Agile IT is a Continuous Process Improvement (CPI) underway for IT Management. Expect to continue Agile IT OT&E efforts; additional programs are under consideration for inclusion in this method. - Test and Product Processes: as a learning organization, COTF will continue efforts to enhance and improve test processes and products in support of increasing the value of OT&E. - Continue to provide Warfare Capability Baseline (WCB) assessments and report on the Navy's capability across all platforms, networks, weapons, or sensors. The Warfare Capability Baseline assessment report distills the large volume of operational test data into clear, concise annotated charts that assist senior leaders in quickly identifying critical issues. - Continue electronic database efforts associated with Project for Holistic Evaluation for Navy Test Information Exchange (PHOENIX) - Increased CIVPERS end strength will support increased operational tempo in cyber security testing. - 9th increment of Warfare Capability Baseline (WCB) is expected to be completed.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605865N / *Operational Test & Eval Capability*	**Project (Number/Name)** 0831 / *OPTEVFOR Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Total Force Management Council is establishing professional development criteria for Modeling & Simulation. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding increase supports additional Cyber Security manpower to meet the Program Cyber Security Operational Tests (OT) required by DoD. DoD mandated an increase in Cyber Security testing due to an increase in cyber intrusions from adversaries. Cyber intrusions continue to challenge our weapon systems' ability to detect threats, react to threats and restore system functionality after a cyber-attack. Cyber intrusion prevention requires specialized training, tool sets and increased proficiency in COMOPTEVFOR's cyber security test manpower.					
Accomplishments/Planned Programs Subtotals	17.984	20.298	21.554	0.000	21.554

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

As indicated in section A above, funding provides for core headquarters operations and support (O&S) costs related to required operational testing and evaluation (T&E) conducted in support of Navy acquisition programs. The preponderance of funding provides for the annual O&S costs for day to day operations of the staff/ headquarters of COMOPTEVFOR, located in Norfolk, Virginia. (Pursuant to DoD Financial Management Regulations and Navy financial policy guidance, as a T&E activity, COMOPTEVFOR's annual support costs are funded via RDTEN vice OMN; hence, and unlike most RDTEN programs, these funds provide for O&S costs typical of military field commands/activities). Within this project, over 1/2 of the funding supports salaries of assigned civilian personnel. The remaining funds provide for other routine support costs such as travel, IT support, supplies, and other overhead/administrative support costs. The primary metric used within the project involves support for scheduled Navy acquisition program testing and subsequent analysis and reporting of results of testing to appropriate senior Navy acquisition officials and to the Navy chain of command directly to the CNO and various OPNAV/SECNAV staff offices. The performance goal is met when all assigned/scheduled testing and reporting is supported each year. Specific test program success is measured through analytic results of testing conducted throughout the year and constant interaction with program offices, acquisition decision makers, OPNAV staff resource sponsor offices, OSD and other service T&E offices/activities, and miscellaneous other customers/stakeholders. This project also supports testing and evaluation of various Joint/multi-service programs in which the Navy shares responsibilities in support of the acquisition community. The following metrics relate directly to the funding provided and are applicable to current operations.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605865N / *Operational Test & Eval Capability*	**Project (Number/Name)** 0831 / *OPTEVFOR Support*

Number of Tests Conducted - FY17 = 104; FY18 = 110; FY19 = 112
Number of Programs Supported - FY17 = 424; FY18 = 424; FY19 = 424

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605866N *I Navy Space & Electr Warfare Supt*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	9.658	17.341	16.227	-	16.227	22.450	19.177	19.194	19.624	Continuing	Continuing
0706: *EMC & RF Mgmt*	0.000	9.658	17.341	16.227	-	16.227	22.450	19.177	19.194	19.624	Continuing	Continuing

A. Mission Description and Budget Item Justification

Project 0706, Electromagnetic Compatibility (EMC) and Radio Frequency (RF) Management Program: Develops advanced technology to identify and eliminate Electromagnetic Interference (EMI) sources from Navy systems. Supports research and development technology efforts, develops top-level plans, and supports systems in the Space and Electronic Warfare (SEW) mission area.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	9.658	17.341	18.686	-	18.686
Current President's Budget	9.658	17.341	16.227	-	16.227
Total Adjustments	0.000	0.000	-2.459	-	-2.459
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-2.043	-	-2.043
• Rate/Misc Adjustments	0.000	0.000	-0.416	-	-0.416

Change Summary Explanation

The FY 2019 funding request was reduced by $2.043 million to account for the availability of prior year execution balances and $0.416 million for rate and miscellaneous adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605866N / *Navy Space & Electr Warfare Supt*	Project (Number/Name) 0706 / *EMC & RF Mgmt*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0706: *EMC & RF Mgmt*	0.000	9.658	17.341	16.227	-	16.227	22.450	19.177	19.194	19.624	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Electromagnetic Compatibility (EMC) and Radio Frequency (RF) Management Program. This project develops tools, processes, and algorithms to identify and mitigate EMI sources for Navy systems and platforms.

(a) It will support the Afloat Electromagnetic Spectrum Operations Program (AESOP), an automated spectrum Fleet operational capability. The application will be enhanced to comply with fleet operational requirements and streamline Strike Force frequency management processes. It will provide automated Spectrum Management (SM) tools for development of operational task communication and radar/weapon plans to support fleet deployments, exercises, and contingency operations. It will provide identification and mitigation of EMI in Navy, North Atlantic Treaty Organization (NATO), Allied, Ashore and Joint Combat Operations. It will provide analysis related to spectrum reallocation proposals to assess impacts on Navy operations and systems.

(b) It will support the Shipboard Electromagnetic Compatibility Improvement Program (SEMCIP) to identify, engineer, and evaluate effectiveness of potential EMI corrections. The program also characterizes and quantifies the operational impact of EMI problems on system's mission performance.

(c) It will support the Nuclear Electromagnetic Pulse (EMP) Survivability Program. The program assesses the EMP survivability of all mission critical systems and funds development of a hardness assurance and maintenance program. It will develop improved modeling capability to reduce hardness validation costs at delivery and over the lifetime of the system/platform. The program develops new and updated design criteria, test methodology, test limits, and survivability validation procedures for all Navy systems, ships, submarines and shore facilities.

(d) It will support the Real-Time Spectrum Operations Program. The program investigates Electromagnetic (EM) Environmental effects between shipboard transmitters/ receivers and develops EM and spectrum techniques with Commercial off the shelf (COTS) technologies to provide the ability to monitor EM spectrum usage and system EM degradation on all ships in a given strike group. The program will investigate technologies to build an EM Spectrum Common Operational Picture (COP) to detect and assess operational capabilities in real-time. Additional investigations will be performed to develop processes and procedures to predict the EM environment for planning purposes. In the out-years, these capabilities will be used to build the next generation combat system with inherent spectrum agility and self-awareness capability, further enhancing the Navy's ability to perform Command and Control (C2) of the EM Spectrum warfighting domain.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Afloat Electromagnetic Spectrum Operations Program (AESOP)	0.420	0.394	0.300	0.000	0.300
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605866N / *Navy Space & Electr Warfare Supt*	**Project (Number/Name)** 0706 / *EMC & RF Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: - Research International, National, DoD and Navy spectrum processes that could impact Naval operations. - Identify new/modified military equipment and review their spectrum usage to provide capability to ships. - Perform analysis of these new/modified systems against existing Fleet equipment spectrum use, and develop potential scenarios for further testing and evaluation. - Evaluate, test, and integrate into the software updates to toolkits and application programming interfaces (APIs), such as ArcGIS, SQL Server, and propagation models such as the Advanced Propagation Model (APM). ***FY 2019 Base Plans:*** - Identify new/modified military equipment and update AESOP models and database to de-conflict and coordinate spectrum use. - Research and update spectrum usage in Numbered Fleet Standing Communications Plans to accommodate new communications systems and host nation infrastructure spectrum usage. - Based on feedback from Zumwalt class and Gerald R Ford class, develop and refine spectrum coordination software for their new, high-power radars and operational concepts. - Develop and refine software and database modifications to support new Navy shipboard and airborne spectrum-dependent-systems (SDSs), i.e., AMDR and EASR slated for 2020-2021 fielding aboard USN ships. -Research, assess, and implement in software the international, national, DoD, and Navy spectrum littoral restrictions, laws, treaties, and policies to ensure compliance. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2019 funding request was reduced by $0.094 million to account for the availability of prior year execution balances.					
Title: Shipboard Electromagnetic Compatibility Improvement Program (SEMCIP)	1.270	1.655	1.677	0.000	1.677
Articles:	-	-	-	-	-
FY 2018 Plans: - As new problems are identified, perform EMI Problem Characterization and Quantification to identify level of problem severity. EMI problems with a high severity level can debilitate the combat capability of strike force capability and operational readiness will be added to the priority list for evaluating potential EMI solutions.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605866N / *Navy Space & Electr Warfare Supt*	**Project (Number/Name)** 0706 / *EMC & RF Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- The program will evaluate the Navy's Next Generation: Radars (i.e., Multi-Band and Dual Band Radars), Electronic Warfare Systems (i.e., Ships Signal Exploitation Equipment Increment F), Satellite Communication (i.e., the Navy Multi-Band Terminal and the Commercial Broadband Satellite Program), and Common Data Link (CDL) Programs. - The program will focus on the evaluation of Commercial Off the Shelf (COTS) systems/radars and the integration of Unmanned Aircraft Systems (UAS). - The program will develop and evaluate the effectiveness of proposed EMI solutions and coordinate with system program managers for proper integration of the final EMI solution. ***FY 2019 Base Plans:*** - Instrumentation will be developed to extract digital data and raw video from several different search radars enabling quantitate (instead of qualitative) assessment of performance degradation and electromagnetic interference. - Instrumentation will be developed to perform non-invasive (i.e. off satellite) bit error rate test methods for SATCOM system. This enables EMI quantification at the modem later, rather than spectral layer, to quantify impacts in terms of data rate and satellite resources. - Develop and evaluate the effectiveness of proposed EMI solutions and coordinate with system program managers for proper integration of the final EMI solution. - EMI Problem Characterization and Quantification will be performed on approximately 60 specific EMI problems to identify level of problem severity and prioritize EMI mitigation efforts. - The program will evaluate the Navy's Next Generation: Radars (i.e., Enterprise Air Search Radar, Air & Missile Defense radar, Dual Band Radar, Next Gen Surface Search Radar, etc.), Electronic Warfare Systems (i.e., Surface Electronic Warfare Improvement Program and Ships Signal Exploitation Equipment Mods), Satellite Communication (i.e., the Navy Multi-Band Terminal and the Commercial Broadband Satellite Program), and Common Data Link Programs. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2019 funding request was increased by $0.022 million to fund development of instrumentation in FY19.					
Title: Electromagnetic Pulse (EMP) Survivability	1.004	0.834	0.880	0.000	0.880
Articles:	-	-	-	-	-
FY 2018 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605866N / *Navy Space & Electr Warfare Supt*	**Project (Number/Name)** 0706 / *EMC & RF Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Perform Modeling and Simulation (M&S) Verification, Validation, & Accreditation (VV&A) efforts - Support Development of obtaining a higher confidence, low cost High Altitude Electromagnetic Pulse (HEMP) survivability assessment in lieu of full ship threat level testing. - Conduct HEMP survivability assessments using existing methods onboard an existing ship and compare measurements to multiple, independent M&S investigations leveraging different methodologies -Complete Data Acquisition capability design - Initiate conceptual at-sea HEMP demonstration plan					
FY 2019 Base Plans: - Develop computational electromagnetic (CEM) modeling capability to assist in ship hardness design. - Develop small-scale test capability to assist in understanding phenomena associated with complex shipboard electrical design and energy coupling/cross-coupling to the cables in order to support EMP critical item design, testing, maintenance, and repair required to incorporate EMP survivability into the fleet. - Complete Modeling and Simulation (M&S) Verification, Validation, & Accreditation (VV&A)efforts - Continue investigation of obtaining high confidence, low cost HEMP testing technology - Continue support for Naval Ordinance Transient Electromagnetic Simulator (NOTES) - Refine at-sea HEMP demonstration plan - Initiate Data Acquisition capability - Develop and/or improve design criteria, test methodology, test limits, and survivability validation procedures for Navy systems, ships, submarines and shore facilities. Continue research and development of integrated solutions that can be used for EMP hardening improvement and benefiting EMI reduction such as cable shield ground adapters (CSGAs) and terminal protection devices (TPDs). - Enhance CSGA RDTE and Navy Pulse Current Injection (PCI) testing to meet requirements in Appendix C of MIL-STD-4023, Shipyard Protective Elements Testing. Update appropriate MIL-STD procedures to reflect appropriate test methodologies and validation procedures.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605866N / *Navy Space & Electr Warfare Supt*	**Project (Number/Name)** 0706 / *EMC & RF Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The FY 2019 funding request was increased by $0.046 million to account for development of CEM and small-scale test capability.					
Title: Real-Time Spectrum Operations (RTSO)	6.964	14.458	13.370	0.000	13.370
Articles:	-	-	-	-	-
FY 2018 Plans: - Develop and integrate ship's positional updates to enable real-time calculations of electromagnetic interference/feed into a RTSO fleet/user interface that provides recommended actions to resolve the interference. - Investigate and integrate Meteorological and Oceanographic (METOC), refractivity, climatology data and update propagation models to include in the real-time calculations. - Finalize Consolidated Afloat Networks and Enterprise Services (CANES) network interface specification and integrate RTSO Software into the CANES network. This will provide spectrum awareness to multiple users. - Develop and publish a RTSO Spectrum Common Operating Picture (COP) to enable Electromagnetic Maneuver Warfare (EMW) capabilities and provide spectrum situational awareness of the strike group within the AOR. - Develop and integrate multiple user defined displays and Graphical User Interfaces (GUIs) so the operator can tailor their views based on the operational needs. - Develop and integrate Satellite Communications (SATCOM) tools (i.e., jamming, interference, and coverage) into a RTSO GUI for mission critical SATCOM systems. - Develop RTSO Software interface requirements for specific systems such as radar, electronic warfare, and communication systems. - Investigate and develop RTSO Software interface requirements for Combat Systems baselines [i.e., AEGIS and Ship Self-Defense System (SSDS)]. - Define RTSO Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy (DOTMLPF-P) requirements that effect Manpower, Personnel, Training and Education (MPT&E) requirements and solutions. -Perform initial DOTMLPF-P analysis to assess RTSO training requirements. Perform review/update/ development of Navy Tactical Tasks (NTAs) measures, standards, and criteria to support RTSO operation and maintenance. Perform review/update of Defense Readiness Reporting System-Navy (DRRS-N) to evaluate RTSO Personnel, Equipment, Supply, Training, Ordnance and Facilities (PESTOF) resource measures. -Develop a plan for RTSO training and certification requirements analysis for course development and implementation within the RTSO NTSP and Theater/Fleet Training Plans. Develop/update Job Duty Task					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605866N / *Navy Space & Electr Warfare Supt*	**Project (Number/Name)** 0706 / *EMC & RF Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Analysis (JDTA) requirements to support RTSO equipment basic operation/maintenance; and tactical operation to support Task Unit and Strike Group personnel. -Identify the Knowledge, Skills, and Abilities (KSAs) necessary for leaders, warfighters, civilians, and contractor personnel to understand and effectively utilize RTSO. Develop/update Personnel Qualification Standard (PQS) to support RTSO JDTA requirements. ***FY 2019 Base Plans:*** - Based on evolving fleet requirements and feedback on prior versions of RTSO software, research, develop, enhance, and refine: (a.) recommended actions to resolve interferences; (b.) refractivity, climatology, and propagation model accuracy; (c.) spectrum common operational picture, tailored to multiple users' perspectives; (d.) navigation, location, and position data interfaces; and (e.) additional satellite communications connectivity, coverage, performance, and interference measurement/ model capabilities - Conduct research, development, testing, and evaluation for own-force spectrum monitoring capabilities, including commercial and military sensors, antenna, and network connections. - Research and develop proof-of-concept capabilities for spectrum mission planning decision aids and intelligent sectoring/cut-outs for radiating systems - Initiate research and development efforts for models to estimate effective RF performance ranges of spectrum dependent systems in the complex electromagnetic environment (one-on-one and multi-on-one effects) ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2019 funding request was reduced by $1.949 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	9.658	17.341	16.227	0.000	16.227

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605866N / *Navy Space & Electr Warfare Supt*	**Project (Number/Name)** 0706 / *EMC & RF Mgmt*

D. Acquisition Strategy

An acquisition strategy is not required.

