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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy									Date: February 2015			
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0604216N / Multi-Mssn Helicopter Upgrade Dev							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	1,524.591	20.365	11.434	21.358	-	21.358	6.224	5.702	2.630	2.695	Continuing	Continuing
1707: MH-60R Development	1,524.591	20.365	11.434	21.358	-	21.358	6.224	5.702	2.630	2.695	Continuing	Continuing
Program MDAP/MAIS Code: 191												
Note The Instrument Landing System (ILS) is a New Start in FY 2016. Multifunctional Information Distribution System (MIDS)-Low Volume Terminal (LVT) Block Upgrade 2 (BU2) is not a New Start in FY 2016. This work was commenced under PE 0205604N Tactical Data Link, Project Unit 3020 MIDS/JTRS.												
A. Mission Description and Budget Item Justification This Program Element includes funding for the development and support of future systems and improvements to current systems of the MH-60R. The MH-60R multi-mission helicopter provides battle group protection and adds significant capability in coastal littorals and regional conflicts. The MH-60R represents a significant avionics improvement to the H-60 series helicopters by enhancing primary mission areas of undersea warfare and surface warfare which includes the fast attack craft/fast in-shore attack craft threat response capabilities. Secondary mission areas include search and rescue, vertical replenishment, naval surface fire support, logistics support, personnel transport and medical evacuation. FY 2016 budget request funds advanced precision kill weapon system, ILS, integration of MIDS-LVT BU2 into the MH-60R, and helicopter infrared suppression system efforts. Efforts include product development, government engineering, integrated logistics support, modeling and simulation and developmental and operational testing.												
B. Program Change Summary (\$ in Millions)				FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total				
Previous President's Budget				17.565	11.434	22.908	-	22.908				
Current President's Budget				20.365	11.434	21.358	-	21.358				
Total Adjustments				2.800	-	-1.550	-	-1.550				
• Congressional General Reductions				-	-							
• Congressional Directed Reductions				-	-							
• Congressional Rescissions				-	-							
• Congressional Adds				-	-							
• Congressional Directed Transfers				-	-							
• Reprogrammings				3.200	-							
• SBIR/STTR Transfer				-0.400	-							
• Program Adjustments				-	-	2.000	-	2.000				
• Rate/Misc Adjustments				-	-	-3.550	-	-3.550				

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<u>Change Summary Explanation</u> The FY 2016 funding request was reduced by \$3.367 million to account for the availability of prior year execution balances. Technical: MH-60R is the lead platform for integration of the Multifunctional Information Distribution System (MIDS)-Low Volume Terminal (LVT) Block Upgrade 2 (BU2). Funding has been added in FY 2016 to complete modeling and simulation activities in support of the MIDS-LVT BU2.		

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604216N / Multi-Mssn Helicopter Upgrade Dev				Project (Number/Name) 1707 / MH-60R Development			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
1707: MH-60R Development	1,524.591	20.365	11.434	21.358	-	21.358	6.224	5.702	2.630	2.695	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

The Instrument Landing System (ILS) is a New Start in FY 2016. Multifunctional Information Distribution System (MIDS)-Low Volume Terminal (LVT) Block Upgrade 2 (BU2) is not a New Start in FY 2016. This work was commenced under PE 0205604N Tactical Data Link, Project Unit 3020 MIDS/JTRS.

