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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy **Date:** March 2014

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0204136N / <i>F/A-18 Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	4,556.862	150.479	112.618	76.216	-	76.216	56.193	39.183	50.618	72.712	Continuing	Continuing
1662: <i>F/A-18 Improvement</i>	3,889.377	112.030	109.532	73.152	-	73.152	53.171	39.183	50.618	72.712	Continuing	Continuing
2065: <i>F/A-18 Radar Upgrade</i>	667.485	38.449	3.086	3.064	-	3.064	3.022	-	-	-	-	715.106

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The F/A-18 is required to perform multiple missions. Capabilities of the F/A-18 weapon system and ancillary equipment can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. Continued F/A-18 E/F and EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Super Hornet next generation mission system capability and maintaining tactical relevance in support of Navy Aviation Plan 2030. Development continues for a platform solution to threat Advanced Electronic Attack and Counter-Electronic Attack (CEA). F/A-18 solutions to CEA include upgrades to existing sensors such as F/A-18 Radar Upgrade, Infrared Search and Track Block I, and development of a fused picture between these sensors, such as Multi-Sensor Integration Phase III (the phases of Multi-Sensor Integration are being rolled up under the title of Multi-System Integration in FY15, programmatic name change only). Additionally, continued advanced development engineering for improvements in reliability and maintainability are required to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	188.299	131.118	116.542	-	116.542
Current President's Budget	150.479	112.618	76.216	-	76.216
Total Adjustments	-37.820	-18.500	-40.326	-	-40.326
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-18.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-7.043	-			
• SBIR/STTR Transfer	-2.506	-			
• Program Adjustments	-	-	-0.200	-	-0.200
• Rate/Misc Adjustments	0.001	-	-40.126	-	-40.126

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• Congressional General Reductions Adjustments	-9.272	-	-	-	-
• Congressional Directed Reductions Adjustments	-19.000	-	-	-	-
<u>Change Summary Explanation</u>					
Technical:					
1662: Programmatic name change from Multi-Sensor Integration to Multi-System Integration beginning in FY15.					
2065: Not Applicable					
Schedule:					
1662: The System Configuration Set (SCS) schedule has had multiple changes due to issues discovered during developmental and operational test requiring additional development time. Schedule changes affect the software development efforts for the Infra-Red Search and Track (IRST), Sensor Integration, Multi-Sensor Integration (MSI) Phase II, MSI Phase III and Automatic Ground Collision Avoidance System program schedules.					
Specific changes include earlier start for 29C development from 3Q15 to 2Q14; earlier start for 31C development from 3Q17 to 1Q16; 27C Integration Testing start earlier from 1Q15 to 2Q14; H14 Integration Testing ending 3Q18 vice 4Q17; H14 Operational Testing start delay from 1Q18 to 4Q18 ending 2Q19 vice 3Q18; H12 Fleet Release moves from 4Q16 to 4Q17. H14 Fleet Release from 4Q18 to 4Q19. H10+ specific to IRST for 3Q16 release. Also includes a naming convention change in regards to SCS builds 27, 29 & 31. Initially all "X" labeled builds to include Block I Super Hornets, now 27, 29, & 31 will no longer include Super Hornets thus going back to a "C" SCS label designation to include only legacy A-D aircraft.					
Delays in the schedule for IRST are due to technical challenges with the Fuel Tank which led to additional flight test requirements.					
Multi-Sensor Integration Phase II and Phase III testing efforts have been truncated to end in 4Q14, efforts continue in 1Q15 under Multi-System Integration.					
Small Diameter Bomb Increment II / Joint Miniature Munitions Bomb Rack Unit software development refined to incorporate refined H12 schedules.					
2065: The System Configuration Set (SCS) schedule has had multiple changes due to issues discovered during developmental and operational test requiring additional development time. Schedule changes affect the software efforts for RADAR. Specific changes include H12 Fleet Release delay from 4Q16 to 4Q17.					

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons				Project (Number/Name) 1662 / F/A-18 Improvement			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1662: F/A-18 Improvement	3,889.377	112.030	109.532	73.152	-	73.152	53.171	39.183	50.618	72.712	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

Multi-Sensor Integration Phases II and III efforts are continued but renamed Multi-System Integration beginning in FY15.