E. Performance Metrics

Performance metrics will consist of quarterly program reviews.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605867N *I Space & Elec War Surv/Recon*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	6.500	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.500
1034: *TAC SAT Recon Office*	0.000	6.500	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.500

Note

The Space & Elec War Surv/Recon PE (0605867N) funding consolidated under the SEW Surveillance/Reconnaissance Support PE (1206867N) in FY2018 and out.

A. Mission Description and Budget Item Justification

(U) Link Crimson (Navy Tactical Exploitation of National Capabilities (TENCAP) is a congressionally directed program to rapidly develop (12-18 months) systems, processes, and training that leverages and exploits National Technical Means (NTM) and Intelligence Community (IC) resources to meet fleet tactical warfighting gaps. This is done through innovative research and development of capabilities aligned with Navy Programs of Record (PoR), while influencing national systems support and development. These efforts include advanced sensors, platform and ground processing, and integrated national-to-tactical information fusion capabilities. Link Crimson supports all Navy mission areas, including Anti-Submarine Warfare (ASW), Integrated Air and Missile Defense, Mine Warfare (MIW), Power projection/Precision Strike, Maritime Domain Awareness (MDA), and Intelligence, Surveillance, and Reconnaissance (ISR), in support of the Navy's Information Dominance pillars: Assured Command and Control (AC2), Battlespace Awareness (BA) and Integrated Fires (IF).

(U) This program is funded under Budget Activity 6 because it supports the operations and installations required for general research and development. Program baseline addresses research and development on specific capabilities to support these mission areas such as signals collection and exploitation, acoustic and electronic signal detection, countering Unmanned Air Systems, Processing, Exploitation, and Dissemination (PED) processes, Commercial Maritime Navigation Radar (CMNR) detection and exploitation, open-ocean surveillance, and hostile threat geo-location. Link Crimson fields both prototypes to demonstrate new capabilities in real world environments in coordination with operational users, and develops warfighting capabilities for insertion into Navy, joint, and national agency programs of record. Additional detailed information is available at higher levels of classification.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605867N *I Space & Elec War Surv/Recon*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	6.500	0.000	0.000	-	0.000
Current President's Budget	6.500	0.000	0.000	-	0.000
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605867N / *Space & Elec War Surv/ Recon*	Project (Number/Name) 1034 / *TAC SAT Recon Office*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1034: *TAC SAT Recon Office*	0.000	6.500	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.500
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

(U) Link Crimson (Navy Tactical Exploitation of National Capabilities (TENCAP)) is a congressionally directed program to rapidly develop (12-18 months) systems, processes, and training that leverages and exploits National Technical Means (NTM) and Intelligence Community (IC) resources to meet fleet tactical warfighting gaps. This is done through innovative research and development of capabilities aligned with Navy Programs of Record (PoR), while influencing national systems support and development. These efforts include advanced sensors, platform and ground processing, and integrated national-to-tactical information fusion capabilities. Link Crimson supports all Navy mission areas, including Anti-Submarine Warfare (ASW), Integrated Air and Missile Defense, Mine Warfare (MIW), Power projection/Precision Strike, Maritime Domain Awareness (MDA), and Intelligence, Surveillance, and Reconnaissance (ISR), in support of the Navy's Information Dominance pillars: Assured Command and Control (AC2), Battlespace Awareness (BA) and Integrated Fires (IF).

(U) This program is funded under Budget Activity 6 because it supports the operations and installations required for general research and development. Program baseline addresses research and development on specific capabilities to support these mission areas such as signals collection and exploitation, acoustic and electronic signal detection, countering Unmanned Air Systems, Processing, Exploitation, and Dissemination (PED) processes, Commercial Maritime Navigation Radar (CMNR) detection and exploitation, open-ocean surveillance, and hostile threat geo-location. Link Crimson fields both prototypes to demonstrate new capabilities in real world environments in coordination with operational users, and develops warfighting capabilities for insertion into Navy, joint, and national agency programs of record. Additional detailed information is available at higher levels of classification.

(U) Project 1034: Established to exploit all National and Service sensor systems to improve tactical support to Fleet operational commanders. Project also supports equipment upgrades, training and Fleet exercises which provide the venue for testing modifications to existing programs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Assured Command and Control	0.560	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The Navy must assure its ability to command and control forces. This requires capabilities that enable commanders to: 1) Exchange orders and responses with subordinates; 2) Understand the disposition of friendly forces; 3) Target and conduct strikes as part of the joint force; and 4) Assess the result of those strikes. Sensing the environment, understanding our adversaries and operating and defending our communications and networked systems are inextricably linked to the assurance of C2.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605867N / *Space & Elec War Surv/ Recon*	**Project (Number/Name)** 1034 / *TAC SAT Recon Office*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: N/A ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No changes.					
Title: Battlespace Awareness	3.627	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: This is the traditional mission of the Information Dominance Corps and the constituent components of meteorology, oceanography, intelligence, cryptology, communications, networks, space and electronic warfare (EW). It includes: 1)Persistent surveillance of the maritime and information battlespace; 2) Penetrating knowledge of the capabilities and intent of our adversaries; 3) An understanding of when, where, and how our adversaries operate; and 4) Expertise within the electromagnetic spectrum. When synchronized, these skills and knowledge attributes provide the target acquisition and targeting solutions necessary to apply force, both kinetic and non-kinetic. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No changes.					
Title: Integrated Fires	2.313	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605867N / *Space & Elec War Surv/ Recon*	**Project (Number/Name)** 1034 / *TAC SAT Recon Office*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: The Navy will use its networks, cyberspace and space capabilities to exploit and attack the vulnerabilities of its adversaries to achieve non-kinetic effects (i.e., fires). Just as importantly, we will expand options for forward-deployed Navy commanders by ensuring that non-kinetic alternatives are considered alongside with kinetic solutions. ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No Changes					
Accomplishments/Planned Programs Subtotals	6.500	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Not Applicable

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605873M *I Marine Corps Program Wide Supt*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	19.142	21.751	24.303	-	24.303	20.267	20.668	21.070	21.479	Continuing	Continuing
0030: *Studies & Analysis/MC*	0.000	5.171	6.133	8.492	-	8.492	4.196	4.285	4.367	4.456	Continuing	Continuing
0033: *OT&E Support*	0.000	11.967	13.643	14.243	-	14.243	14.480	14.763	15.049	15.336	Continuing	Continuing
2330: *Chem Bio Consequence Mgmt*	0.000	2.004	1.975	1.568	-	1.568	1.591	1.620	1.654	1.687	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) provides the analytical foundation for the Marine Corps Studies System (MCSS), including mandated Mission Area Analyses and Cost and Operational Effectiveness Analyses. The MCSS is the front end of the Marine Corps' acquisition system. This PE also supports the material acquisition process as follows: managing the Marine Corps Operational Test and Evaluations (OT&E); providing Chem Bio Consequence Management of capabilites for Weapons of Mass Destruction (WMD) incident response forces; and conducting Phase A activities to investigate potential material solutions that validate needs, program costs, business decisions, and prevent undue delays in pursuing priority requirements.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	22.247	21.751	21.994	-	21.994
Current President's Budget	19.142	21.751	24.303	-	24.303
Total Adjustments	-3.105	0.000	2.309	-	2.309
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.357	0.000			
• SBIR/STTR Transfer	-0.238	0.000			
• Program Adjustments	0.000	0.000	2.457	-	2.457
• Rate/Misc Adjustments	0.001	0.000	-0.148	-	-0.148
• Congressional General Reductions Adjustments	-0.030	-	-	-	-
• Congressional Directed Reductions Adjustments	-2.481	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605873M *I Marine Corps Program Wide Supt*

Change Summary Explanation

The overall increase from FY18 to FY19 of $2.552M can be attributed to the expansion of wargaming activities.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605873M / *Marine Corps Program Wide Supt*	Project (Number/Name) 0030 / *Studies & Analysis/MC*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0030: *Studies & Analysis/MC*	0.000	5.171	6.133	8.492	-	8.492	4.196	4.285	4.367	4.456	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Marine Corps Requirements Oversight Council (MROC), has established Operations Analysis Directorate (OAD), as the sole operations research, analytic support, and studies management program for the Marine Corps Study System (MCSS). OAD provides Senior Military Leadership with a comprehensive understanding of operations and advanced analytic and statistical support. In compliance with Executive Order #13589 OAD's major focus is achieving greater efficiency, productivity, and innovation through operations research methodologies such as: statistical analysis, multi-objective decision methods, optimization, cost analysis, and a wide range of computer-based models and combat simulations. Division analysts are credited with innovations in analysis of amphibious operations and Irregular Warfare (IW) that have expanded state-of-the-art operations research methods across DOD. OAD quantifies resource allocation decisions pertaining to weapon systems, strategic personnel, training management, and equipment acquisition.OAD provides day-to-day oversight of Marine Corps M&S policy, standards,enterprise architecture, S&T requirements, and workforce development

Efforts are guided by the Commandant's Strategic Plan, Marine Corps Operating Concepts (MOC) which provides the foundation and context for subordinate operating and functional concepts; guides analysis; wargaming scenarios and experimentation; wargaming capability development designed to examine, scope and evaluate conceptual technological and operational principles and methods; informs capability development and budget programming decisions; CD&I Force Development Strategic Plan which provides Marine Corps Combat Development Command (MCCDC)/Combat Development and Integration (CD&I) personnel framework designed to promote collaborative, cohesive, "learning organization" that can effectively prepare the Nation's expeditionary force in readiness for a complex and uncertain future envisioned by the Department of Defense, the Department of the Navy, and the Commandant,and FRAGO 2017 to support the USMC to adapt, innovate, and change to meet future threats.

Future studies support Marine Air-Ground Task Forces (MAGTF's) and Marine Expeditionary Units (MEU's) with research analysis and modeling and simulation focused on aviation, amphibious, warfighting, and ground operations enhancing the ability of the Marine Corps to increase operational, logistical and equipment efficiencies and capabilities and provide a unique, well trained, equipped and educated force.

This program element has been revised into two specialized analytical divisions: (1) External Analysis Division (EAD) - responsible for providing joint external analysis is the Marine Corps' sole representative in the joint modeling arenas. Provides deployed on site professional operations analysis support to Special Purpose MAGTFs in CENTCOM and AFRICOM. (2) Combat Development Analysis Division responsible for executing a select portfolio of studies for senior leadership, Capabilities Based Assessment (CAB) and Marine Corps Enterprise Integration Plan (MCEIP).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Studies & Analysis/MC	5.171	6.133	8.492	0.000	8.492

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605873M / *Marine Corps Program Wide Supt*	**Project (Number/Name)** 0030 / *Studies & Analysis/MC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Articles:	-	-	-	-	-

Description: The Marine Corps Studies System (MCSS), the sole responsibility of the Operations Analysis Directorate (OAD), Combat Development and Integration (CD&I), Marine Corps Combat Development Command (MCCDC) provides research and analysis to ensure a greater understanding of issues and alternatives concerning organizations, tactics, doctrine, policies, force plans, strategies, procedures, intelligence, weapon selection, systems' programs and resource allocation. Through the MCSS, the Marine Corps nominates, approves, commences, manages and distributes the resultant analytical products. Efforts are evaluated and selected by the Studies Requirements Review Board (SRRB) and approved by the CG, Combat Development and Integration (CD&I)and is targeted to a particular audience that understands current and future USMC mission requirements and the need for comprehensive analyses that meets the Commandant's Strategic Goals, supports and protects forces in theater, and utilizes funds efficiently. Research conducted produces comprehensive and integrated analyses aligned to Senior Leadership's requirements and decision timelines.

FY 2018 Plans:

- Continue and complete all efforts not completed in FY17.

- Initiate: Modeling Simulation and Analytical Support Toolkit (MSAT) Phase V.

- Initiate: Phase II and Phase III prior year efforts in areas of concentrated Manpower/Personnel; Intelligence, Information and Networks; Plans, Policy, and Operations; Infrastructure and Readiness; Resources, Programs, and Assessments; Capability Integration; Research, Development and Acquisition; General Concept Development; Wargaming, and Weapons Systems and Space Based Capabilities studies. Results provide the analyses required to fully integrate Marine Corps concepts and requirements based warfighting capabilities; including doctrine, organization, training, materiel, leadership and education, personnel and facilities in order to ensure the Marine Corps is properly organized, trained and equipped under current within evolutionary environments.

- Complete: Modeling Simulation and Analytical Support Toolkit (MSAT) Phase IV. Phase I of FY17 Studies.

FY 2019 Base Plans:

- Continue all efforts not completed in FY18.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605873M / *Marine Corps Program Wide Supt*	**Project (Number/Name)** 0030 / *Studies & Analysis/MC*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Initiate: Modeling Simulation and Analytical Support Toolkit (MSAT) Phase VI. Phase III and Phase IV prior year efforts and new studies in areas of concentrated Manpower/Personnel; Intelligence, Information and Networks; Plans, Policy, and Operations; Infrastructure and Readiness; Resources, Programs, and Assessments; Capability Integration; Research, Development and Acquisition; General Concept Development; Wargaming, and Weapons Systems and Space Based Capabilities studies. - Complete: Phase II and Phase III studies initiated in prior year. Modeling Simulation and Analytical Support Toolkit (MSAT) Phase V. - Continue the expansion of wargaming capability efforts in areas of identifying, defining and documenting requirements and capabilities; directed cyber security support for initiatives to support information assurance in the areas of modeling & simulation, network configuration, security control validation and type accreditation; preparation for and conduct of an Assessment of Alternatives. - Initiate: Wargaming capability Milestone B activities; refinement of requirements; development of performance specification; modeling and simulation prototyping efforts. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increase of $2.359M from FY18 to FY19 can be attributed to the expansion of wargaming activities required to develop and prototype modeling and simulation capabilities and conduct analyses of concepts and principles of a data-driven wargaming capability.					
Accomplishments/Planned Programs Subtotals	5.171	6.133	8.492	0.000	8.492

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605873M / *Marine Corps Program Wide Supt*	**Project (Number/Name)** 0030 / *Studies & Analysis/MC*

E. Performance Metrics

Provide analytical documentation and support to decision makers for resolution of current and future operational and logistical issues identified by operating forces. Utilize OAD Subject Matter Experts (SME), Marine Corps University, and Naval Post Graduate School to conduct studies and analysis projects in basic and applied research and advanced technology development. Develop and maintain a current operations analysis reachback network with other government and Coalition agencies such as Center for Army Analysis, Joint Capabilities Integration and Development System (JCIDS), JIEDDO J9, Joint Trauma Analysis and Prevention of Injury in Combat (JTAPIC) program, The Technical Cooperation Program (TTCP), NATO Systems Analysis & Studies (SAS), etc.

Analysis results are employed to assist the Commandant, Assistant Commandants, Unit Commanders and the Commanding General (CG), Combat Integration Division, Marine Corps Combat Development Command (CD&I,MCCDC), Crisis Response (CR) Special Purpose Marine Air-Ground Task Forces (SPMAGTFs; CENTCOM, AFRICOM and SOUTHCOM), in addition to the Marine Expeditionary Units that are deployed around the globe and provide a continuous program of mission area analyses, formal studies, rapid response analytic efforts, and the supervision of research projects to fulfill mission. OAD provides combat analyst assessment teams for national emergencies and contingencies; is responsible for initiating, conducting or supervising all official Marine Corps studies; maintaining official Marine Corps scenarios; and participating in and reviewing the efforts of external activities such as the Office of Secretary of Defense and the Joint Staff. Baseline analysis supports Mission Capability Packages (MCPs), Investment Strategy, Joint Capability Areas (JCAs), and the Naval Strategic Plan providing the DoN assessments for future force development. Operations data and analysis support provided to USMC organizations: MCCDC, Marine Corps Intelligence Activity (MCIA), Marine Corps Warfighting Lab (MCWL), Marine Corps Central Command (MARCENT), Systems Command, Training and Education Command (TECOM). The Modeling and Simulation Analytical Toolkit (MSAT) supports analysis involving irregular warfare missions executed in a future Defense Planning Guidance scenario. These missions include information operations, offensive tactical and operational CYBER operations, foreign internal defense, special direct action arising from intelligence gathered from HUMINT and technical (SIGINT,CYBER) means.