A. Mission Description and Budget Item Justification

The primary mission areas of the MH-60R include anti-submarine warfare and surface warfare which includes the Fast Attack Craft/Fast In-shore Attack Craft (FAC/ FIAC) threat response capabilities. Secondary mission areas include search and rescue, vertical replenishment, naval surface fire support, logistics support, personnel transport and medical evacuation. The MH-60R is post-Milestone III; executing Pre-planned Product Improvements (P3I) to air vehicle and mission systems. P3I includes upgrades to communication, navigation, identification friend or foe, multi-spectral targeting system/forward looking infrared radar, automatic radar periscope detection and discrimination, weapons, data link, safety, maintenance, airframe and mission planning systems. Advanced Precision Kill Weapon System (APKWS) and Helicopter Infrared Suppression System (HIRSS) integration will support surface warfare and maritime interdiction operations by providing forward firing weapons, which includes rockets and anti-swarm weapons, by addressing the FAC/FIAC threat. Infrared suppression systems reduce susceptibility to infrared missile threats and have been incorporated onto other H-60 type/model/series, including MH-60S and HH-60H. Reducing MH-60R vulnerability to infrared threats addresses the strategic goal of long-term sustainment of the force. MH-60R aircraft currently have no system for engine exhaust suppression. ILS provides precision approach capability ashore and to supplement currently available Precision Approach Radar (PAR) controlled approaches. The PAR is the only precision approach available to the MH-60R and is slated to be replaced by joint precision approach landing system. Very high frequency omnidirectional radio range navigation capability included with the ILS system provides instrument navigation after disestablishment of tactical air command and navigation system in the continental United States. MH-60R is the lead platform for integration of the MIDS-LVT BU2. Additionally, a service life assessment program, trade studies and analysis, and efforts to develop and qualify components to replace obsolete system components on the MH-60R will be conducted.

FY 2016 budget request funds APKWS, ILS, integration of MIDS-LVT BU2 into the MH-60R, and HIRSS efforts. Efforts include product development, government engineering, integrated logistics support, modeling and simulation and developmental and operational testing.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Avionics H/W and S/W Development	15.300	7.694	5.738	-	5.738
Articles:	-	-	-	-	-
Description: Supports aircraft integration, problem investigation and resolution, lab management and upgrades, hardware investigations, and repairs in support of the test program. Provides for integrated logistics support and					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
program management board support and subvendor support. Avionics hardware and software development and integration to include: Pre-planned Product Improvements (P3I) and automatic radar periscope detection and discrimination. Advanced Precision Kill Weapon System (APKWS), and Helicopter Infrared Supression System (HIRSS) address the Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) threat. Conduct FAC/ FIAC demonstration utilizing anti-swarm weapon. Instrument Landing System (ILS) provides precision approach cabability. FY 2014 Accomplishments: Commenced APKWS development to address FAC/FIAC threat. FY 2015 Plans: Continue APKWS development and commence HIRSS development to address FAC/FIAC threat. FY 2016 Base Plans: Continue HIRSS development and commence ILS activities. FY 2016 OCO Plans: N/A						
Title: Engineering and Logistics Articles:		1.605 -	2.237 -	5.704 -	- -	5.704 -
FY 2014 Accomplishments: Provided engineering specialists, Integrated Logistics Support, Government Furnished Equipment, Support Equipment, Program Management, Contract Support Services, and travel to support mission avionics P3I. Commenced APKWS engineering and logistics efforts. FY 2015 Plans: Continue to provide engineering specialists, Integrated Logistics Support, Government Furnished Equipment, Support Equipment, Program Management, Contract Support Services, and travel to support APKWS and commence HIRSS engineering and logistics efforts. FY 2016 Base Plans: Continue to provide engineering specialists, integrated logistics support, government furnished equipment, support equipment, program management, contract support services, and travel to support APKWS and HIRSS,						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
and commence ILS engineering efforts and multifunctional information distribution system - low volume terminal block upgrade 2 modeling and simulation efforts.												
FY 2016 OCO Plans: N/A												
Title: Test and Evaluation								3.460	1.503	9.916	-	9.916
Articles:								-	-	-	-	-
FY 2014 Accomplishments: FY 2014 Accomplishments: Continued to provide MH-60R Mission testing. Commenced Advanced Precision Kill Weapon System (APKWS) test and evaluation efforts.												
FY 2015 Plans: Continue APKWS test and evaluation efforts.												
FY 2016 Base Plans: Continue APKWS test and evaluation efforts. Commence Instrument Landing System (ILS) test and evaluation efforts and commence multifunctional Information distribution system-low volume terminal block upgrade 2 modeling and simulation activities.												
FY 2016 OCO Plans: N/A												
Accomplishments/Planned Programs Subtotals								20.365	11.434	21.358	-	21.358
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost	
• APN-1 BLI:018200: MH-60R	779.653	983.387	969.991	-	969.991	69.052	-	-	-	-	11,260.736	
• APN-6 BLI:060510: MH-60R spares	0.304	-	0.069	-	0.069	-	-	-	-	-	299.476	
• APN-5 BLI:053000: SH60 Series	53.855	46.563	53.132	-	53.132	65.810	71.913	96.680	74.842	Continuing	Continuing	
Remarks												
APN-5 BLI:053000 reflects funding from OSIP 001-06 and prior year funding from OSIPs 005-12 and 001-06 only.												