A. Mission Description and Budget Item Justification

F/A-18 Improvement (1662): The F/A-18 is a multi-mission strike fighter aircraft that is used in Air-to-Air, strike, surveillance, reconnaissance and tanking roles through selected use of external equipment (fuel tanks, tactical and reconnaissance pods, and various ordnance launching racks). Additional capabilities are required for interoperability in a network-centric tactical environment. In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being expanded and upgraded to incorporate new/enhanced weapons systems and avionics including Dual Mode Weapons, a Counter-Electronic Attack, Infra-red Search and Track integrated with the Active Electronically Scanned Array Radar to provide Narrow Band High Gain Electronic Attack, Distributed Targeting precision strike capability through a Distributed Targeting System, and Sensor Integration through Multi-Sensor Integration Phase I/II/III capability which is renamed beginning in FY15 as Multi-System Integration. Continued advanced development engineering and analysis of hardware/software is required to successfully optimize fleet F/A-18 weapon systems for interoperability in a network centric tactical environment (such as Naval Integrated Fire Control-Counter Air), to include: enhanced software capabilities, potential new hardware development, enhanced existing hardware, and enhanced network centric capabilities. Additionally, continued effort is needed to perform technical evaluations, modeling and simulations, investigative flight testing, enhanced software modifications based on reported fleet deficiencies and beginning in FY14 the development and testing of design modifications to address obsolescence issues with the F/A-18 weapon system and ancillary equipment. Funding has been added starting in FY 2012 for the Automatic Ground Collision Avoidance System/Automated Terrain Avoidance and Warning System which will integrate currently implemented manual methodologies to provide not only aural and visual cues/advisories but also automatic initiation of aircraft recovery and subsequent return of control to the pilot following recovery. This funding line continues F/A-18E/F "Flight Plan" spiral capability development, to include Multi-Sensor Integration Phase II and Phase III capability (programmatic name change beginning in FY15 to Multi-System Integration) and further Flight Plan Engineering and System Configuration Set development and integration. This budget continues funding for F/A-18A-F Test Wing Maintenance support, funds development efforts needed for integration of air launched laser guided rockets on F/A-18 A+/C/D and beginning in FY14 the development and testing required for the integration of the Small Diameter Bomb II and Joint Miniature Munitions-Bomb Rack Unit on the F/A-18E/F Super Hornet.

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

	FY 2013	FY 2014	FY 2015
Title: Distributed Targeting System			
Articles:	1.640	-	-
Description: Funds are supporting development of a distributed targeting precision strike capability through a hardware and software solution. Hardware - Distributed Targeting Processor (DTP), Mass Storage Unit (MSU), and Mission Planning Transit Case. Software - DTP/MSU Operational Flight Program (OFP), Mission Computer OFP, and Mission Planning OFP.	-	-	-