Wargaming capability results are used to develop, assess, and refine future operating and functional concepts across the full ROMO, test current OPLANS and CONOPS; examine operational and tactical actions through repeated, multiple iterations; enable the full development of concepts through multiple opportunities for examination and evaluation; assess capability investments to inform POM development and guide capability resourcing actions; and provide education and leadership development.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605873M / *Marine Corps Program Wide Supt*	Project (Number/Name) 0033 / *OT&E Support*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0033: *OT&E Support*	0.000	11.967	13.643	14.243	-	14.243	14.480	14.763	15.049	15.336	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Marine Corps Operational Test and Evaluation Activity (MCOTEA) supports the material acquisition process by managing the Marine Corps Operational Test (OT) programs for Acquisition Categories (ACAT) I through ACAT IV (less OT of manned aircraft) and performs other functions that may be directed by the Commandant of the Marine Corps. The primary purpose of Operational Test and Evaluation (OT&E) is to provide information to the Milestone Decision Authority (MDA) regarding the Operational Effectiveness (OE) and Operational Suitability (OS) of the system addressed at a decision point. MCOTEA must ensure that the Marines in the Operating Forces receive the very best possible equipment and support. MCOTEA must also ensure each system proposed for acquisition is tested adequately, evaluated objectively and reported independently.

Marine Corps Operational Test and Evaluation Activity (MCOTEA) is the only unit that provides the Marine Corps with required operational test and evaluation (OT&E) capability, ensuring the Marine Corps is compliant with laws and regulations, and ensuring that training and equipment are operationally effective, relevant, and suitable. Additionally, MCOTEA's early involvement, coordination, and oversight in developmental testing and evaluation of new combat and combat support systems ensures that our Marines are the best trained, and have the best equipment, with the lowest test costs for taxpayers. Finally, MCOTEA's support of rapid acquisitions ensures that Marines in the fight are supported with the newest and most advanced equipment and that the Marine Corps is compliant with regulations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: MCOTEA	11.967	12.643	14.243	0.000	14.243
Articles:	-	-	-	-	-
FY 2018 Plans: Continue with evaluating, quantifying and reporting on programs for the operational effectiveness, suitability and survivability of planned acquisitions to meet warfighting capabilities and will be providing Milestone Decision Authority (MDAs) to programs that are inherently governmental and a comprehensive understanding of operational risk associated with ACAT programs.					
FY 2019 Base Plans: Continue with evaluating, quantifying and reporting on programs for the operational effectiveness, suitability and survivability of planned acquisitions to meet warfighting capabilities and will be providing Milestone Decision					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605873M / *Marine Corps Program Wide Supt*	**Project (Number/Name)** 0033 / *OT&E Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Authority (MDAs) to programs that are inherently governmental and a comprehensive understanding of operational risk associated with ACAT programs. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY19's funding increase of $1.600M, will support labor costs that were previously funded through the Naval Test branch in support of operational testing requirements.					
Title: Cyber Awareness Red Team Support ***Articles:*** ***Description:*** This effort supports NDAA S. 1647 requirements. ***FY 2018 Plans:*** Initiate Vulnerability Assessments and Adversarial Assessments in support of the Marine Corps Cyber Awareness Red Team. Initiate efforts to train and equip the Cyber Threat Assessment Team (CTE) to meet all DoD Red Team established standards. ***FY 2019 Base Plans:*** N/A ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** In FY19 this effort moves to PE 0606942M project 4038.	0.000 -	1.000 -	0.000 -	0.000 -	0.000 -
Accomplishments/Planned Programs Subtotals	11.967	13.643	14.243	0.000	14.243

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605873M / *Marine Corps Program Wide Supt*	**Project (Number/Name)** 0033 / *OT&E Support*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605873M / *Marine Corps Program Wide Supt*	Project (Number/Name) 2330 / *Chem Bio Consequence Mgmt*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2330: *Chem Bio Consequence Mgmt*	0.000	2.004	1.975	1.568	-	1.568	1.591	1.620	1.654	1.687	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Family of Incident Response Systems (FIRS) consists of equipment, systems, and services designed to provide Weapons of Mass Destruction (WMD) incident response forces the capabilities needed to effectively respond to a terrorist attack using Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives (CBRNE). FIRS meets the mission requirements for the detection; mass casualty decontamination; force protection; responder inter-agency interoperability; Command, Control, Communications, Computers & Intelligence (C4I); urban search and rescue; medical and general support requirements needed by these forces to mitigate the effects of a CBRNE terrorist attack. FIRS relies primarily on Commercial Off-The-Shelf/Non-Developmental Items (COTS/NDI) equipment and systems that meet the particular mission requirements of Consequence Management (CM). Nuclear, Biological, and Chemical (NBC) systems are adopted if they meet the CM mission requirements. FIRS Research & Development effort allows the program to keep abreast of emerging technologies in the commercial sector and address operational capability gaps that cannot be met by commercial items.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: FIRS: Reconnaissance Mission Area.	0.761	0.985	0.603	0.000	0.603
Articles:	-	-	-	-	-
FY 2018 Plans: - Continue chemical contamination early warning research in support of technical refresh/replacement material solutions. - Initiate Common Analytical Laboratory System-Field Confirmatory Integrated System (CALS FC-IS) naval system integration.					
FY 2019 Base Plans: - Continue chemical contamination early warning research in support of technical refresh/replacement material solution. - Continue CALS FC-IS naval system integration.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605873M / *Marine Corps Program Wide Supt*	**Project (Number/Name)** 2330 / *Chem Bio Consequence Mgmt*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The decrease from FY18 to FY19 reflects re-phasing of development funds to better align with revised program development schedule.					
Title: FIRS: Force Protection Mission Area	1.243	0.990	0.965	0.000	0.965
Articles:	-	-	-	-	-
FY 2018 Plans: - Continue verification and validation testing at Dugway Proving Ground in support of the Operating Forces that employ Dismounted Reconnaissance Sets, Kits and Outfits (DRSKO) sets and the Chemical Biological Incident Response Force (CBIRF) in support of technical refreshes of new area monitoring devices. - Initiate performance and durability testing for low profile self contained breathing apparatus masks in support of explosive ordnance disposal (EOD) bomb suit integration.					
FY 2019 Base Plans: - Continue verification and validation testing at Dugway Proving Ground in support of the Operating Forces that employ DRSKO sets and the CBIRF in support of technical refreshes of new area monitoring devices. - Continue performance and durability test for low profile self contained breathing apparatus masks in support of EOD bomb suit integration. - Initiate durability test of CBIRF's CBRN personal protection equipment items, including Class 2 and Class 3 suits.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The decrease from FY18 to FY19 reflects re-phasing of development funds to better align with revised program development schedule.					
Accomplishments/Planned Programs Subtotals	2.004	1.975	1.568	0.000	1.568

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• PMC/2220-FIRS: *Wpns & Cmbt Vehs under $5 million*	0.000	0.806	0.476	-	0.476	0.540	0.556	0.000	0.000	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605873M / *Marine Corps Program Wide Supt*	**Project (Number/Name)** 2330 / *Chem Bio Consequence Mgmt*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0605898N *I (U)MANAGEMENT HQ - R&D*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	16.188	44.279	43.262	-	43.262	42.134	43.044	43.957	44.800	Continuing	Continuing
0223: *Sub Combat System Improvement (ADV)*	0.000	0.138	0.147	0.149	-	0.149	0.152	0.144	0.148	0.151	Continuing	Continuing
1447: *Surf Combatant Combat System Imp*	0.000	0.162	0.172	0.174	-	0.174	0.178	0.180	0.184	0.188	Continuing	Continuing
3159: *Naval Integrated Fire Control-Counter Air SE&I*	0.000	0.162	0.172	0.173	-	0.173	0.177	0.179	0.183	0.187	Continuing	Continuing
3186: *Air and Missile Defense Radar*	0.000	0.488	0.513	0.514	-	0.514	0.524	0.534	0.546	0.557	Continuing	Continuing
3216: *Tactical Support Center-Integration*	0.000	0.024	0.026	0.027	-	0.027	0.027	0.028	0.029	0.030	Continuing	Continuing
3316: *Advanced Offboard EW*	0.000	0.652	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.652
3345: *ONR Management Headquarters*	0.000	14.562	43.249	42.225	-	42.225	41.076	41.979	42.867	43.687	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): P384

A. Mission Description and Budget Item Justification

The Management HQ - R&D program funds management headquarter civilian personnel salaries at the Office of Naval Research (ONR). These personnel support the management of the Naval Science and Technology (S&T) programs. This program also funds management headquarter contractor support for the Integrated Warfare Systems (IWS) Program Executive Office.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy					Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605898N *I (U)MANAGEMENT HQ - R&D*			
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	16.312	44.279	43.812	-	43.812
Current President's Budget	16.188	44.279	43.262	-	43.262
Total Adjustments	-0.124	0.000	-0.550	-	-0.550
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.066	0.000			
• Program Adjustments	-0.058	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	-0.550	-	-0.550

Change Summary Explanation

The increase in funding from FY2017 to FY2018 reflects transfer of ONR MHA Non-Labor support funding from PE 0602898N Science and Technology Management - ONR Headquarters to consolidate S&T Management efforts.

Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605898N / *(U)MANAGEMENT HQ - R&D*	Project (Number/Name) 0223 / *Sub Combat System Improvement (ADV)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0223: *Sub Combat System Improvement (ADV)*	0.000	0.138	0.147	0.149	-	0.149	0.152	0.144	0.148	0.151	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides management headquarters contractor support to the Integrated Warfare Systems (IWS) Program Executive Office (PEO). This work supports Navy Acoustic Superiority and Technology Insertion Initiatives through the application of advanced development and testing of sensors and sensor processing systems supporting tactical control systems improvements. This addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Management Headquarters Personnel	0.138	0.147	0.149	0.000	0.149
Articles:	-	-	-	-	-
FY 2018 Plans: - Continue Advanced Processing Build (APB) development, integration, land-based testing, at-sea testing, and establishment of tactical scenarios. - Continue Flank Array development including beamforming and signal processing improvements to maximize Low Frequency Active (LFA) capability, tactical/combat system updates to perform target localization and data analysis of the at-sea test of LVA2 array. - Continue embedded sensor and open architecture telemetry development.					
FY 2019 Base Plans: - Continue Advanced Processing Build (APB) development, integration, land-based testing, at-sea testing, and establishment of tactical scenarios. - Continue to conduct critical Flank Array at-sea testing events for LVA2 and analyze FY 2017/FY 2018 at-sea test results. - Begin procurement and fabrication of full length OAT array Advance Development Model (ADM).					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605898N / *(U)MANAGEMENT HQ - R&D*	**Project (Number/Name)** 0223 / *Sub Combat System Improvement (ADV)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	0.138	0.147	0.149	0.000	0.149

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This program funds management headquarter contractor support. Performance is measured by attaining the administrative and financial tasks necessary to support program office management.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605898N / *(U)MANAGEMENT HQ - R&D*	Project (Number/Name) 1447 / *Surf Combatant Combat System Imp*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1447: *Surf Combatant Combat System Imp*	0.000	0.162	0.172	0.174	-	0.174	0.178	0.180	0.184	0.188	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides management headquarters contractor support to the Integrated Warfare System (IWS) Program Executive Office (PEO). This work supports Cruiser and Destroyer AEGIS Combat System (ACS) upgrades and integrates new equipment and systems to pace the threat and capture advances in technology.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Management Headquarter Personnel	0.162	0.172	0.174	0.000	0.174
Articles:	-	-	-	-	-
FY 2018 Plans: -Support Cruiser and Destroyer AEGIS Combat System (ACS) upgrades and integrate new equipment and systems to pace the threat and capture advances in technology.					
FY 2019 Base Plans: -Support Cruiser and Destroyer AEGIS Combat System (ACS) upgrades and integrate new equipment and systems to pace the threat and capture advances in technology.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	0.162	0.172	0.174	0.000	0.174

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605898N / *(U)MANAGEMENT HQ - R&D*	**Project (Number/Name)** 1447 / *Surf Combatant Combat System Imp*

E. Performance Metrics

This PE funds contractor support for management headquarter contractors. Performance is measured by attaining the administrative and financial tasks necessary to support program office management.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605898N / *(U)MANAGEMENT HQ - R&D*	Project (Number/Name) 3159 / *Naval Integrated Fire Control-Counter Air SE&I*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3159: *Naval Integrated Fire Control-Counter Air SE&I*	0.000	0.162	0.172	0.173	-	0.173	0.177	0.179	0.183	0.187	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides management headquarters contractor support to the Integrated Warfare System (IWS) Program Executive Office (PEO). This work supports Naval Integrated Fire Control - Counter Air (NIFC-CA) project. Through this support technological advances are being developed enabling PEO IWS to extend the Naval Theater Air and Missile Defense battlespace out to the maximum kinematic range of our weapons.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Management Headquarter Personnel	0.162	0.172	0.173	0.000	0.173
Articles:	-	-	-	-	-
FY 2018 Plans: -Support the Navy's research and development efforts for NIFC-CA's System Engineering, Integration and Test (SEI&T) project. -Provide system engineering to upgrade the White Sands Missile Range (WSMR) Desert Ship complex to an AEGIS Advanced Capability Build (ACB)					
FY 2019 Base Plans: Support the Navy's research and development efforts for NIFC-CA's System Engineering, Integration and Test (SEI&T) project. -Provide system engineering to upgrade the White Sands Missile Range (WSMR) Desert Ship complex to an AEGIS Advanced Capability Build (ACB)					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	0.162	0.172	0.173	0.000	0.173

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605898N / *(U)MANAGEMENT HQ - R&D*	**Project (Number/Name)** 3159 / *Naval Integrated Fire Control-Counter Air SE&I*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This PE funds contractor support for management headquarter contractors. Performance is measured by attaining the administrative and financial tasks necessary to support program office management.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605898N / *(U)MANAGEMENT HQ - R&D*	Project (Number/Name) 3186 / *Air and Missile Defense Radar*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3186: *Air and Missile Defense Radar*	0.000	0.488	0.513	0.514	-	0.514	0.524	0.534	0.546	0.557	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: P384

A. Mission Description and Budget Item Justification

This project provides management headquarters contractor support to the Integrated Warfare System (IWS) Program Executive Office (PEO). Through this support, technological advances are being developed, enabling PEO IWS to deliver "Enterprise" solutions for Naval Warfare Systems that operate seamlessly and effectively within the Fleet and Joint Forces.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Management Headquarter Personnel	0.488	0.513	0.514	0.000	0.514
Articles:	-	-	-	-	-
FY 2018 Plans: - Provide system engineering and software updates support of AEGIS ACB 20 Preliminary Design Review - Support combat system integration and DDG 51 FLT III integration, including preparing for ACB20 PDR					
FY 2019 Base Plans: - Continue to provide system engineering and software updates support of AEGIS ACB 20 Preliminary Design Review - Continue support for combat system integration and DDG 51 FLT III integration, including preparing for ACB20 CDR					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	0.488	0.513	0.514	0.000	0.514

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605898N / *(U)MANAGEMENT HQ - R&D*	**Project (Number/Name)** 3186 / *Air and Missile Defense Radar*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• RDT&E/0604522N: *Air and Missile Defense Radar (AMDR) System*	141.338	32.090	27.059	-	27.059	26.835	53.840	61.990	52.015	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This PE funds contractor support for management headquarter contractors. Performance is measured by attaining the administrative and financial tasks necessary to support program office management.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605898N / *(U)MANAGEMENT HQ - R&D*	Project (Number/Name) 3216 / *Tactical Support Center-Integration*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3216: *Tactical Support Center-Integration*	0.000	0.024	0.026	0.027	-	0.027	0.027	0.028	0.029	0.030	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides management headquarters contractor support to the Integrated Warfare System (IWS) Program Executive Office (PEO). This supports AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC) fulfillment of Anti-Submarine Warfare (ASW) and Surface Warfare (SUW) coordination functions utilizing data received from multiple sources to assess the threat and assist the Tactical Action Officer (TAO) and Composite Warfare Commander (CWC) in effectively applying available resources to support CVN self-defense. This supports CV-TSC functionality updates being implemented through an evolutionary acquisition approach, providing phased incremental builds that are developed, tested, certified and fielded.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Management Headquarter Personnel	0.024	0.026	0.027	0.000	0.027
Articles:	-	-	-	-	-
FY 2018 Plans: - Continue CV-TSC Development/Integration including development of software builds and systems engineering efforts, conduct of incremental requirements, design, and test reviews.					
FY 2019 Base Plans: - Continue CV-TSC Development/Integration including development of software builds and systems engineering efforts, conduct of incremental requirements, design, and test reviews.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: There is no significant change from FY 2018 to FY 2019.					
Accomplishments/Planned Programs Subtotals	0.024	0.026	0.027	0.000	0.027

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605898N / *(U)MANAGEMENT HQ - R&D*	**Project (Number/Name)** 3216 / *Tactical Support Center-Integration*

D. Acquisition Strategy

N/A

E. Performance Metrics

This PE funds contractor support for management headquarter contractors. Performance is measured by attaining the administrative and financial tasks necessary to support program office management.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605898N / *(U)MANAGEMENT HQ - R&D*	Project (Number/Name) 3316 / *Advanced Offboard EW*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3316: *Advanced Offboard EW*	0.000	0.652	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.652
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides management headquarters contractor support to the Integrated Warfare System (IWS) Program Executive Office (PEO). Through this support, technological advances are being developed, enabling PEO IWS to deliver "Enterprise" solutions for Naval Warfare Systems that operate seamlessly and effectively within the Fleet and Joint Forces.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Management Headquarters Personnel	0.652	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	0.652	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605898N / *(U)MANAGEMENT HQ - R&D*	**Project (Number/Name)** 3316 / *Advanced Offboard EW*

E. Performance Metrics

This PE funds contractor support for management headquarter contractors. Performance is measured by attaining the administrative and financial tasks necessary to support program office management.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0605898N / *(U)MANAGEMENT HQ - R&D*	Project (Number/Name) 3345 / *ONR Management Headquarters*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3345: *ONR Management Headquarters*	0.000	14.562	43.249	42.225	-	42.225	41.076	41.979	42.867	43.687	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds all basic costs of Office of Naval Research Management Headquarters Activity (MHA) salaries and non-labor in support of the entire Navy S&T program. Through this support, the S&T enterprise pursues the technological advances that enable the Fleet's ability to operate from a position of technological superiority.