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D. Acquisition Strategy

APKWS, ILS, and helicopter infrared suppression system will be developed using cost plus incentive fee type contracts.

E. Performance Metrics

Successfully support developmental and operation test activities to qualify aircraft modifications/upgrades.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604216N / Multi-Mssn Helicopter Upgrade Dev						Project (Number/Name) 1707 / MH-60R Development			
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw/SW Dev, Advanced Precision Kill Weapon System (APKWS)	SS/CPIF	Lockheed Martin : Owego, NY	0.000	5.700	Sep 2014	3.684	Jun 2015	-		-		-	-	9.384	5.700
Primary Hdw Dev. APKWS	SS/CPIF	Sikorsky : Stratford, CT	0.000	6.400	Jun 2014	3.540	Jun 2015	-		-		-	-	9.940	9.940
Primary SW Dev. Fast Attack Craft/Fast In-Shore Attack Craft (FAC/FIAC) demo	SS/BOA	Lockheed Martin : Owego, NY	0.000	1.213	Jul 2014	-		-		-		-	-	1.213	-
Primary SW Dev. FAC/ FIAC demo	WR	Redstone Aresenal : Huntsville, AL	0.000	1.987	Sep 2014	-		-		-		-	-	1.987	-
Primary Hdw/SW Dev, Helicopter Infrared Suppression System	SS/CPIF	Sikorsky : Stratford, CT	0.000	-		0.470	Mar 2015	1.670	Mar 2016	-		1.670	5.820	7.960	7.960
Primary Hdw/SW Dev, Instrument Landing System	SS/CPFF	Lockheed Martin : Owego, NY	0.000	-		-		4.068	Jun 2016	-		4.068	-	4.068	4.500
Prior year Product Dev Cost no longer funded in the FYDP	Various	Various : Various	1,154.255	-		-		-		-		-	-	1,154.255	-
Subtotal			1,154.255	15.300		7.694		5.738		-		5.738	5.820	1,188.807	-
Remarks															
FAC/FIAC demonstration in FY 2014 is being conducted with anti-swarm weapon.															
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support, Projects commencing prior to FY16	WR	NAWC AD : Patuxent River, MD	9.625	0.909	Nov 2013	2.175	Nov 2014	3.498	Nov 2015	-		3.498	Continuing	Continuing	Continuing

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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government eng spt, Projects commencing prior to FY16	Various	Various : Various	0.195	0.650	Nov 2013	-		-		-		-	-	0.845	-
Government eng spt, ILS	Various	Various : Various	0.000	-		-		1.969	Nov 2015	-		1.969	Continuing	Continuing	Continuing
Government eng spt, Multifunctional Information Distribution System (MIDS)-Low Volume Terminal (LVT) Block Upgrade 2 (BU2)	WR	NAWC AD : Patuxent River, MD	0.000	-		-		0.178	Nov 2015	-		0.178	-	0.178	-
Prior year support cost no longer funded in the FYDP	Various	Various : Various	146.840	-		-		-		-		-	-	146.840	-
Subtotal			156.660	1.559		2.175		5.645		-		5.645	-	-	-
Remarks															
1. Commencing in FY 2016 support costs will be broken out by individual project. FY 2016 increase in government engineering support is required to commence efforts for the ILS and MIDS-LVT BU2.															
2. FY 2014 & FY 2015 costs for government engineering support for projects commencing prior to FY 2016 include automatic radar periscope detection and discrimination and advanced precision kill weapon system.															
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E), Projects commencing prior to FY16	WR	NAWC AD : Patuxent River, MD	148.758	2.263	Nov 2013	1.028	Nov 2014	1.000	Nov 2015	-		1.000	1.800	154.849	-
Operation Test & Evaluation (OT&E),Projects commencing prior to FY16	WR	COMOPTEVFOR : Norfolk, VA	14.134	1.197	Nov 2013	0.475	Nov 2014	2.412	Nov 2015	-		2.412	1.200	19.418	-
DT&E, Instrument Landing System (ILS)	WR	NAWC AD : Patuxent River, MD	0.000	-		-		3.074	Nov 2015	-		3.074	0.840	3.914	-