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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 1662 / F/A-18 Improvement		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2013	FY 2014	FY 2015
<p>FY 2013 Accomplishments: Completed Initial Operational Test and Evaluation (IOT&E) and award Full Rate Production (FRP) contract.</p> <p>FY 2014 Plans: N/A</p> <p>FY 2015 Plans: N/A</p>				
<p>Title: Electro-Optical Infra-Red Search and Track (IRST) Phase I</p> <p align="right">Articles:</p> <p>Description: Technology development and engineering and manufacturing development of an IRST sensor for the F/A-18 E/F.</p> <p>FY 2013 Accomplishments: Continued Engineering and Development Phase and start Integration Testing-B1 Flight Test.</p> <p>FY 2014 Plans: Continue Engineering and Development Phase and Integration Testing-C Flight Test. Complete Milestone C Review.</p> <p>FY 2015 Plans: Complete Engineering and Development Phase (hardware and software) to include Engineering Development Model conversion. Conduct Integrated Baseline Review 2 and Operational Testing Readiness Review. Complete Integration Testing and start production on LRIP-2 (APN funded).</p>		84.262 -	59.744 -	40.157 -
<p>Title: Sensor Integration - Single Ship Geolocation (SSG) and Specific Emitter Identification (SEI), High Gain Electronic Attack/ High Gain Electronic Support Measures, Integrated Defensive Countermeasures</p> <p align="right">Articles:</p> <p>Description: In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being upgraded to incorporate new/enhanced weapons systems and avionics. This funding line includes F/A-18E/F "Flight Plan" spiral capability development, SSG and SEI.</p> <p>FY 2013 Accomplishments: Continued software algorithm development to enhance target identification and location (SSG/SEI) as relates to Wingman Compatibility interoperability resolution.</p> <p>FY 2014 Plans: N/A</p> <p>FY 2015 Plans:</p>		2.629 -	- -	- -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2013	FY 2014	FY 2015
N/A				
<p>Title: Sensor Integration - Air to Air, Air to Ground and Maritime Multi-Sensor Integration Phase II</p> <p align="right">Articles:</p> <p>Description: Funding will be used to expand track and correlation support from emitting targets and tracks to improve lethality against stationary or moving targets. The H10E effort is currently in the requirements definition/allocation phase, with expected fleet introduction in FY 2014.</p> <p>FY 2013 Accomplishments: Integration and testing will be conducted.</p> <p>FY 2014 Plans: Complete Multi-Sensor Integration Phase II development with Fleet Release of System Configuration Set H10E. Effort includes software development and testing inclusive of Wingman Compatibility improvements such as Unique Identification, Enhanced Interference Blanking Unit and other software updates affecting the Integrated Defensive Counter Measures suite of electronic warfare hardware.</p> <p>FY 2015 Plans: N/A</p>		3.031 -	10.195 -	- -
<p>Title: Sensor Integration - Counter Electronic Attack / Multi-Sensor Integration Phase III</p> <p align="right">Articles:</p> <p>Description: Multi-Sensor Integration Phase III utilizes previous Multi-Sensor Integration upgrades and combines them in H12 System Configuration Set with display improvements to enhance Air to Air & Counter Electronic Attack sensor integration. Multi-Sensor Integration Phase III capability focuses are: Display firmware upgrade (allows existing processors to be fully utilized) coupled with display symbology/Crew Vehicle Interface improvements, and Air to Air Mission Tactical Picture improvements. MSI Phase III capability is common to the F/A-18E/F and EA-18G.</p> <p>FY 2013 Accomplishments: Requirements decomposition, functional allocation of subsystem requirements. System Functional Review/Critical Design Review to be held.</p> <p>FY 2014 Plans: Continue Multi-Sensor Integration system software design and development, main focus of funded effort is in the H12 System Configuration Set for display improvements and other updates affecting air to air and Counter Electronic Attack sensor integration; development and testing inclusive of Wingman Compatibility improvements such as Unique Identification, Enhanced Interference</p>		10.500 -	14.470 -	- -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2013	FY 2014	FY 2015
Blanking Unit and other software updates affecting the Integrated Defensive Counter Measures suite of electronic warfare hardware. Begin integration and testing efforts.				
FY 2015 Plans: Multi-Sensor Integration has been programmatically renamed as Multi-System Integration beginning in FY15, prior year efforts are continued in FY15 under the Multi-System Integration project.				
Title: Multi-System Integration		-	-	14.486
		Articles:	-	-
Description: Multi-System Integration is a programmatic name change in FY15 which replaces the previously funded Multi-Sensor Integration Phase III. Multi-System Integration migrates from the previous Multi-Sensor Integration Phased approach and allows for insertion of new technologies and requirements to keep pace with rapidly evolving warfighter demands. Also, includes a naming convention change in regards to SCS builds 27, 29 & 31. Initially all "X" labeled builds to include Block I Super Hornets, now 27, 29, & 31 will no longer include Super Hornets thus going back to a "C" SCS label designation to include only legacy A-D aircraft.				
FY 2013 Accomplishments: N/A				
FY 2014 Plans: N/A				
FY 2015 Plans: Multi-System Integration will continue efforts begun with Multi-Sensor Integration Phase III including system software design and development. Primary efforts will be software driven through the development, integration and testing of System Configuration Sets H12 and H14. Decision Superiority gaps in Air Warfare will be addressed through the ongoing integration of weapons and sensors combined with display improvements to enhance air-to-surface, air-to-air and Counter Electronic Attack sensor integration. Upgrades to display firmware, display symbology, Crew Vehicle Interface (CVI) improvements and air-to-air Mission Tactical Picture (MTP) improvements. Development and Integration of Precision Approach Landing Capability with Civilian Interoperability functionality implemented through a combined hardware and software solution utilizing a Civilian Instrument Landing System and Space Based Augmentation System (SBAS) including a Multi-Mode Receiver and SBAS enabled GPS receiver. Continued updates to Wingman Compatability improvements such as Unique Identification and Enhanced Interference Blanking Unit and continued updates to Integrated Defensive Counter Measures suite of electronic warfare hardware.				