The increase in funding from FY 2017 to FY 2018 reflects a transfer of ONR Non-Labor MHA support for the Navy S&T programs from PE 0602898N Science and Technology Management - ONR Headquarters. Specifically, funding facilitates the execution of the Navy's basic research, applied research, and advanced technology development programs at the nation's universities/colleges, Navy laboratories, Warfare Centers, and private industry.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Management Headquarters Personnel	14.562	43.249	42.225	0.000	42.225
Articles:	-	-	-	-	-
Description: N/A					
FY 2018 Plans: Provides corporate MHA personnel salaries and Non-Labor support in facilitating the purchase of the S&T programs for the Navy to ensure consistent external reporting. All Non-Operational HQ is now Major Headquarters Activity (MHA). Continue to reduce auditability challenges to meet the mandate.					
FY 2019 Base Plans: Provides corporate MHA personnel salaries and Non-Labor support in facilitating the purchase of the S&T programs for the Navy to ensure consistent external reporting. All Non-Operational HQ is now Major Headquarters Activity (MHA). Continue to reduce auditability challenges to meet the mandate.					
FY 2019 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0605898N / *(U)MANAGEMENT HQ - R&D*	**Project (Number/Name)** 3345 / *ONR Management Headquarters*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY 2018 to FY 2019 reflects revised economic assumptions for non labor costs and civilian pay raises.					
Accomplishments/Planned Programs Subtotals	14.562	43.249	42.225	0.000	42.225

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Program performance is measured by attaining financial benchmarks for planned obligations vs. actual obligations and planned expenditures vs. actual expenditures.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0606355N *I (U)Warfare Innovation Management*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	14.846	28.841	41.918	-	41.918	36.877	37.714	47.726	43.596	Continuing	Continuing
0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*	0.000	0.000	0.000	1.076	-	1.076	1.062	0.983	1.001	1.021	Continuing	Continuing
2144: *Space & Elec Warfare Engineering*	0.000	0.000	0.000	22.058	-	22.058	19.799	20.806	31.206	26.746	Continuing	Continuing
2147: *ISR Architecture*	0.000	0.000	0.000	1.583	-	1.583	1.539	1.540	1.571	1.600	Continuing	Continuing
3319: *Fleet Experimentation*	0.000	12.749	11.572	9.090	-	9.090	12.187	12.050	11.563	11.797	Continuing	Continuing
3320: *TRIDENT Warrior*	0.000	2.097	2.269	2.284	-	2.284	2.290	2.335	2.385	2.432	Continuing	Continuing
3420: *Expeditionary Submarine Fiber Optic Cable (SFOC)*	0.000	0.000	15.000	5.827	-	5.827	0.000	0.000	0.000	0.000	0.000	20.827

Note

Beginning in FY19, Allied/Coalition Interoperability and Information Dominance (ACIID) (now called Allied/Coalition Maritime Environment (ACME)) Project 0798, Space & Electronic Warfare (SEW) Engineering Project 2144, and Intelligence, Surveillance, and Reconnaissance (ISR) Architecture Project 2147 were realigned from PE 0604707N to PE 0606355N.

A. Mission Description and Budget Item Justification

The FY 2019 funding request for project 2144 was reduced by $2.222 million and project 3319 was reduced by $1.840M to account for the availability of prior year execution balances.

Allied/Coalition Interoperability and Information Dominance (ACIID) project now called Allied/Coalition Maritime Environment (ACME) 0798:
This project promotes interoperability with allied and coalition forces by facilitating maritime interoperability in both processes and communication systems, including emerging capabilities, to counter growing high-end asymmetric threats.

Space & Electronic Warfare (SEW) Engineering 2144:
This project is a systems engineering non-acquisition program to develop, test, implement Technical Authority (TA) products, and validate Naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR), Business Information Technology (IT), and Space System architectures to support naval, Joint and Coalition missions across normal, contested, and degraded cyber/operational environments. The objective of this project is carried out by multiple tasks that ensure development and delivery of naval Information Warfare (IW) capabilities that are well-integrated, interoperable, secure, and resilient to meet validated warfighting requirements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606355N *I (U)Warfare Innovation Management*

The Intelligence, Surveillance, and Reconnaissance (ISR) Architecture 2147:
This project is intended to guide system of systems capability development and promote interoperability across Navy ISR programs, as well as interoperability and alignment with Department of Defense (DoD)-wide enterprise initiatives including Joint Information Environment (JIE) and Intelligence Community (IC) Information Technology Environment (ITE). This effort to develop integrated ISR architectures will also help instill systems engineering discipline and standardization across the Navy ISR Enterprise and provide a means by which to assess ISR POR progress in conforming to a single Navy architecture.

Fleet Experimentation 3319:
The U.S. Navy's Fleet Experimentation (FLEX) project advances/augments operational and tactical warfighter capabilities through the experimentation of high payoff initiatives, technologies and concepts, Fleet Concepts of Operations (CONOPS), doctrine, and new tactics, techniques and procedures (TTP). The main focus of FLEX between 2018 and 2023 is to operationalize "A Design For Maintaining Maritime Superiority" Blue Line of Effort (LOE) through the execution of Fleet Design materiel/ non-materiel capability employment.

Trident Warrior Project 3320:
The U.S. Navy's FLEX Trident Warrior (TW) experimentation campaign enables early delivery of capabilities to the warfighter via Fleet-directed Trident Warrior operational events with an emphasis on United States Fleet Forces/Commander Pacific Fleet (USFF/CPF) directed focus areas. Trident Warrior was transferred from 0604231N (Tactical Command Systems) to 0606355N (Warfare Innovation Management) in FY17.

Maritime Communications Demonstration Project 3420:
Classified Project Maritime Communications Demonstration (MCD) is not a new start. Funding was realigned from project 3319 FLEX in FY18. The Expeditionary SFOC Communications is developing and experimenting innovative concepts designed to validate both materiel and non-materiel methodologies to provide resilient command and control within the maritime domain. Identified previous work done within OSD channels, and will leverage lessons learned.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	21.123	28.841	19.529	-	19.529
Current President's Budget	14.846	28.841	41.918	-	41.918
Total Adjustments	-6.277	0.000	22.389	-	22.389
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.570	0.000			
• Program Adjustments	0.000	0.000	22.601	-	22.601
• Rate/Misc Adjustments	0.001	0.000	-0.212	-	-0.212

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy				Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0606355N *I (U)Warfare Innovation Management*			
• Congressional General Reductions Adjustments	-0.008	-	-	-	-
• Congressional Directed Reductions Adjustments	-5.700	-	-	-	-

Change Summary Explanation

The FY 2019 funding request for project 2144 was reduced by $2.222 million and project 3319 was reduced by $1.840M to account for the availability of prior year execution balances.

Funding added to FY19 for Navy Additive Manufacturing (AM) technology to aligns to CNO priorities to deliver revolutionary capabilities to improve fleet readiness. These enterprise solutions will provide the foundation to (1) enhance warfighter capability through new innovative system designs; (2) increase readiness through low volume production of hard to source items; and (3) improve warfighting capacity by enabling production at or near the point of need.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0606355N / *(U)Warfare Innovation Management*	Project (Number/Name) 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0798: *Allied/Coalition Interoperability and Information Dominance (ACIID)*	0.000	0.000	0.000	1.076	-	1.076	1.062	0.983	1.001	1.021	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Project title changed as follows: Allied/Coalition Maritime Environment (ACME) (Previously called Allied/Coalition Interoperability and Information Dominance (ACIID) in FY17 and prior.)

A. Mission Description and Budget Item Justification

The ACME program advances Information Warfare (IW) (to include Command, Control, Communications, Computers; Intelligence, Surveillance and Reconnaissance (C4ISR); Electronic Warfare (EW); and Cyber Warfare), interoperability with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS), North Atlantic Treaty Organization (NATO), and other Allied and Coalition partners. The program determines maritime operational gaps with our allies, identifies Doctrine, Organization, Training, Material, Leadership, Personnel, and Facilities (DOTMLPF) solutions with the potential to fill those gaps, and assesses these solutions and associated concepts of operation in laboratory and at-sea environments. The ACME program includes integration and testing in support of joint and Allied war fighting capabilities, including interoperability testing of IW equipment. Allied and joint interoperability is critical for future maritime operations, especially as the United States Navy (USN) expands Internet Protocol (IP) networking throughout the fleet via Consolidated Afloat Networks and Enterprise Services (CANES), Next Generation Networks (NGEN), Mission Partner Environment/ Future Mission Networking (MPE/FMN), the U.S. Battlefield Information Collection and Exploitation System - eXtended (BICES-X), and with the Joint Information Environment (JIE).

Currently, IP connectivity with AUSCANNZUKUS and other Allied/Coalition forces is limited, requiring extensive backhaul through ashore infrastructure. Higher bandwidth solutions suitable for use over tactical networks require development and assessment for emerging coalition and joint interoperability requirements, such as Maritime Domain Awareness (MDA), Network Operations Without Shore (NOWS), Satellite Communications (SATCOM) Denied, Degraded, Intermittent and Low-bandwidth (DDIL) operations, and to counter Anti-Access Area Denial (A2/AD) threats. Increases in data throughput are required for the effective exchange of rich IW data sets and services via Service Oriented Architectures (SOA) within the limitations of High Frequency (HF), Ultra-High Frequency (UHF), and other portions of the radio frequency spectrum, coupled with appropriate Information Assurance and Computer Network Defense (IA/CND) mechanisms. Development and assessment of potential solutions will integrate improved IP capabilities with the Advanced Digital Network Systems (ADNS) and existing international standards (e.g. Allied Communications Publication 200, NATO Standardization Agreements 5066 and 4691). The continued development and refinement of advanced tactical networking technologies and protocols, to include Low Probability of Intercept (LPI), Low Probability of Detection (LPD), and Anti-Jam (AJ) capabilities as well as Automatic Link Establishment (ALE) standards, will provide for a significant improvement in secure data sharing within, and between, coalition maritime elements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Advanced Relay Capabilities	0.000	0.000	1.076	0.000	1.076

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Articles:	-	-	-	-	-
FY 2018 Plans: FY18 Allied/Coalition Maritime Environment (ACME) funding resides under PE 0604707N.					
FY 2019 Base Plans: - Continue to develop and evaluate secure and interoperable technologies and capabilities supporting Denied, Degraded, Intermittent and Low-bandwidth (DDIL) operations, to include multibearer routing, distributed applications and services and their integration with Mission Partner Environment/ Future Mission Networking (MPE/FMN). This will include Allied/Coalition Shared Situational Awareness, cross-domain and data labeling solutions in maritime tactical networking environments, and advanced Information Assurance and Computer Network Defense (IA/CND) solutions (with common and interoperable processes and technologies). - Assess technologies for interoperable maritime networking with the continued refinement of advanced tactical networking and communication capabilities, including high-latitude/polar environments, which promote task group-centric operations. Solutions will address higher bandwidth, Low Probability of Intercept (LPI)/Low Probability of Detection (LPD)/Anti-Jam (AJ) technologies across the Radio Frequency (RF) and Optical spectrum and include airborne capabilities. Evaluation of electromagnetic spectrum management and visualization technologies, force-level Electronic Warfare/Electro-magnetic Maneuver Warfare (EW/EMW) will also enhance interoperable Information Warfare (IW). - Continue to increase Allied IW interoperability with other joint and maritime multi-national forums, such as the Combined Communications Electronic Board (CCEB), Multinational Maritime Information-system Interoperability Steering Group (M2I2), MPE/FMN, and Joint Information Environment (JIE) forums. - Continue to assess and validate individual technologies, integrated solutions, and associated Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) through experimentation, trials and demonstrations with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS) and other Allied/Coalition partners during operational venues, such as the United States Navy (USN) Rim of the Pacific (RIMPAC) or United Kingdom (UK) Joint Warrior exercise series.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Beginning in FY19, the ACME funding profile transferred from PE 0604707N to PE 0606355N.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 0798 / *Allied/Coalition Interoperability and Information Dominance (ACIID)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The $20K decrease between FY 2018 to FY2019 is attributed to reduction in assessments of various technologies including the U.S. Battlefield Information Collection and Exploitation System - extended (BICES-X).					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.076	0.000	1.076

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Allied/Coalition Maritime Environment (ACME) is a non-acquisition program that promotes United States Navy (USN) interoperability with allied and coalition forces to achieve the Chief of Naval Operations (CNO) vision by facilitating maritime interoperability in both processes and communications systems, including emerging capabilities, to counter growing high-end asymmetric threats, and is a key enabler of the force multiplying benefits achieved through cooperation among the Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS), North Atlantic Treaty Organization (NATO), and other partner nations. Activities include acquiring intellectual capital in emerging technical areas through contracts providing technical engineering expertise and surge capacity for emerging tasks.

E. Performance Metrics

Advanced Relay Capabilities: The ACME program will employ laboratory testing and at-sea demonstrations to assess specific technologies, operational concepts, and integrated Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) solutions pertaining to Denied, Degraded, Intermittent and Low-bandwidth (DDIL) operational environments, Network Operations Without Shore (NOWS), Maritime Domain Awareness (MDA), Mission Partner Environment/ Future Mission Networking (MPE/FMN), Joint Information Environment (JIE), and other aspects of Information Warfare (IW). These assessments will report on identified capability gaps, link capability gaps to technology/DOTMLPF gaps, identify technologies and DOTMLPF solutions considered ready for deployment, transition to a program of record to enhance Fleet war fighting capability, and enhance Allied interoperability.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0606355N / *(U)Warfare Innovation Management*	Project (Number/Name) 2144 / *Space & Elec Warfare Engineering*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2144: *Space & Elec Warfare Engineering*	0.000	0.000	0.000	22.058	-	22.058	19.799	20.806	31.206	26.746	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To support Navy objectives in advancing Information Warfare (IW) capabilities, the Space and Electronic Warfare (SEW) Engineering project provides six main functions:

(1) Develop the architectures, specifications and standards, tools, and processes to support a single integrated Navy plan for cybersecurity. These engineering artifacts provide Navy specific guidance to drive common and consistent implementation of security controls across current and future Navy Programs of Record/projects. This eliminates redundancies and inefficiencies characteristic of previous stove-pipe development efforts in which each system addressed security individually. These efforts enable a standardized approach to move out faster to improve the Navy's cyber resiliency.