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Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DT&E, MIDS LVT BU2	WR	NAWC AD : Patuxent River, MD	0.000	-		-		1.822	Nov 2015	-		1.822	-	1.822	-
OT&E,ILS	WR	COMOPTEVFOR : Norfolk, VA	0.000	-		-		1.608	Nov 2015	-		1.608	0.283	1.891	-
Prior year T&E costs no longer funded in the FYDP	Various	various : various	11.688	-		-		-		-		-	-	11.688	-
Subtotal			174.580	3.460		1.503		9.916		-		9.916	4.123	193.582	-
Remarks															
1. Commencing in FY 2016 test and evaluation costs will be broken out by individual project. FY 2016 increase in test and evaluation supports commencement of Advanced Precision Kill Weapon System (APKWS) operational test (OT) activities, Instrument Landing System developmental test (DT) and OT activities, and Multifunctional Information Distribution System-Low Volume Terminal Block Upgrade 2 modeling and simulation efforts.															
2. FY 2014 & FY 2015 costs for DT and OT projects commencing prior to FY 2016 include automatic radar periscope detection and discrimination and APKWS.															
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	NAWC AD : Patuxent River, MD	4.840	0.046	Nov 2013	0.062	Nov 2014	0.059	Nov 2015	-		0.059	0.174	5.181	-
Prior year Mgmt Serv cost no longer funded in the FYDP	Various	Various : Various	34.256	-		-		-		-		-	-	34.256	-
Subtotal			39.096	0.046		0.062		0.059		-		0.059	0.174	39.437	-
			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			1,524.591	20.365		11.434		21.358		-		21.358	-	-	-
Remarks															

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PE 0604216N: *Multi-Mssn Helicopter Upgrade Dev*
Navy

R-1 Line #91

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>
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Project (Number/Name)	1707 / MH-60R Development
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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>	Project (Number/Name) 1707 / <i>MH-60R Development</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>PE 0604216N: Multi-Mission Helicopter Upgrade Development</i>				
Acquisition Milestones: Milestones: Automatic Radar Periscope Detection & Discrimination (ARPDD) IOC	2	2014	2	2014
Acquisition Milestones: Milestones: Advanced Precision Kill Weapon System (APKWS) EOC	2	2015	2	2015
Systems Development: APKWS: APKWS integration development	2	2014	4	2016
Systems Development: Helicopter Infrared Suppression System (HIRSS): HIRSS development	2	2015	2	2019
Systems Development: Service Life Assessment Program (SLAP): SLAP development	1	2020	4	2020
Systems Development: Multifunction Information Distribution System (MIDS)-Low Volume Terminal (LVT): Block Upgrade 2 Integration	1	2016	4	2016
Systems Development: Instrument Landing System (ILS): ILS integration	2	2016	3	2017
Test and Evaluation: ARPDD OT	1	2014	1	2014
Test and Evaluation: APKWS DT	2	2014	2	2016
Test and Evaluation: APKWS OT	2	2016	4	2016
Test and Evaluation: HIRSS DT	3	2017	2	2018
Test and Evaluation: HIRSS OT	2	2018	1	2019
Test and Evaluation: ILS DT	3	2016	2	2017
Test and Evaluation: ILS OT	4	2016	3	2017
Test and Evaluation: MIDS-LVT DT	2	2016	4	2016
Production Milestones: Contract Awards: HIRSS Kit	3	2018	3	2018
Production Milestones: Contract Awards: ILS Kit	3	2017	3	2017