Title: Flight Plan Engineering / System Configuration Set Development and Integration		-	4.000	10.409
		Articles:	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2013	FY 2014	FY 2015
<p>Description: Continued F/A-18 E/F and EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Super Hornet next generation mission system capability. Funding will support the development, test and integration efforts required to maintain tactical relevance in support of Navy Aviation Plan 2030.</p> <p>FY 2013 Accomplishments: N/A</p> <p>FY 2014 Plans: Flight Plan Engineering efforts to include F/A-18E/F improvements necessary for Super Hornet relevance and tactical supremacy; Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhance F/A-18 Cooperative Engagement Capability. Funding will also continue System Configuration Set H10/H12 test and development tasking.</p> <p>FY 2015 Plans: Continue Flight Plan Engineering efforts to include F/A-18E/F improvements necessary for Super Hornet relevance and tactical supremacy; Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhance F/A-18 Cooperative Engagement Capability. Funding supports development (hardware and software), test and integration efforts for Flight Plan requirements such as Distributed Targeting Processor-Networked (DTP-N) to include Aided Target Recognition, Stationary Target Recognition, Maritime Multiple Target Track and Engagement, Multi-Level Security, Strike Accelerator and Advanced Tactical Data Link; Display Improvements for enhanced sensor integration; Tactical Targeting Network Technology (TTNT) internet protocol capability; and Precision Approach and Landing Capability (PALC). Includes future tactical aviation studies (F/A-XX); follow-on studies as well as Analysis of Alternatives (AOA) and Cost Benefits Analysis (CBA) development.</p>				
<p>Title: Test Wing Maintenance Conversion</p> <p align="right">Articles:</p> <p>Description: Funding supports maintenance of aircraft at NAVAIR Test Wing used to support Program Office objectives.</p> <p>FY 2013 Accomplishments: Performed aircraft maintenance on Test Wing Aircraft. Increase in planned flight testing over FY12 requirements.</p> <p>FY 2014 Plans: Perform aircraft maintenance on Test Wing Aircraft. Decrease in planned flight testing over FY13 as a result of reduced budget authority and planned efforts.</p> <p>FY 2015 Plans:</p>		7.339 -	6.500 -	8.000 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2013	FY 2014	FY 2015
Perform aircraft maintenance on Test Wing aircraft. FY15 restores Test Wing funding to previously planned levels.				
<p>Title: Automatic Ground Collision Avoidance System /Automated Terrain Avoidance and Warning System</p> <p align="right">Articles:</p> <p>Description: Automatic Ground Collision Avoidance System /Automated Terrain Avoidance and Warning System will preserve force structure by reducing attrition of pilots and aircraft that result from Controlled Flight into Terrain (CFIT). CFIT occurs at greater rates on fighter attack aircraft and is a leading cause of loss of life and loss of combat capability within the DoD aviation community. At full implementation, Automatic Ground Collision Avoidance System /Automated Terrain Avoidance and Warning System will integrate currently implemented manual methodologies to provide not only aural and visual cues/advisories, but also automatic initiation of aircraft recovery and subsequent return of control to the pilot following recovery. Funding supports Automatic Ground Collision Avoidance System/Automated Terrain Avoidance and Warning System studies, analysis and functional requirements; communication, navigation and identification related development and integration efforts.</p> <p>FY 2013 Accomplishments: Continued Automatic Ground Collision Avoidance System/Automated Terrain Avoidance and Warning System development, begin software development. Continue communications and identification development and integration, continue developmental test and evaluation.</p> <p>FY 2014 Plans: Continue Automatic Ground Collision Avoidance System/Automated Terrain Avoidance and Warning System software development and design. Continue communications, navigation and identification equipment (hardware and software) development, integration, test and evaluation. Reduced budget authority causing suspension of planned flight test events.</p> <p>FY 2015 Plans: N/A</p>		2.629 -	5.223 -	- -
<p>Title: Small Diameter Bomb II Integration</p> <p align="right">Articles:</p> <p>Description: The F/A-18E/F Super Hornet is an objective platform for employment of the Small Diameter Bomb II (SDB II) and the Joint Miniature Munitions Bomb Rack Unit (JMM BRU). This program funds the hardware and software design, early development, integration and testing required to successfully integrate SDB II/JMM BRU on the F/A-18E/F. SDB II is being developed by the USAF. Beginning FY15 funding will be in PE 0604329N PU 1663 to continue efforts.</p> <p>FY 2013 Accomplishments: N/A</p> <p>FY 2014 Plans:</p>		- -	9.300 -	- -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
System Specification and design efforts, Joint Miniature Munitions Bomb Rack Unit (JMM BRU) technical development and integration efforts. System Configuration Set software development and integration. Ground and Flight testing, procurement of JMM BRU prototypes and test assets. An option to procure Small Diameter Bomb II test assets as part of the USAF LRIP Lot 1 is included with FY14 funds. FY 2015 Plans: Funding moved to PE 0604329N Small Diameter Bomb (SDB)			
Title: F/A-18 Obsolescence Redesign Description: Develop and test modifications to address obsolescence issues. FY 2013 Accomplishments: N/A FY 2014 Plans: Develop and test design modifications to hardware components and software systems in response to F/A-18 weapon system and ancillary equipment obsolescence issues. FY 2015 Plans: Develop and test design modifications to hardware components and software systems in response to F/A-18 weapon system and ancillary equipment obsolescence issues.	-	0.100	0.100
Articles:	-	-	-
Accomplishments/Planned Programs Subtotals	112.030	109.532	73.152