(2) Provide the cybersecurity vulnerability and functional test capability which supports cybersecurity test requirements and the Command, Control, Communications, Computers, Intelligence (C4I) components of USS Secure. USS Secure is a cyber assessment program within the Navy. This System of Systems (SoS) (Afloat, Aloft, C4I & Shore) capability in a test laboratory environment provides a rapidly re-configurable capability that integrates maritime hardware systems into a virtual platform. This platform level SoS provides cybersecurity research, development, test and evaluation, and training, not otherwise possible. This combination of Systems Commands (SYSCOM) laboratories, cyber ranges, and Red Teams simulating Navy platforms in operational maritime environments is critical for effectively evaluating cyber threats against specified mission threads.

(3) Define an integrated Enterprise Architecture to support design, development and delivery of integrated Navy Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR), Business Information Technology (IT), and Space System capabilities. This architecture reflects current (as-is) and future (target) end states to support technical analyses, program planning, and enterprise-level investment decisions across IW capabilities. Perform mission based system of systems analysis to ensure integration and interoperability, and validate end-to-end warfighting capabilities to quickly address emerging threats.

(4) Provides engineering tools and processes to drive rigorous Systems Engineering discipline across the acquisition lifecycle to support rapid development and delivery of secure and interoperable C4ISR, Business IT, and Space Systems capabilities that meet Fleet requirements. Conduct Systems Engineering Technical Reviews (SETRs) to provide independent, objective assessments of technical maturity and compliance with applicable architectures, specifications and standards across IW capabilities.

(5) The Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX) provides a means to demonstrate and evaluate the interoperability of United States (US), North Atlantic Treaty Organization (NATO), and coalition information sharing systems.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

(6) Navy Additive Manufacturing (AM) technology aligns to CNO priorities to deliver revolutionary capabilities to improve fleet readiness. These enterprise solutions will provide the foundation to (1) enhance warfighter capability through new innovative system designs; (2) increase readiness through low volume production of hard to source items; and (3) improve warfighting capacity by enabling production at or near the point of need. Specific efforts include the development of an Enterprise Digital Manufacturing Architecture which addresses design and certification of AM capabilities for both afloat and ashore, development of Cyber Security Risk Management Profiles for devices and applications on operational networks, definition of a secure Technical Data Package to describe components that can be digitally manufactured, and the development of an overarching, enterprise-level Digital Manufacturing Thread (device management, digital rights management, licensing, configuration management, data storage rule/access and application programing interfaces).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Cybersecurity Architecture, Specifications and Standards	0.000	0.000	7.890	0.000	7.890
Articles:	-	-	-	-	-
FY 2018 Plans: FY18 Cybersecurity Architecture, Specifications and Standards funding resides under PE 0604707N.					
FY 2019 Base Plans: - Continue to develop the architectures, specifications, and standards that provide the technical foundation of a single, integrated Navy plan for cybersecurity in accordance with changes in the threat environment, advances in technology, evolving Department of Defense (DoD) guidance, and results of USS SECURE cyber test activities. - Continue to assess Navy Programs of Record (PoR) plans for implementation of cybersecurity controls, assess compliance to determine cyber risk with Informational Assurance (IA) Technology Authority (TA) cybersecurity architectures and standards, and perform risk assessments that articulate systems' ability to effectively support operational missions in various cyber conditions. - Continue Defense-in-Depth Functional Implementation Architecture Network Transformation (DFIANT) work across Naval Systems Commands (SYSCOMs) to develop domain-specific implementations of the Defense-in-Depth Functional Implementation Architecture (DFIA) by defining control points, IA and logical attributes, controlling parameters, and inheritable security controls to establish a layered approach to cybersecurity. - Develop detailed design artifacts for PoRs to ensure integration between Navy Cyber Situational Awareness (NCSA) tools and the Defensive Cyber Operations (DCO) enclave to enable command and control of Navy networks under all cyber conditions. - Continue to assess Acquisition Category (ACAT) programs compliance with Information Technology (IT) and IA TA architectures, specifications and standards.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Beginning in FY19, the Cybersecurity Architecture, Specifications and Standards funding profile transferred from PE 0604707N to PE 0606355N. The $570K decrease between FY18 to FY19 in attributed to the completion of NCSA requirements and interface specifications and standards.					
Title: Cybersecurity Vulnerability & Functional Test Capability	0.000	0.000	4.123	0.000	4.123
Articles:	-	-	-	-	-
FY 2018 Plans: FY18 Cybersecurity Vulnerability & Functional Test Capability funding resides under PE 0604707N.					
FY 2019 Base Plans: - Install Command, Control, Communications, Computers, Intelligence (C4I) components within two test laboratory assets procured in FY18 to allow platforms to test their C4I systems in a threat environment. - Continue to develop and mature connectivity (including assessment and authorization) strategies to combine Systems Command (SYSCOM) laboratories, cyber ranges, and Red Teams to develop more accurate simulations of Navy platforms in operational maritime environments allowing for critical, effective, and expeditious evaluation of cyber threats against specified mission threads.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Beginning in FY19, the Cybersecurity Vulnerability & Functional Test Capability funding profile transferred from PE 0604707N to PE 0606355N. The $17.2M decrease between FY18 to FY19 is attributed to the initial planning and procurement to establish the USS Secure lab infrastructure in FY18. Funding in FY19 will complete the installations of the two test laboratory assets to allow platform testing of cyber threat profiles across platforms and enclaves.					
Title: Enterprise Architecture	0.000	0.000	0.746	0.000	0.746
Articles:	-	-	-	-	-
FY 2018 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY18 Enterprise Architecture funding resides under PE 0604707N. ***FY 2019 Base Plans:*** - Continue development of an overarching Space and Naval Warfare Systems Command (SPAWAR) Enterprise Architecture with associated specifications, standards and profiles to support effective engineering, design, development, acquisition, and delivery of Navy Command, Control, Communications, Computers, Intelligence,Surveillance, and Reconnaissance (C4ISR), Business Information Technology (IT), and Space System capabilities. - Continue to develop the capabilities of the Architecture Data Repository. - Continue development of Model Based System Engineering (MBSE) capabilities, processes and tools to support technical performance gap analysis and trade recommendations by identifying capability gaps and overlaps, interoperability issues, and cybersecurity risks between Navy System of Systems (SoS) capabilities. - Continue to refine the Integration and Interoperability (I&I) Capability framework to support SoS analyses of how well systems operate together across the Naval enterprise to deliver validated warfighting capabilities. - Continue to use Command and Control (C2), Battlespace Awareness, and Integrated Fires (IF) Integrated Capabilities Technical Baseline (ICTBs) to perform analysis of mission performance, identify capability gaps, and perform engineering trade studies, to better inform investment decisions and ensure alignment to all emerging Digital Warfare Office (DWO) objectives for increased interoperability and information sharing across weapons, sensors, and shooters. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Beginning in FY19, the Enterprise Architecture funding profile transferred from PE 0604707N to PE 0606355N. The $30K increase between FY18 to FY19 is attributed to development of MBSE capabilities, processes and tools to support technical performance gap analysis and trade recommendations.					
Title: SYSCOM Systems Engineering	0.000	0.000	2.216	0.000	2.216
Articles:	-	-	-	-	-
FY 2018 Plans: FY18 Systems Commands (SYSCOM) Systems Engineering funding resides under PE 0604707N. ***FY 2019 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Continue to perform Systems Engineering Technical Reviews (SETRs) of acquisition programs ensuring compliance with statutory and regulatory directives, as well as applicable Information Technology (IT) and Information Assurance (IA) Technical Authority (TA) architectures, specifications, standards and profiles. - Continue to develop and perform technical reviews of formal acquisition and engineering documentation to ensure the application of sound systems engineering analysis and design principles to system planning requirements, design, testing, and supportability. Provide independent technical analyses to support Milestone Decisions. - Continue to conduct Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) certifications through design and testing analysis, ensuring interoperablity with platform, force level, and joint/allied/coalition forces. - Continue engineering evaluations, assessments of compliance with authoritative architectures and technical standards, and address technical issues in the following domains: Command and Control (C2); Intelligence, Surveillance, & Reconnaissance/Information Operations (ISR/IO); Space Systems, Business IT; and Communications & Networks. - Continue maturation of the Space and Naval Warfare Systems Command (SPAWAR) Engineering Competency Development Model (CDM) framework. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Beginning in FY19, the SYSCOM Systems Engineering funding profile transferred from PE 0604707N to PE 0606355N. The $19K increase between FY18 to FY19 is attributed to the need to perform additional technical reviews of formal acquisition and engineering documentation to remain current with standard engineering processes.					
Title: Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX)	0.000	0.000	1.033	0.000	1.033
Articles:	-	-	-	-	-
FY 2018 Plans: FY18 CWIX funding resides under PE 0604707N. ***FY 2019 Base Plans:*** -Continue to develop interoperability and information sharing through coalition engagement, technology, demonstrations, and assessments leading to improvements of Command, Control, Communications, Computers,					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Intelligence, Surveillance, and Reconnaissance (C4ISR) systems within the Navy and in conjunction with Joint Services and Coalition efforts. -Continue to pursue and utilize greater Pacific Command (PACOM) and Southern Command (SOUTHCOM) Partner Nation engagement by fostering a connected, distributed experimentation environment suitable for expanded experimentation in those areas. -Continue to enhance interoperability across North Atlantic Treaty Organization (NATO) and affiliated Coalition Partners by participating in the planning and execution of Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX). -Continue to assess Coalition Interoperability assurance, validation, and verification as related to the engineering and execution of the Mission Partner Environment (MPE) in the appropriate venues. -Utilize connected environments such as the Combined Federated Battle Laboratories Network (CFBLNet) to experiment with innovative technical solutions in order to evaluate their value in fostering enhanced interoperability across Coalition Partner Nations and the United States (US). ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Beginning in FY19, the Coalition Warrior Interoperability eXploration, eXperimentation, eXamination, eXercise (CWIX). funding profile transferred from PE 0604707N to PE 0606355N.					
Title: Additive Manufacturing	0.000	0.000	6.050	0.000	6.050
Articles:	-	-	-	-	-
FY 2018 Plans: N/A ***FY 2019 Base Plans:*** -Stand-up the Additive Manufacturing (AM) Test-bed, a rapid prototyping environment that facilitates risk reduction through the integration of AM machines, hardware and software in a controlled environment. -Develop architectural baselines supporting the digital thread to be incorporated in Afloat and Ashore networked AM nodes. -Develop Risk Management Framework (RMF) Profiles for the various components and interfaces required to network AM hardware and software assets.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 2144 / *Space & Elec Warfare Engineering*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Establish certification and technical authority for the AM effort. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The $6.05M increase between FY18 to FY19 is attributed to the initiation of the Additive Manufacturing effort across the Navy by developing the initial standards, interfaces and capabilities to share AM data across the Navy enterprise.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	22.058	0.000	22.058

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Space and Electronic Warfare (SEW) Engineering is a non-acquisition program that develops, tests, implements technical authority, and validates Naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR); provides integrated Architecture products and supports C4ISR systems engineering processes and standards. Activities include acquiring intellectual capital in emerging technical areas through contracts providing technical engineering expertise and surge capacity for emerging tasks.

E. Performance Metrics

The SEW engineering program will employ rigorous and consistent system engineering practices in an evolving value model to support development and deployment of shipboard, undersea, and land based capabilities based on mission and performance requirements, integrated enterprise architectures, model-validated solutions, and sustainment and supportability needs for the Command and Control (C2), Intelligence, Networks, Communications, Space, and Business Information Technology (IT) domains.

CWIX Performance Metrics: Three key metrics: (1) Interoperability and compliance with Naval (Navy and Marine Corps), joint, coalition and other non-governmental organization architectures, systems and equipment; (2) Compliance with Defense Information Services Agency (DISA), National Security Agency (NSA), and other joint and coalition information assurance and security standards; and (3) warfighter utility assessment across the joint and coalition spectrum. Specific metrics validate performance of individual technologies participating in CWIX as well as in other venues as appropriate.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0606355N / *(U)Warfare Innovation Management*	Project (Number/Name) 2147 / *ISR Architecture*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2147: *ISR Architecture*	0.000	0.000	0.000	1.583	-	1.583	1.539	1.540	1.571	1.600	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Integrated architectures provide a technical framework for assessing capability gaps and performance of individual systems and System of Systems (SoS) and their ability to effectively provide the desired effects to support warfighting missions. They also serve as a means to influence and drive Programs of Record (PoR) toward a common, more efficient state that promotes interoperability and security.

The Naval Intelligence, Surveillance, and Reconnaissance (ISR) Reference Architecture project is intended to guide system of systems capability development and promote interoperability across Navy ISR programs, as well as interoperability and alignment with Department of Defense (DoD)-wide enterprise initiatives including Joint Information Environment and Intelligence Community Information Technology Environment and Space & Naval Warfare Systems Command-wide Enterprise Architecture policies. This effort to develop integrated ISR architectures will also help instill systems engineering discipline and standardization across the Navy ISR Enterprise and provide a means by which to assess ISR PoR progress in conforming to a single Navy architecture. These efforts will help reduce Information Technology/ISR infrastructure complexity and variances, making it easier to manage, operate and defend our ISR capabilities, and help inform investment decisions across the Navy's ISR enterprise to support Assured Command and Control, Battlespace Awareness and Integrated Fires.

This effort will encompass the documentation and analysis of current ISR enterprise architectures to inform and guide requirements for target architecture development and performance requirements to support full use and incorporation of ISR capabilities to advance Navy operations afloat. The associated studies will produce both technical and non-technical implementation guidance across the Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities spectrum.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Intelligence, Surveillance, and Reconnaissance (ISR) Architecture	0.000	0.000	1.583	0.000	1.583
Articles:	-	-	-	-	-
FY 2018 Plans: FY18 ISR Architecture funding resides under PE 0604707N.					
FY 2019 Base Plans: ISR Architecture funding was transferred from PE 0604707N to PE 0606355N from FY19 forward. -Continue to analyze the current ISR capabilities of afloat, ashore, joint, and national systems within mission contexts to demonstrate gaps and overlaps in Information Warfare capabilities and document in engineering					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 2147 / *ISR Architecture*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
artifacts and architectures. Perform trade space analysis and develop and quantify solutions using technical and operational performance parameters. -Continue to build on the documentation and analysis of the enterprise ISR capabilities to support System of Systems engineering assessments to identify integration and interoperability gaps, trades, and solutions to support investment decision-making across the ISR portfolio. -Continue to integrate the National, Joint, and Naval ISR architectures within mission contexts to identify functional capacities, materiel integration and interoperability gaps and overlaps, as well as any policy and doctrine impacts. -Continue to perform verification and validation (V&V) to ensure ISR architecture and analytic products accurately capture system performance specifications. -Continue to capture all architectural data in the Space & Naval Warfare Systems Command (SPAWAR) analysis tool suite to support rigorous engineering assessments and architecture excursions against solution alternatives. -Continue to ensure alignment and interoperability between ISR Architectures and Joint Information Enterprise, Intelligence Community Information Technology Enterprise and SPAWAR Enterprise Architectures. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Beginning in FY19, the Intelligence, Surveillance, and Reconnaissance (ISR) Architecture funding profile transferred from PE 0604707N to PE 0606355N. The $4K decrease between FY18 to FY19 is attributed to the reduced amount of support for documenting and analyzing enterprise ISR capabilities due to efficiencies in the decision-making process.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.583	0.000	1.583

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 2147 / *ISR Architecture*

D. Acquisition Strategy

The Naval ISR Architecture project is a non-acquisition program that provides integrated architecture products, engineering analysis of current and target/future capabilities to identify capability gaps and shortfalls, and provides solution recommendations. These combined efforts support the ability to articulate risks, and align/ prioritize investment decision recommendations within the ISR domain for the Navy.

E. Performance Metrics

The Naval (Navy and Marine Corps) ISR Reference Architecture effort will use consistent systems engineering practices to support development of integrated ISR enterprise architectures, and model-validated solution recommendations against quantified technical and operational performance parameters.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0606355N / *(U)Warfare Innovation Management*	Project (Number/Name) 3319 / *Fleet Experimentation*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3319: *Fleet Experimentation*	0.000	12.749	11.572	9.090	-	9.090	12.187	12.050	11.563	11.797	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The U.S. Navy's Fleet Experimentation (FLEX) program examines the doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) solutions to identified warfighter capability gaps within the Future Years Defense Program (FYDP). The Navy's FLEX program considers warfighting gaps identified in: Integrated Prioritized Capability Lists (IPCL) generated by Warfighting Development Centers (WDC); Navy Integrated Priorities Letter (IPL); Navy Commanders' FLEX Guidance; and Navy Urgent Operational Needs Statements. Additionally, the Navy's FLEX program addresses innovative concepts, and tactics, techniques, and procedures (TTP), and Fleet Concepts of Operation (CONOPS) that collectively mitigate Fleet-identified warfighting capability gaps. Through experimentation activities such as workshops, system or seminar war simulations, live at-sea events, and experimentation campaigns, the FLEX program examines potential materiel and non-materiel tangible solutions that will enhance the Fleet's ability to execute assigned missions. FLEX events and campaigns are comprised of all facets of experimentation including design, planning, systems engineering and integration, execution, data collection, analysis, assessment, and the delivery of tangible products to the fleet. While Naval-centric, FLEX efforts include joint, coalition, Science and Technology (S&T), academia, and industry partners.