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u> <u>Base</u>	<u>FY 2015</u> <u>OCO</u>	<u>FY 2015</u> <u>Total</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APN/0145: F/A-18E/F	2,551.158	174.551	-	-	-	-	-	-	-	-	41,769.113
• APN/0145C: F/A-18EF AP	23.677	75.000	-	-	-	-	-	-	-	-	1,541.118
• APN/0143: EA-18G	939.723	1,870.424	43.547	-	43.547	-	-	-	-	-	13,223.494
• APN/0143C: EA-18G AP	44.941	-	-	-	-	-	-	-	-	-	293.587
• APN/05250: F-18 SERIES MOD	629.205	761.412	679.177	-	679.177	1,358.703	1,366.329	1,497.163	1,600.083	5,718.451	18,978.192
• RDTEN/3063: EA-18G DEVELOPMENT	11.769	11.138	18.730	-	18.730	33.968	47.527	80.148	56.757	57.892	2,111.110

Remarks

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D. Acquisition Strategy

The F/A-18 Improvement program consists of extensive spiral development efforts mapped out in the capability-based approach F/A-18 E/F "Flight Plan." These efforts are critical to the baseline of the Super Hornet next generation mission system capability and maintaining tactical relevance in support of Navy Aviation Plan 2030. The major programs within the F/A-18 Improvement project are based on six Weapon System Capabilities: Distributed Targeting Air to Ground and Maritime, Distributed Targeting Air to Air, Net Centric Operations/Battle Space Management, Sensor Integration, Air to Ground and Maritime Attack, and Air to Air Attack. The major efforts included in this project are: Dual Mode Weapons integration; an Infra-Red Search and Track; Distributed Targeting capability through a Distributed Targeting System; Multi-Sensor Integration Phase I, Phase II and Phase III capability (programmatic name change to Multi-System Integration beginning in FY15); continued advanced development and F/A-18E/F Flight Plan engineering and analysis; continued enhanced software capabilities development; and engineering support to perform technical evaluations, modeling and simulations, and investigative flight testing.

- Infra-Red Search and Track (IRST). The IRST Block I program is a Navy program in the Engineering Manufacturing and Development (EMD) phase. A Block I system will be developed by the Navy that will meet requirements for a Counter-Electronic Attack capability. This capability will reach Initial Operational Capability (IOC) in FY 2017.
- Distributed Targeting System (DTS). DTS development is provided on a sole source cost plus incentive fee contract for EMD activities to Boeing. The program was a new start ACAT III FY 2009 effort, with a post MS B entry and an IOC in FY 2013. The program is leveraging previous Engineering Change Proposal efforts and is designated for Lot 26 and up domestic Super Hornets. Updated acquisition plan is in accordance with Dr. Carter memorandum.
- Sensor Integration. Sensor Integration development is provided on a sole source cost plus fixed fee contract on a Research and Development Basic Ordering Agreement to Raytheon and Boeing.
- Integration of Automatic Ground Collision Avoidance System/Automated Terrain Avoidance and Warning System is envisioned to only require changes to the software System Configuration Set. Studies and analyses are needed to identify the appropriate implementation method.
- Integration of Small Diameter Bomb Increment II and the Joint Miniature Munitions Bomb Rack Unit is software driven with ground and flight test requirements.

E. Performance Metrics

The DTS Program achieved IOC in 4th Quarter of FY2013. IRST Program achieved MS B on 17 June 2011, scheduled for MS C in 4th Quarter of FY2014, and IOC in 1st Quarter of FY2017.

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy **Date:** March 2014

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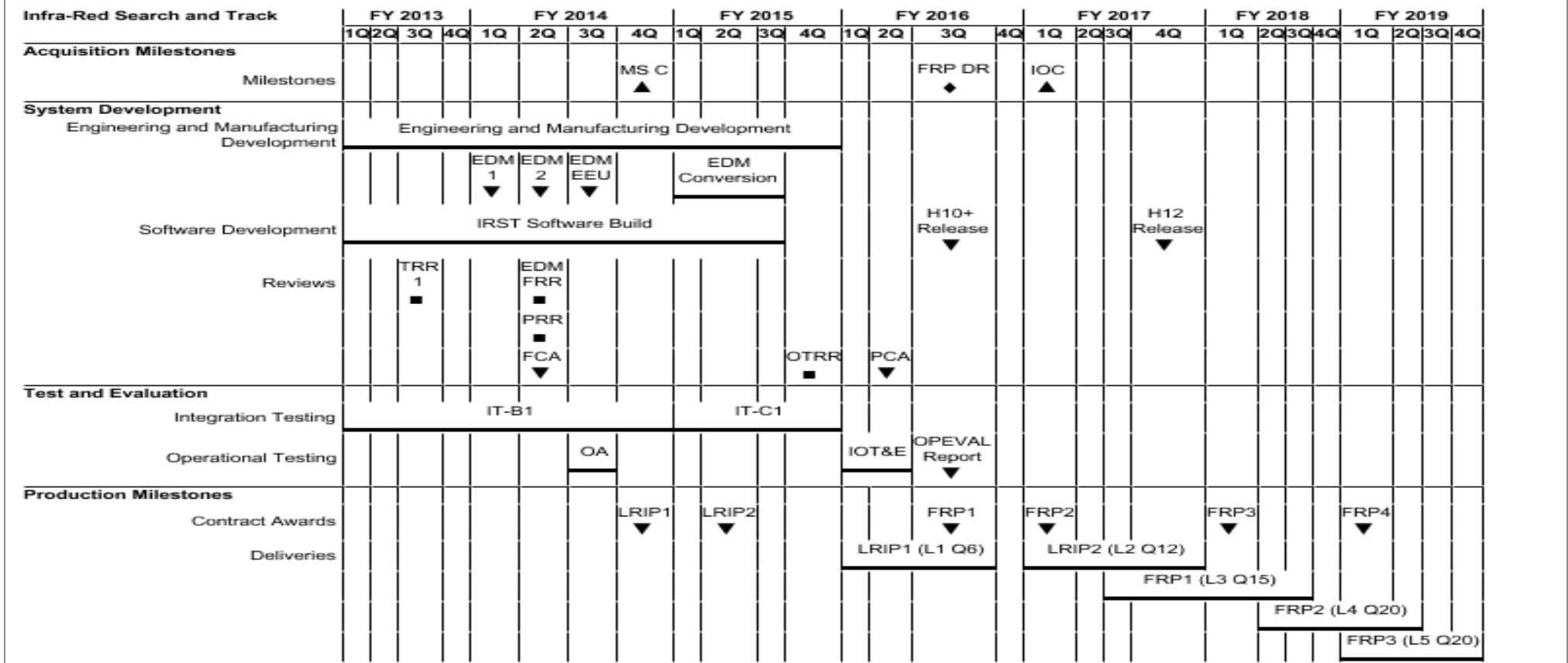
Distributed Targeting System	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones				IOC ▲																								
System Development																												
Hardware Development																												
Software Development	SW Development																											
Reviews																												
Test and Evaluation																												
Developmental Testing	DT Flight Testing																											
Operational Testing	OT Flight Testing																											
Production Milestone																												
Contract Awards	LRIP-2 ●			FRP ●																								
Deliveries	LRIP-1 (Lot 1 - Qty 30)				LRIP-2 (Lot 2 - Qty 64)				FRP-1 (Lot 3 - Qty 63)				FRP-2 (Lot 4 - Qty 61)				FRP-3 (Lot 5 - Qty 68)				FRP-4 (Lot 6 - Qty 24)				FRP-5 (Lot 7 - Qty 35)			