The U.S. Navy's FLEX program directly supports four of the five elements outlined in the Secretary of the Navy's Innovation Vision: (1) Build the Naval Innovation Network, (2) Improve the Use of DON Information, (3) Accelerate Emerging Operational Capabilities to the Fleet, and (4) Develop Game-Changing Warfighting Concepts. Experimentation is vital to continuously improving naval warfighting capabilities

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Fleet Experimentation	12.749	11.572	9.090	0.000	9.090
Articles:	-	-	-	-	-
Description: The U.S. Navy's Fleet Experimentation (FLEX) program is a collaborative effort with multiple partners designed to address fleet prioritized capability gaps to produce doctrine, organization, training, materiel, leadership development, personnel, facilities, and policy (DOTMLPFP) actions. The FLEX program deliverables are focused on operational and tactical warfighting capability in the near term (within the Future Years Defense Program), and prioritized by annual U.S. Navy guidance. Warfighting Development Centers (WDCs) plans and executes approved multi-year Fleet experimentation campaigns and final reports. U. S. Navy staff manages the follow-on DOTMLPF-P actions to establish or enhance warfighting capability in Fleet Design, Integrated Air and Missile Defense (IAMD), Amphibious Warfare (AMW), Surface Warfare (SUW), Strike Warfare (STW), Anti-Submarine Warfare (ASW), Expeditionary Warfare (EXW), Information Dominance (ID), Mine Warfare (MIW) and Anti-Terrorism/Force Protection (AT/FP)					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FLEX supports Operational/Tactical venues to experiment, demonstrate, assess warfighting CONOPS development, concepts, doctrine/training development, techniques and procedures (TTPs), and technologies. Multi-year experiment campaigns focus on warfighting capability in accordance with guidance to evaluate and transition to DOTMLPF-Policy change recommendations. ***FY 2018 Plans:*** The FY18 FLEX program will align to the "Fleet Design" end state of fleet-centric fighting power, enabled by integration, distribution and maneuver to simultaneously employ synchronized kinetic/non-kinetic mission execution across multiple domains in a complex/contested environment. The FY18 FLEX program campaign areas comprise Multi-mission Electromagnetic Maneuver Warfare, Naval Force Integration, Full Spectrum Mine Warfare, Operational/Tactical Level of War Integration FY18 OBJECTIVES (1)Fleet Tactical Grid (FTG) and MAGTF Grid Development - FLEX/exercises (2)Fleet Level CONOPS - Contested Environment; Maritime Maneuver and Push Logistics (3)Warfighter Decision Making - Digital Warfare Office pilots - Artificial Intelligence pilots (4)Non-kinetic/kinetic effects integration - NIFC-EW & Passive Targeting (5)War Simulations (Naval War College, Naval Post Graduate School) - MOC to MOC TACMEMO - Joint and Coalition in support of Fleet Design ***FY 2019 Base Plans:*** The Navy's FY19 FLEX program aligns to the U.S. Navy Fleet Design and the Associated Campaign Plan will drive implementation of Fleet Design by 2023. Realizing Fleet Design necessitates introduction of three enabling components.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
(1) Fleet Fighting Power via Distributed Maritime Operations - Material/Non- Material Capabilities. The FY19 FLEX program will execute the following events: a. Command and Control b. Operational Level Multi-Domain Joint Enablers c. Maneuver Fleet Tactical Grid d. Cooperative Engagements Mode Options (2) Digital Spectrum Warfare via a Fleet Tactical Grid will integrate communications, command and control systems, computers, sensors, combat systems, and weapons at the technical level to facilitate an intelligent exchange and analysis of data to provide warfighters with actionable knowledge in support of Distributed Maritime Operations. The FY19 FLEX program will execute the following events: a. Combat Identification and Targeting b. Battlespace Management and Decision Aids c. Tactical Networking d. NET Enabled Weapons e. Unmanned Systems Autonomy f. Sensor/Platform/Weapon Employment g. Fleet Tactical Grid/Netted Sensors (3) Fleet Warfighting Training Construct (FWTC) will develop a holistic, agile, and integrated environment that replicates the high end fight, to train a fleet centric fighting force and allow for future warfighting innovation within the construct of Force Generation. As such, Fleet Design implementation requires fleet experimentation to support Force Development and inform Force Generation for fleet-centric fighting power, enabled by integration, distribution and maneuver to simultaneously employ synchronized kinetic/non-kinetic mission execution across multiple domains in a complex/contested environment. The FY19 FLEX program will execute the following events:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 3319 / *Fleet Experimentation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
a. Tactical and Technical Integration in support of FWTC Force Generation, Large Scale Exercise (LSE) 2020; specifically, increased use of Modeling and Simulation (M&S) lines of effort to accelerate capability development and learning. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** A FY19 reduction of $180K is a re-spread of a POM19 procurement efficiency. The FY 2019 funding request was reduced by $1.84 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	12.749	11.572	9.090	0.000	9.090

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

FLEX is a non-acquisition program.

E. Performance Metrics

Fleet Experimentation Measure of Performance (MOP):
FLEX funding is used for approximately 20-25 experimental initiatives annually, focused on addressing Fleet-identified capability gaps. The majority of this funding is used to acquire intellectual capital in technical areas through contracts providing engineering expertise, experiment design, execution and analysis support, and also used to fund select engineering and integration costs.
Fleet Experimentation Measure of Effectiveness (MOE):
- CNO/CUSFF/CPF directed experiment for emerging future capability
- Fleet Design outcomes
- Mitigate critical capability gaps
- Inform Doctrine TTP, and training
- Inform Fleet Platform Wholeness or Warfighter CONOPS validation
- Impact to Fleet Warfighting within the FYDP

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0606355N / *(U)Warfare Innovation Management*	Project (Number/Name) 3320 / *TRIDENT Warrior*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3320: *TRIDENT Warrior*	0.000	2.097	2.269	2.284	-	2.284	2.290	2.335	2.385	2.432	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Trident Warrior (TW) was transferred from 0604231N (Tactical Command Systems) to 0606355N ((U)Warfare Innovation Management) in FY 2017.

A. Mission Description and Budget Item Justification

U.S. Navy's TW experiment campaign enables early delivery of Information Warfare (IW) capabilities to the warfighter via Fleet-directed TW operational events. Integrates stand-alone systems and efforts to achieve substantially enhanced capability, demonstrates/tests these capabilities in both laboratory and operational environments, and evaluates their effectiveness. Develops supporting concepts and Concept of Operations to improve warfighting effectiveness. Coordinates IW efforts with other Service/Joint/Department of Defense/National efforts to ensure Joint/Interagency/ Allied/Coalition applicability and interoperability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Trident Warrior	2.097	2.269	2.284	0.000	2.284
Articles:	-	-	-	-	-
FY 2018 Plans: - Evaluate Trident Warrior 2017 (TW17) executed experiments and recommend next steps for Warfighting Development Centers (WDC)s. - Promote broad participation in TW by researching advanced technology solution candidates, in conjunction with other services, commercial entities and academic research in order to fill IW technology gaps. - In accordance with standardized procedures, lead TW participant efforts with the following: specific goal identification; risk identification; experiment plans (to include data requirements and collection); and required installation and security certifications, accreditations, and approvals. - Provide Subject Matter Expertise (SME) for core ship services during the experimentation period. Provide independent experts to ensure compliance with experiment plans, lead analysis effort, and deliver unbiased assessments. - Provide results to government sponsors to support the program's engineering recommendations. - Plan and execute Trident Warrior 2018 (TW18) experiments to accelerate the transition of IW capability to the Fleet. - Begin Trident Warrior 2019 (TW19) planning, taking into consideration identified Naval Capability Gaps.					
FY 2019 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 3320 / *TRIDENT Warrior*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Evaluate TW18 executed experiments and recommend next steps for WDC. - Promote broad participation in Trident Warrior (TW) by researching advanced technology solution candidates, in conjunction with other services, commercial entities and academic research in order to fill Information Warfare (IW) technology gaps. - In accordance with standardized procedures, lead TW participant efforts with the following: specific goal identification; risk identification; experiment plans (to include data requirements and collection); and required installation and security certifications, accreditations, and approvals. - Provide Subject Matter Expertise (SME) for core ship services during the experimentation period. Provide independent experts to ensure compliance with experiment plans, lead analysis effort, and deliver unbiased assessments. - Provide results to government sponsors to support the program's engineering recommendations. - Plan and execute Trident Warrior 2019 (TW19) experiments to accelerate the transition of IW capability to the Fleet. - Begin Trident Warrior 2020 (TW20) planning, taking into consideration identified Naval Capability Gaps. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The $15K increase between FY 2018 to FY 2019 is attributed to increased Information Assurance SME support associated with TW experiments.					
Accomplishments/Planned Programs Subtotals	2.097	2.269	2.284	0.000	2.284

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Confirmation of Fleet and Joint Interoperability with technology candidates, Information Assurance Certification and Accreditation, and alignment with U.S. Navy Guidance, as well as related Program Executive Office (PEO) objectives and stakeholder projected architectures.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0606355N / *(U)Warfare Innovation Management*	Project (Number/Name) 3420 / *Expeditionary Submarine Fiber Optic Cable (SFOC)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3420: *Expeditionary Submarine Fiber Optic Cable (SFOC)*	0.000	0.000	15.000	5.827	-	5.827	0.000	0.000	0.000	0.000	0.000	20.827
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Maritime Communications Demonstration (MCD) project, also called the Expeditionary Submarine Fiber Optic Cable (SFOC) Communications Project, is a classified program responsible for developing concepts designed to validate material and non-material solutions providing resilient C2 within the maritime domain. The focus is to demonstrate capabilities leveraging existing DOD investments and infrastructure to move data and information. Demonstration will include maritime assets, experimental methodologies, and current backhaul architecture for data movement. Solutions will address technologies across the RF and Optical spectrum using SFOC communications systems. The key deliverable will be a series of at-sea demonstrations to validate maritime segment components in an operationally representative environment.

This is not a new start. In FY17 $2.8M of funding was managed from within the Fleet Experimentation (FLEX) program and used for Maritime Communications Demonstration (MCD) project tasking for transparency. This effort is part of Secretary of Defense's (SECDEF) third offset initiative and was identified as a required operational capability by USEUCOM, USNORTHCOM, USPACOM, and USSTRATCOM. This effort will fund limited technical development and a series of at-sea demonstrations raising the technical readiness levels of various components with a cable handling and deployment system in an operationally representative environment, with the intent to rapidly transition to an operational capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Expeditionary Submarine fiber Optic Cable (SFOC)	0.000	15.000	5.827	0.000	5.827
Articles:	-	-	-	-	-
Description: Classified Project: The Maritime Communications Demonstration (MCD) project is developing and experimenting innovative concepts designed to validate both materiel and non-materiel methodologies to provide resilient command and control within the maritime and littoral domains. The project focus is to demonstrate capabilities that leverage existing industry and DOD investments and infrastructure using non-traditional means to move data and information. The key deliverable will be a series of at-sea demonstrations to validate maritime segment components in an operationally representative environment.					
FY 2018 Plans: FY 2018 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 3420 / *Expeditionary Submarine Fiber Optic Cable (SFOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
This project will provide funds for the development and refinement of advance networking and communication capabilities in a maritime environment that promote C2 interoperability in Satellite Communications (SATCOM) - Restricted and SATCOM - Denied environments, and support the defeat of Anti-Access Area Denial(A2/AD). Initial FY18 technology development will showcase advanced technologies in expeditionary cable design that will be demonstrated in a harsh and operationally representative environment. - Conduct system concept development study - Begin SFOC design and prototyping - Begin connection design and prototyping - Conduct deployment system feasibility AoA - Additional details provided at a higher classification level ***FY 2019 Base Plans:*** This project will continue to provide funds for the development and refinement of advance networking and communication capabilities in a maritime environment that promote C2 interoperability in Satellite Communications (SATCOM) - Restricted and SATCOM - Denied environments, and support the defeat of Anti-Access Area Denial(A2/AD). FY19 technical tasking will showcase advanced technologies in deep water cable connection design that will be demonstrated in a harsh and operationally representative environment. - Complete SFOC design and prototyping - Complete connection design and prototyping - Charter vessel for hardware demonstration - Complete cable and connection demonstration - Begin deployment subsystem development - Additional details provided at a higher classification level ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2019 funding request was reduced by $9.173M million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	0.000	15.000	5.827	0.000	5.827

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606355N / *(U)Warfare Innovation Management*	**Project (Number/Name)** 3420 / *Expeditionary Submarine Fiber Optic Cable (SFOC)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Expeditionary SFOC Communications is a non-acquisition program that promotes DoD interoperability to achieve resilient C2 data flows by facilitating maritime architectures in both processes and communications systems, including emerging capabilities, to counter growing high-end asymmetric threats, and is a key enabler of the Combatant Commanders C2
functionality.

E. Performance Metrics

Expeditionary SFOC Communications will employ laboratory testing and at-sea demonstrations to assess specific technologies, operational concepts, and integrated Doctrine,Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF) solutions pertaining to C2 communications and other aspects of Information Dominance. These assessments will report on identified capability gaps, link capability gaps to technology/DOTMLPF gaps, and identify technologies and DOTMLPF solutions considered ready for deployment to enhance war fighting capability and enhance interoperability.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0606942M *I Assessments and Evaluations Cyber Vulnerabilities*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.000	0.000	7.000	-	7.000	0.000	0.000	0.000	0.000	0.000	7.000
4038: *Cyber Vulnerability Evaluation*	0.000	0.000	0.000	7.000	-	7.000	0.000	0.000	0.000	0.000	0.000	7.000

Note

Efforts in this PE were previously funded (FY18) in PE 0605873M, PRJ 0033.

A. Mission Description and Budget Item Justification

This effort provides an OT&E approach to protect Marine Corps critical Cyber information and intelligence through vulnerability evaluations of all major DoD weapons systems and critical military installations; as directed by Section 1650 of Public Law 114-328 (NDAA for FY2017) and Section 1647 of Public Law 114-92 (NDAA FY2016). This will be accomplished through protection, detection, response, restoration, remediation, and mitigation. Testing and evaluation will be completed at Marine Corps facilities and Government Labs, to include the Marine Corps Cyber Range and Marine Corps Tactical Systems Support Activity (MCTSSA).

Sec. 1647 of the FY16 NDAA directs the Secretary of Defense to complete an evaluation of the cyber vulnerabilities of each major weapon system of the Department of Defense by not later than December 31, 2019. Funded vulnerability assessments will build upon existing efforts regarding the identification and mitigation of cyber vulnerabilities of major weapons systems, and shall not duplicate similar ongoing efforts such as Task Force Cyber Awakening or conduct redundant assessment on systems that have already been evaluated.

Sec. 1647 assessment will be formalized in Vulnerability Assessment Reports (VARs), Cyber Table Top Exercises (CTTXs), Cyber Risk Analysis (CRAs) and other reporting.

Sec. 1650 of the FY17 NDAA directs the Secretary of Defense to submit a plan for assessing the cyber vulnerability of critical defense infrastructure and begin assessment of this infrastructure during a preliminary pilot program that will assess no fewer than two installations by December, 31 2019. Assessments will end in 2020 with the submission of the final report. Strategies mitigating the risk of cyber vulnerabilities should be identified during the course of evaluation.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606942M *I Assessments and Evaluations Cyber Vulnerabilities*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	7.000	-	7.000
Total Adjustments	0.000	0.000	7.000	-	7.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	7.000	-	7.000

Change Summary Explanation

Increase of $6.0M from FY18 to FY19 funds additional vulnerability assessments, adversarial assessments, and mitigation efforts of Marine Corps Aviation assets.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0606942M / *Assessments and Evaluations Cyber Vulnerabilities*	Project (Number/Name) 4038 / *Cyber Vulnerability Evaluation*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
4038: *Cyber Vulnerability Evaluation*	0.000	0.000	0.000	7.000	-	7.000	0.000	0.000	0.000	0.000	0.000	7.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Efforts in this PRJ were previously funded (FY18) in PE 0605873M, PRJ 0033.