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Single Ship Geolocation/Specific Emitter Identification, High Gain Electronic Support Measures	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
System Development																												
SW Development																												
Reviews																												
Test and Evaluation																												
Production Milestones																												
Deliveries																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy **Date:** March 2014

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 1662 / F/A-18 Improvement
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Multi Sensor Integration Phase I	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
System Development																												
Software Development																												
Reviews																												
Test and Evaluation																												
	OPEVAL																											
Production Milestones																												
Deliveries		Fleet Release MSI Ph ↓ ▼																										

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy **Date:** March 2014

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 1662 / F/A-18 Improvement
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Multi Sensor Integration Phase II	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
System Development																												
Test and Evaluation																												
	Integration Testing MSI																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy **Date:** March 2014

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 1662 / F/A-18 Improvement
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Multi Sensor Integration Phase III	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
System Development																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy **Date:** March 2014

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 1662 / F/A-18 Improvement
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Flight Plan Engineering	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
System Development	Flight Plan Development																															
	Modeling and Simulation																															
	Studies and Analysis																															
Test and Evaluation	Flight Plan Test and Evaluation																															
Deliveries																																
	Software Fleet Release									H10 ▼								27C ▼				H12 ▼				29C ▼				H14 ▼		

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy **Date:** March 2014

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Test Wing Maintenance	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Support	Test Wing Maintenance Support																															

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy **Date:** March 2014

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Automatic Ground Collision Avoidance System /Automated Terrain Avoidance and Warning System	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019						
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q			
Acquisition Milestones																															
System Development																															
Hardware Development																															
Software Development	H12 Software Development				H12 IT																										
Reviews	CDR																														
Test and Evaluation																															
TEMP Development																															
Developmental Testing Communications & Identification																															
Production Milestones																															
Deliveries																															

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy **Date:** March 2014

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Obsolescence Redesign	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
System Development																																
F/A-18 Weapon System & Ancillary Equipment					Obsolescence Redesign																											

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons				Project (Number/Name) 2065 / F/A-18 Radar Upgrade			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
2065: F/A-18 Radar Upgrade	667.485	38.449	3.086	3.064	-	3.064	3.022	-	-	-	-	715.106
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-	-	

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

F/A-18 Radio Detection and Ranging (RADAR) Upgrade: The F/A-18 RADAR Upgrade, Active Electronically Scanned Array (AESA) development program, which began in FY 1999, is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series RADAR. The AESA system corrects operational test deficiencies noted in the AN/APG-73. It provides multi-target tracking, Synthetic Aperture RADAR (SAR) imagery, SAR Target Location Error (TLE), and improved spotlight map resolution. In addition, it provides greater lethality than previous F/A-18 RADARs by allowing full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons and it significantly increases A/A and A/G detection and tracking ranges. The AESA system provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy RADAR. This budget continues spiral capability development of AESA with increased efforts to address Phase II Operational Requirements Document requirements such as Counter-Electronic Attack 1 (CEA 1) against multiple Radio Frequency Emitters, AESA Multi-Jammer Electronic Protection (EP), Precision TLE Improvement, Monopulse and 5th/6th Channel development and Air Combat Maneuvering/Short Range Search and Track development and includes upgrades to RADAR Instrumentation, test and evaluation assets and threat assets, and upgraded modeling and simulation of both clean and Electronic Attack threat environments. Budget also supports development and testing of design modifications to address obsolescence issues with APG-65, APG-73 and APG-79 RADAR systems.

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

	FY 2013	FY 2014	FY 2015
Title: Distributed Targeting - CEA 1 Software Development, Developmental Testing, Operational Testing, & Integration	38.449	2.986	3.004
Articles:	-	-	-
Description: Funding being utilized to support software (SW) capabilities development, integration and associated testing.			
FY 2013 Accomplishments: Continue SW development, Development Testing, systems integration efforts, and AESA OT&E inclusive of some FOT&E for hardware (HW) and SW change efforts. Continue AESA CEA 1 efforts.			
FY 2014 Plans: Continue HW and SW development, integration and testing of instrumentation required to support AESA RADAR spiral capability upgrades.			
FY 2015 Plans: Continue HW and SW development, integration and testing of instrumentation required to support AESA RADAR spiral capability upgrades. Funds program management and engineering support required for the APG-65/73-79 RADAR systems.			
Title: F/A-18 RADAR Obsolescence Redesign	-	0.100	0.060

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Articles:	-	-	-
Description: Develop and test design modifications to address obsolescence issues.			
FY 2013 Accomplishments: N/A			
FY 2014 Plans: Develop and test design modifications to hardware components and software systems in response to F/A-18 RADAR system obsolescence issues.			
FY 2015 Plans: Develop and test design modifications to hardware components and software systems in response to F/A-18 RADAR system obsolescence issues.			
Accomplishments/Planned Programs Subtotals	38.449	3.086	3.064

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• APN/0145: F/A-18E/F	2,551.158	174.551	-	-	-	-	-	-	-	-	41,769.113
• APN/0145C: F/A-18E/F AP	23.677	75.000	-	-	-	-	-	-	-	-	1,541.118
• APN/0143: EA-18G	939.723	1,870.424	43.547	-	43.547	-	-	-	-	-	13,223.494
• APN/05250: F-18 Series Mod (OSIP 002-07)	152.562	158.420	81.608	-	81.608	262.273	231.354	223.940	110.891	24.190	1,711.115
• APN/0143C: EA-18G AP	44.941	-	-	-	-	-	-	-	-	-	293.627

Remarks

D. Acquisition Strategy

The Active Electronically Scanned Array (AESA) program continues developmental efforts following a successful Full Rate Production milestone decision, after completing a two-phase Acquisition approach during the FY1999 through FY2007 timeframe. This strategy continues utilization of reform initiatives such as: early partnering with industry; leveraging industry investment; optimizing use of Commercial Off-The Shelf software and Non-Developmental Item; using Cost as an Independent Variable; and Electronic Data Deliverables. Basic Ordering Agreement orders for Request for Proposal developments are in place for Boeing, the airframe prime manufacturer/integrator, and Raytheon, the Radio Detection and Ranging manufacturer, for focused risk reduction and sustainment of prior developmental activities.

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / <i>F/A-18 Squadrons</i>	Project (Number/Name) 2065 / <i>F/A-18 Radar Upgrade</i>

E. Performance Metrics

Execute the system engineering process for software delivery and support the design and development of Electronic Protection, air to air, and air to ground capabilities.

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy **Date:** March 2014

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 2065 / F/A-18 Radar Upgrade
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F/A-18 Radar Upgrade	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
Milestones																																
Systems Development																																
Hardware/Software Development	Monopulse Study				Obsolescence Redesign																											
Instrumentation Development																																
CEA #1																																
TLE Development																																
ACM Mode Development																																
Reviews																																
Test & Evaluation																																
Integrated Test & Evaluation	H10 IT																															
Operational Test & Evaluation					H12 IT																											
Operational Test & Evaluation									H10 OT								H12 OT															
Production Milestones																																
Retrofit Radar Deliveries	FRP - 43 (Lot 35)								FRP - 40 (Lot 36)																							
Software Deliveries																	H10 Release								H12 Release							

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