A. Mission Description and Budget Item Justification

This effort provides an OT&E approach to protect Marine Corps critical Cyber information and intelligence through vulnerability evaluations of all major DoD weapons systems and critical military installations; as directed by Section 1650 of Public Law 114-328 (NDAA for FY2017) and Section 1647 of Public Law 114-92 (NDAA FY2016). This will be accomplished through protection, detection, response, restoration, remediation, and mitigation. Testing and evaluation will be completed at Marine Corps facilities and Government Labs, to include the Marine Corps Cyber Range and Marine Corps Tactical Systems Support Activity (MCTSSA).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Cyber Assessments/Cyber Awareness Red Team Support	0.000	0.000	7.000	0.000	7.000
Articles:	-	-	-	-	-
Description: In Section 1650 of Public Law 114-328, the NDAA for FY2017, the Congress mandated that the DoD conduct Cyber Vulnerability evaluations of critical military installations by December 31,2019. In section 1647 of Public Law 114-92, the NDAA for FY2016, the Congress mandated that DoD conduct cyber vulnerability evaluations of all major DoD weapons systems by 31 December 2019.					
FY 2018 Plans: See PE 0605873M, PRJ 0033.					
FY 2019 Base Plans: -Evaluation and testing at the Marine Corps Cyber Range will develop artifacts required to complete the report to Congress required by Section 1647 of the FY16 NDAA. -Continue Vulnerability Assessments, adversarial assessments, and mitigation efforts, in support of the Marine Corps Cyber Awareness Red Team and the reporting requirements in 1647. -Conduct assessments of Marine Aviation platforms that are required to be tested by the NDAA Sec. 1647.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606942M / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** 4038 / *Cyber Vulnerability Evaluation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Continue efforts to train, equip, and augment the Cyber Threat Assessment Team (CTE) to meet all DoD Red Team established standards and testing requirments. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $6.0M from FY18 to FY19 funds additional vulnerability assessments of Marine Aviation platforms that are required to be tested by the NDAA Sec. 1647.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	7.000	0.000	7.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Quarterly updates and reports are submitted as required by Section 1647 of the FY16 NDAA.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy												Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0606942N *I Assessments and Evaluations Cyber Vulnerabilities*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.000	0.000	48.800	-	48.800	0.000	0.000	0.000	0.000	0.000	48.800
4038: *Cyber Vulnerability Evaluation*	0.000	0.000	0.000	48.800	-	48.800	0.000	0.000	0.000	0.000	0.000	48.800

A. Mission Description and Budget Item Justification

The Cyber Vulnerability Assessments and Evaluations program funds for cyber vulnerability assessments of major Navy weapons systems and cyber vulnerability assessments of critical shore infrastructure as directed by Sec. 1647 of the FY16 National Defense Authorization Act (NDAA) and Sec. 1650 of the FY17 NDAA, respectively. Funding will be used for assessments and non-recurring engineering for mitigations related to the Navy's major weapons systems identified in Joint Requirements Oversight Committee Memorandum (JROCM) 039-16 and on prioritized critical shore infrastructure prioritized.

Sec. 1647 of the FY16 NDAA directs the Secretary of Defense to complete an evaluation of the cyber vulnerabilities of each major weapon system of the Department of Defense by not later than December 31, 2019. Funded vulnerability assessments will build upon existing efforts regarding the identification and mitigation of cyber vulnerabilities of major weapons systems, and shall not duplicate similar ongoing efforts such as Task Force Cyber Awakening or conduct redundant assessment on systems that have already been evaluated.

Sec. 1647 assessment will be formalized in Vulnerability Assessment Reports (VARs), Cyber Table Top Exercises (CTTXs), Cyber Risk Analysis (CRAs) and other reporting.

Sec. 1650 of the FY17 NDAA directs the Secretary of Defense to submit a plan for assessing the cyber vulnerability of critical defense infrastructure and begin assessment of this infrastructure during a preliminary pilot program that will assess no fewer than two installations by December, 31 2019. Funded vulnerability assessments will end by calendar year 2020 and will build upon existing mission assurance, blue team, and red team capabilities. As instructed by the Congressional language, the assessments will utilize Department of Energy (DoE) and Department of Defense (DoD) national laboratory partnerships. Assessments will end with the submission of a final report to Congress. Strategies and procedures for mitigating the risk of cyber vulnerabilities should be identified during the course of evaluation.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606942N *I Assessments and Evaluations Cyber Vulnerabilities*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	48.800	-	48.800
Total Adjustments	0.000	0.000	48.800	-	48.800
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	48.800	-	48.800

Change Summary Explanation

Funding is requested in FY 2019 to conduct cyber vulnerability assessments of major Navy weapons systems and critical infrastructure.

Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0606942N / *Assessments and Evaluations Cyber Vulnerabilities*	Project (Number/Name) 4038 / *Cyber Vulnerability Evaluation*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
4038: *Cyber Vulnerability Evaluation*	0.000	0.000	0.000	48.800	-	48.800	0.000	0.000	0.000	0.000	0.000	48.800
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Cyber Vulnerability Assessments and Evaluations program funds for cyber vulnerability assessments of major Navy weapons systems and cyber vulnerability assessments of critical shore infrastructure as directed by Sec. 1647 of the FY16 National Defense Authorization Act (NDAA) and Sec. 1650 of the FY17 NDAA, respectively. Funding will be used for assessments and non-recurring engineering for mitigations related to the Navy's major weapons systems identified in Joint Requirements Oversight Committee Memorandum (JROCM) 039-16 and on prioritized critical shore infrastructure.

Sec. 1647 of the FY16 NDAA directs the Secretary of Defense to complete an evaluation of the cyber vulnerabilities of each major weapon system of the Department of Defense by not later than December 31, 2019. Funded vulnerability assessments will build upon existing efforts regarding the identification and mitigation of cyber vulnerabilities of major weapons systems, and shall not duplicate similar ongoing efforts such as Task Force Cyber Awakening or conduct redundant assessment on systems that have already been evaluated.

Sec. 1647 assessment will be formalized in Vulnerability Assessment Reports (VARs), Cyber Table Top Exercises (CTTXs), Cyber Risk Analysis (CRAs) and other reporting.

Sec. 1650 of the FY17 NDAA directs the Secretary of Defense to submit a plan for assessing the cyber vulnerability of critical defense infrastructure and begin assessment of this infrastructure during a preliminary pilot program that will assess no fewer than two installations by December, 31 2019. Funded vulnerability assessments will end by calendar year 2020 and will build upon existing mission assurance, blue team, and red team capabilities. As instructed by the Congressional language, the assessments will utilize DoE and DoD national laboratory partnerships. Assessments will end with the submission of a final report to Congress. Strategies and procedures for mitigating the risk of cyber vulnerabilities should be identified during the course of evaluation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Cyber Vulnerability Evaluation for Ship Weapons Systems:	0.000	0.000	4.800	0.000	4.800
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: CVN 78					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606942N / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** 4038 / *Cyber Vulnerability Evaluation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Analyze cybersecurity vulnerabilities using a system of systems approach and conduct system-of-systems cyber vulnerability assessments on CVN 78. - Utilize CVN 78 analysis to assess the vulnerability of the platform's vast control system networks. This assessment will play an integral role in identifying the most efficient and effective incremental improvements in CVN 78's cybersecurity, holistically maximizing cybersecurity of the platform's interconnected control system networks with the limited modernization budget available. -Execute modeling, simulation and analysis to capture system impacts of cyber vulnerabilities and identified mitigations, specifically situational awareness (SA) tools and continuous monitoring (CM) tools. - Leverage the model and analysis of CVN 78 as evidence of the platforms cyber survivability in a contested cybersecurity environment. The Cooperative Engagement Capability (CEC) and Navigation systems interface with multiple combat system and sensor types. Extensive and complex analysis is required to characterize and address cybersecurity and cyber vulnerability aspects of network operations over multiple interfaces. - Conduct a tabletop cyber assessment of critical hardware/software components and platform interfaces that could result in degradation of a mission enabling system. - Analyze cyber assessment results to determine the cyber resilience methods that could be further incorporated into modernization efforts. - Execute modeling, simulation and analysis to develop war fighting metrics to capture cyber vulnerabilities and identified mitigations to provide increased mission assurance. Ship Self Defense System (SSDS) -Conduct system-of-systems cyber vulnerability assessments on the SSDS Weapon System. - Identify elements within the Secure Combat System Domain, define threat scenarios, analyze risk through engineering assessments and table tops and prioritize development of cybersecurity capabilities to apply cyber controls and introduce resilience. - Ensure Combat System Enclave and networks successfully operate in adversarial cyber contested environment.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606942N / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** 4038 / *Cyber Vulnerability Evaluation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Funding increased in FY 2019 for Cyber Vulnerability Assessments of Weapons Systems ($4.8M).					
Title: Cyber Vulnerability Assessments of Other Aviation Platforms	0.000	0.000	2.900	0.000	2.900
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: - Conduct system-of-systems cyber vulnerability assessments on Other Aviation Platforms aircraft and associated support systems. - Execute modeling, simulation and analysis to capture the mission impacts of the cyber vulnerabilities. - Enhance emulation lab penetration testing capabilities to improve Other Aviation Platforms cyber risk assessment capacity and expand to include additional systems. - Conduct collaborative cyber security assessments and exercises with fleet operational community to assess vulnerability operational impacts and identify potential mitigations. - Align the cyber vulnerability assessments and findings to future Fleet or COCOM exercise(s). - Execute analysis and prototyping activities to mitigate identified cyber vulnerabilities.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Funding increase in FY19 will be used to implement mitigations of vulnerabilities identified during Cyber Risk Analysis assessments					
Title: E6B	0.000	0.000	2.100	0.000	2.100
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: - Conduct system-of-systems cyber vulnerability assessments on E-6B aircraft and associated support systems. - Execute modeling, simulation and analysis to capture the mission impacts of the cyber vulnerabilities. - Enhance emulation lab penetration testing capabilities to improve E-6B cyber risk assessment capacity and expand to include additional E-6B systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606942N / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** 4038 / *Cyber Vulnerability Evaluation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
- Conduct collaborative cyber security assessments and exercises with fleet operational community to assess vulnerability operational impacts and identify potential mitigations. - Align the cyber vulnerability assessments and findings to future Fleet or COCOM exercise(s). - Execute analysis and prototyping activities to mitigate identified cyber vulnerabilities. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increase in FY19 will be used to implement mitigations of vulnerabilities identified during Cyber Risk Analysis assessments					
Title: SWS Cyber Evaluations ***Articles:*** ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:*** Conduct Trident system and sub-system cyber testing during Strategic Systems Programs (SSP) Development and Operational Testing. Conduct additional cyber testing to establish a cyber baseline for the current Strategic Weapon System. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increase attributed to conducting Trident system and sub-system cyber testing during SSP development and Operational Testing and to conduct additional cyber testing to establish a cyber baseline for the current Strategic Weapon System.	0.000 -	0.000 -	3.500 -	0.000 -	3.500 -
Title: Trident System Cyber Hardening ***Articles:*** ***FY 2018 Plans:*** N/A ***FY 2019 Base Plans:***	0.000 -	0.000 -	5.500 -	0.000 -	5.500 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606942N / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** 4038 / *Cyber Vulnerability Evaluation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Conduct a tabletop cyber assessment of critical hardware/software components and platform interfaces that could result in a mission degrade. Analyze cyber assessment results to determine the cyber resilience methods that could be further incorporated into Strategic Weapon System modernization efforts. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increase attributed to conducting a tabletop cyber assessment of critical hardware/software components and platform interfaces that could result in a mission degrade as well as analyzing cyber assessment results to determine the cyber resilience methods that could be further incorporated into Strategic Weapon System modernization efforts.					
Title: Cyber Vulnerability Assessments of Information Warfare Weapons Systems	0.000	0.000	5.000	0.000	5.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A ***FY 2019 Base Plans:*** -Conduct system-of-systems cyber vulnerability assessments on Information Warfare Weapons Systems. -Execute modeling, simulation and analysis to develop warfghting metrics to capture the mission impacts of the cyber vulnerabilities and identified mitigations. -Overlay the cyber vulnerability assessment construct and findings during a major Fleet or COCOM exercise. -Enhance red teaming and penetration testing capabilities to improve Navy cyber risk assessment capacity and proficiency. -Increase red teaming and penetration testing activities and conduct Navy information warfare cyber risk assessments. -Conduct cyber penetration testing to confirm/deny the presence of vulnerabilities and assess the effectiveness of mitigations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606942N / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** 4038 / *Cyber Vulnerability Evaluation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Funding increase in FY19 for cyber vulnerability assessments on Information Warfare Weapons Systems.					
Title: Cyber Vulnerability Assessments of Critical Infrastructure	0.000	0.000	25.000	0.000	25.000
Articles:	-	-	-	-	-

Description: The Cyber Vulnerability Assessments and Evaluations program funds cyber vulnerability assessments of critical shore infrastructure as directed by Section 1650 of the FY17 National Defense Authorization Act (NDAA). Funding will be used for assessments of prioritized critical shore infrastructure. Sec. 1650 of the FY17 NDAA directs the Secretary of Defense to submit a plan for assessing the cyber vulnerability of critical defense infrastructure and begin assessment of this infrastructure during a preliminary pilot program that will assess no fewer than two installations by December, 31 2019. Funded vulnerability assessments will end by calendar year 2020 and will build upon existing mission assurance, blue team, and red team capabilities. As instructed by the Congressional language, the assessments will utilize DoE and DoD national laboratory partnerships. Assessments will end with the submission of a final report to Congress. Strategies and procedures for mitigating the risk of cyber vulnerabilities should be identified during the course of evaluation.

FY 2018 Plans:
N/A

FY 2019 Base Plans:
Conduct comprehensive red (penetration-level), blue team assessments, and non-recurring engineering for mitigations identified related to facility related control systems. This includes those systems integrated into, as well as supporting, critical infrastructure for the Navy. As directed by Congressional language, these all-inclusive vulnerability assessments will require the development of multifaceted testing capabilities within the Navy shore domain while leveraging existing resources across the Fleet in addition to strategies and competencies from our national laboratory partners. Supporting these vulnerability assessments will be the identification and development of mission modeling artifacts outlining the relationship between those identified facility related control systems and the relevant DoD and Navy mission and operational plans. These efforts will provide increased survivability and cyber resiliency of the Naval shore domain.

FY 2019 OCO Plans:
N/A

FY 2018 to FY 2019 Increase/Decrease Statement:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0606942N / *Assessments and Evaluations Cyber Vulnerabilities*	**Project (Number/Name)** 4038 / *Cyber Vulnerability Evaluation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
The funding increase in FY 2019 will support the implementation assessments of cyber vulnerability of critical defense infrastructure as directed by Section 1650 of the FY17 National Defense Authorization Act (NDAA).					
Accomplishments/Planned Programs Subtotals	0.000	0.000	48.800	0.000	48.800

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Deliverable of appropriate Cyber Vulnerability reports

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0305327N *I Insider Threat*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	1.682	-	1.682	2.680	2.551	2.577	2.511	Continuing	Continuing
3442: *Insider Threat*	0.000	0.000	0.000	1.682	-	1.682	2.680	2.551	2.577	2.511	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Navy Counter Insider Threat Capability meets National, Department of Defense (DoD) and Department of the Navy (DoN) direction to deter, detect, and mitigate the threat from witting and unwitting insiders. Counter Insider Threat program accomplishes these objectives by monitoring users' computers and network activities, fusing that information with security risk data from multiple other sources, and providing the fused information to analysts for threat identification and initial response action. All agencies that manage classified networks are required to establish an Insider Threat program consisting of UAM and an Analytical Hub. Navy will come under increased Congressional scrutiny if Insider Threat does not maintain funding in future POMs.

Navy currently does not fully meet Counter Insider Threat Capability requirements. As the Counter Insider Threat Mission requires Navy to establish a new capability to identify a specific type of person, as defined above, RDT&E,N funding is required to appropriately create this capability effectively.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	1.682	-	1.682
Total Adjustments	0.000	0.000	1.682	-	1.682
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	1.700	-	1.700
• Rate/Misc Adjustments	0.000	0.000	-0.018	-	-0.018

Change Summary Explanation

The increased funding from FY 2018 to FY 2019 reflects the transfer of funds from Operation and Maintenance, Navy (O&M,N) Budget Activity (BA) 04, 4C1P Investigative and Security Services to support the new capability to identify a specific type of person, as defined above, to as required by the Counter Insider Threat Mission.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0305327N / *Insider Threat*	Project (Number/Name) 3442 / *Insider Threat*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3442: *Insider Threat*	0.000	0.000	0.000	1.682	-	1.682	2.680	2.551	2.577	2.511	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Navy Counter Insider Threat Capability meets National, Department of Defense (DoD) and Department of the Navy (DoN) direction to deter, detect, and mitigate the threat from witting and unwitting insiders. Counter Insider Threat program accomplishes these objectives by monitoring users' computers and network activities, fusing that information with security risk data from multiple other sources, and providing the fused information to analysts for threat identification and initial response action. All agencies that manage classified networks are required to establish an Insider Threat program consisting of UAM and an Analytical Hub. Navy will come under increased Congressional scrutiny if Insider Threat does not maintain funding in future POMs.

Navy currently does not fully meet Counter Insider Threat Capability requirements. As the Counter Insider Threat Mission requires Navy to establish a new capability to identify a specific type of person, as defined above, RDT&E,N funding is required to appropriately create this capability effectively.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Insider Threat	0.000	0.000	1.682	0.000	1.682
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: Research, design and procure a Hub to receive, analyze and appropriately report data from User Activity Monitoring, Random Polygraph program, Law Enforcement, Counter Intelligence, Travel/Border data, Hotline tips, IMESA, IG and others; participate in Trident Warrior 18 to determine effectiveness and impact of the User Activity Monitoring tool (test & evaluate).					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The increased funding from FY 2018 to FY 2019 reflects the transfer of funds from Operation and Maintenance, Navy (O&M,N) Budget Activity (BA) 04, 4C1P Investigative and Security Services to support the new capability to identify a specific type of person, as defined above, to as required by the Counter Insider Threat Mission.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.682	0.000	1.682

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0305327N / *Insider Threat*	**Project (Number/Name)** 3442 / *Insider Threat*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• OPN/8106: *Command Support Equipment/Insider Threat*	0.000	1.000	1.728	-	1.728	2.644	6.500	6.800	6.800	0.000	25.472
• OMN/4C1P: *Investigative and Security Services/Insider Threat*	0.000	2.107	2.799	-	2.799	3.785	6.495	12.608	13.103	0.000	40.897

Remarks

OPN/8106 Insider Threat is one of many Items under the PDOC exhibit (Item 3).

D. Acquisition Strategy

N/A

E. Performance Metrics

Test Cases, risk case measure one thing in R&D, but measure other things in operations.

In the R&D phase, performance will be measured by bandwidth utilization and identification of software configuration setting.

Operational performance measurements will include enumeration of false positives, and the successful collection, identification and reporting of insider threat indicators.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0902498N *I Management Headquarters (Departmental Spt Acts)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	1.749	1.579	-	1.579	1.479	1.510	1.542	1.568	Continuing	Continuing
0831: *OPTEVFOR Support*	0.000	0.000	1.749	1.579	-	1.579	1.479	1.510	1.542	1.568	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) provides Commander, Operational Test and Evaluation Force (COMOPTEVFOR) general support funding and operating costs for Management Headquarter Activity (MHA) functions that support COMOPOTEVFOR compliance with Secretary of Defense (SECDEF) and Secretary of the Navy (SECNAV) directives to conduct independent operational testing and evaluation as described in PE 0605865N Operational Test & Evaluation Capability.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	1.749	1.598	-	1.598
Current President's Budget	0.000	1.749	1.579	-	1.579
Total Adjustments	0.000	0.000	-0.019	-	-0.019
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-0.019	-	-0.019

Change Summary Explanation

Beginning in Fiscal Year 2018, Management Headquarter Activity (MHA) labor and operating costs in support of 14 FTE has been realigned from 0605865N Operational Test and Evaluation Capability into this newly established program element 0902498N Management Headquarters (Departmental Support Accounts) as a result of SECDEF and SECNAV direction to identify all MHA costs separately. The funding decrease from FY18 to FY19 reflects a reduction in MHA support costs.

Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0902498N / *Management Headquarters (Departmental Spt Acts)*	Project (Number/Name) 0831 / *OPTEVFOR Support*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0831: *OPTEVFOR Support*	0.000	0.000	1.749	1.579	-	1.579	1.479	1.510	1.542	1.568	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element (PE) provides Commander, Operational Test and Evaluation Force (COMOPTEVFOR) general support funding and operating costs for Management Headquarter Activity (MHA) functions that support COMOPOTEVFOR compliance with Secretary of Defense (SECDEF) and Secretary of the Navy (SECNAV) directives to conduct independent operational testing and evaluation as described in PE 0605865N Operational Test & Evaluation Capability.

Beginning in Fiscal Year 2018, MHA labor and operating costs in support of 14 FTE has been realigned from 0605865N Operational Test and Evaluation Capability into this newly established program element 0902498N Management Headquarters (Departmental Support Accounts) as a result of SECDEF and SECNAV direction to identify all MHA costs separately.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: OPTEVFOR Support	0.000	1.749	1.579	0.000	1.579
Articles:	-	-	-	-	-
Description: Beginning in Fiscal Year 2018, MHA labor and operating costs in support of 14 FTE has been realigned from 0605865N Operational Test and Evaluation Capability into this newly established program element 0902498N Management Headquarters (Departmental Support Accounts) as a result of SECDEF and SECNAV direction to identify all MHA costs separately. This program is not a new start.					
FY 2018 Plans: This project provides for the basic costs of the COMOPTEVFOR headquarters activities. Specifically, it pays personnel salaries and support costs for civilian personnel who support COMPOTEVFOR compliance with directives to conduct independent operational testing and evaluation on the operational effectiveness and suitability of new and improved systems.					
FY 2019 Base Plans: This project provides for the basic costs of the COMOPTEVFOR headquarters activities. Specifically, it pays personnel salaries and support costs for civilian personnel who support COMPOTEVFOR compliance with directives to conduct independent operational testing and evaluation on the operational effectiveness and suitability of new and improved systems.					
FY 2019 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0902498N / *Management Headquarters (Departmental Spt Acts)*	**Project (Number/Name)** 0831 / *OPTEVFOR Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding decrease from FY18 to FY19 reflects a reduction in MHA support costs.					
Accomplishments/Planned Programs Subtotals	0.000	1.749	1.579	0.000	1.579

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

As indicated in Section A above, funding is for general support and operating costs for Management Headquarter Activity (MHA) functions that support COMOPOTEVFOR compliance with Secretary of Defense (SECDEF) and Secretary of the Navy (SECNAV) directives to conduct independent operational testing and evaluation as described in PE 0605865N Operational Test & Evaluation Capability.

Beginning in Fiscal Year 2018, MHA labor and operating costs in support of 14 FTE has been realigned from 0605865N Operational Test and Evaluation Capability into this newly established program element 0902498N Management Headquarters (Departmental Support Accounts) as a result of SECDEF and SECNAV direction to identify all MHA costs separately.

MHA Functions support more than 400 Programs and HQ support needs to include:

-Financial Management Systems: Fund execution is accomplished through the use of SABRS, STARS-FL, DTS, WAWF, EB Suite, and EDA for current and prior year financial transactions.

-Financial Management Analysis: The mission, functions, and tasks of the command are met through funds allocated from the following appropriations: RDT&E, OMN, APN, OP, and DoD. Funds are authorized, committed, obligated, and executed IAW Navy and DoD guidance. In order to ensure fund integrity, transactions are monitored in accordance with FIAR and audit readiness requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 0902498N / *Management Headquarters (Departmental Spt Acts)*	**Project (Number/Name)** 0831 / *OPTEVFOR Support*

-Budget Formulation, Justification, Presentation: Supports current and future year requirements resulting in POM development, OPTAR management, and preparation of budget exhibits.

-Acquisition/Contracting: Supports the acquisition of test and evaluation services and support requirements from various firm fixed price multiple award contracts. Invoice payments are processed through the use of WAWF and iRAPT.

-Management Internal Control Program: Monitors the compliance of Navy Programs.

-Facilities Management: Coordinates the maintenance and repair of plant, property, and equipment and other base operating services.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0909999N / *Cancelled Account Adjustments*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.136	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.136
0000: *UNDIST*	0.000	0.136	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.136

A. Mission Description and Budget Item Justification

Funding is to reimburse the Department of the Treasury for cancelled account liabilities.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.136	0.000	0.000	-	0.000
Total Adjustments	0.136	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.136	0.000			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 0909999N / *Cancelled Account Adjustments*	Project (Number/Name) 0000 / *UNDIST*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0000: *UNDIST*	0.000	0.136	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.136
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

N/A

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: New Accomplishment/Planned Program Entry	0.136	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2018 Plans: N/A					
FY 2019 Base Plans: N/A					
FY 2019 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.136	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 1206867N *I (U)SEW Surveillance/Reconnaissance Support*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	9.408	8.684	-	8.684	8.402	8.565	8.735	8.914	Continuing	Continuing
1034: *TAC SAT Recon Office*	0.000	0.000	9.408	8.684	-	8.684	8.402	8.565	8.735	8.914	Continuing	Continuing

Note

Efforts previously funded under PE 0605867N, Space & Elec War Surv/Recon.

A. Mission Description and Budget Item Justification

(U) Link Crimson (Navy Tactical Exploitation of National Capabilities (TENCAP)) is a congressionally directed program to rapidly develop (12-18 months) systems, processes, and training that leverages and exploits National Technical Means (NTM) and Intelligence Community (IC) resources to meet fleet tactical warfighting gaps. This is done through innovative research and development of capabilities aligned with Navy Programs of Record (PoR), while influencing national systems support and development. These efforts include advanced sensors, platform and ground processing, and integrated national-to-tactical information fusion capabilities. Link Crimson supports all Navy mission areas, including Anti-Submarine Warfare (ASW), Integrated Air and Missile Defense, Mine Warfare (MIW), Power projection/Precision Strike, Maritime Domain Awareness (MDA), and Intelligence, Surveillance, and Reconnaissance (ISR), in support of the Navy's Information Dominance pillars: Assured Command and Control (AC2), Battlespace Awareness (BA) and Integrated Fires (IF).

(U) This program is funded under Budget Activity 6 because it supports the operations and installations required for general research and development. Program baseline addresses research and development on specific capabilities to support these mission areas such as signals collection and exploitation, acoustic and electronic signal detection, countering Unmanned Air Systems, Processing, Exploitation, and Dissemination (PED) processes, Commercial Maritime Navigation Radar (CMNR) detection and exploitation, open-ocean surveillance, and hostile threat geo-location. Link Crimson fields both prototypes to demonstrate new capabilities in real world environments in coordination with operational users, and develops warfighting capabilities for insertion into Navy, joint, and national agency programs of record. Additional detailed information is available at higher levels of classification.

(U) Project 1034: Established to exploit all National and Service sensor systems to improve tactical support to Fleet operational commanders. Project also supports equipment upgrades, training and Fleet exercises which provide the venue for testing modifications to existing programs.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy					Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 6: *RDT&E Management Support*			R-1 Program Element (Number/Name) PE 1206867N *I (U)SEW Surveillance/Reconnaissance Support*		
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	0.000	9.408	8.787	-	8.787
Current President's Budget	0.000	9.408	8.684	-	8.684
Total Adjustments	0.000	0.000	-0.103	-	-0.103
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-0.103	-	-0.103

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 6	R-1 Program Element (Number/Name) PE 1206867N / *(U)SEW Surveillance/ Reconnaissance Support*	Project (Number/Name) 1034 / *TAC SAT Recon Office*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1034: *TAC SAT Recon Office*	0.000	0.000	9.408	8.684	-	8.684	8.402	8.565	8.735	8.914	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

(U) Link Crimson (Navy Tactical Exploitation of National Capabilities (TENCAP)) is a congressionally directed program to rapidly develop (12-18 months) systems, processes, and training that leverages and exploits National Technical Means (NTM) and Intelligence Community (IC) resources to meet fleet tactical warfighting gaps. This is done through innovative research and development of capabilities aligned with Navy Programs of Record (PoR), while influencing national systems support and development. These efforts include advanced sensors, platform and ground processing, and integrated national-to-tactical information fusion capabilities. Link Crimson supports all Navy mission areas, including Anti-Submarine Warfare (ASW), Integrated Air and Missile Defense, Mine Warfare (MIW), Power projection/Precision Strike, Maritime Domain Awareness (MDA), and Intelligence, Surveillance, and Reconnaissance (ISR), in support of the Navy's Information Dominance pillars: Assured Command and Control (AC2), Battlespace Awareness (BA) and Integrated Fires (IF).

(U) This program is funded under Budget Activity 6 because it supports the operations and installations required for general research and development. Program baseline addresses research and development on specific capabilities to support these mission areas such as signals collection and exploitation, acoustic and electronic signal detection, countering Unmanned Air Systems, Processing, Exploitation, and Dissemination (PED) processes, Commercial Maritime Navigation Radar (CMNR) detection and exploitation, open-ocean surveillance, and hostile threat geo-location. Link Crimson fields both prototypes to demonstrate new capabilities in real world environments in coordination with operational users, and develops warfighting capabilities for insertion into Navy, joint, and national agency programs of record. Additional detailed information is available at higher levels of classification.

(U) Project 1034: Established to exploit all National and Service sensor systems to improve tactical support to Fleet operational commanders. Project also supports equipment upgrades, training and Fleet exercises which provide the venue for testing modifications to existing programs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Assured Command and Control	0.000	0.962	0.721	0.000	0.721
Articles:	-	-	-	-	-
Description: The Navy must assure its ability to command and control forces. This requires capabilities that enable commanders to: 1) Exchange orders and responses with subordinates; 2) Understand the disposition of friendly forces; 3) Target and conduct strikes as part of the joint force; and 4) Assess the result of those strikes. Sensing the environment, understanding our adversaries and operating and defending our communications and networked systems are inextricably linked to the assurance of C2.					
FY 2018 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 1206867N / *(U)SEW Surveillance/ Reconnaissance Support*	**Project (Number/Name)** 1034 / *TAC SAT Recon Office*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Additional details with respect to this line item are held at a higher classification. ***FY 2019 Base Plans:*** Additional details with respect to this line item are held at a higher classification. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Additional details with respect to this line item are held at a higher classification.					
Title: Battlespace Awareness ***Articles:*** ***Description:*** This is the traditional mission of the Information Dominance Corps and the constituent components of meteorology, oceanography, intelligence, cryptology, communications, networks, space and electronic warfare (EW). It includes: 1)Persistent surveillance of the maritime and information battlespace; 2) Penetrating knowledge of the capabilities and intent of our adversaries; 3) An understanding of when, where, and how our adversaries operate; and 4) Expertise within the electromagnetic spectrum. When synchronized, these skills and knowledge attributes provide the target acquisition and targeting solutions necessary to apply force, both kinetic and non-kinetic. ***FY 2018 Plans:*** Additional details with respect to this line item are held at a higher classification. ***FY 2019 Base Plans:*** Additional details with respect to this line item are held at a higher classification. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Additional details with respect to this line item are held at a higher classification.	0.000 -	6.072 -	5.831 -	0.000 -	5.831 -
Title: Integrated Fires ***Articles:*** ***Description:*** The Navy will use its networks, cyberspace and space capabilities to exploit and attack the vulnerabilities of its adversaries to achieve non-kinetic effects (i.e., fires). Just as importantly, we will expand	0.000 -	2.374 -	2.132 -	0.000 -	2.132 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 6	**R-1 Program Element (Number/Name)** PE 1206867N / *(U)SEW Surveillance/ Reconnaissance Support*	**Project (Number/Name)** 1034 / *TAC SAT Recon Office*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
options for forward-deployed Navy commanders by ensuring that non-kinetic alternatives are considered alongside with kinetic solutions. ***FY 2018 Plans:*** Additional details with respect to this line item are held at a higher classification. ***FY 2019 Base Plans:*** Additional details with respect to this line item are held at a higher classification. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Additional details with respect to this line item are held at a higher classification.					
Accomplishments/Planned Programs Subtotals	0.000	9.408	8.684	0.000	8.684

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable

E. Performance Metrics

Not applicable

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