Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0204229N *I Tomahawk Mssn Planning Ctr*							
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	3,103.133	12.015	26.145	25.228	-	25.228	40.764	32.240	20.227	16.081	Continuing	Continuing
0545: *TOMAHAWK*	3,103.133	12.015	21.145	25.228	-	25.228	40.764	32.240	20.227	16.081	Continuing	Continuing
3378: *Next Generation Land Attack Weapon (NGLAW)*	0.000	-	5.000	-	-	-	-	-	-	-	-	5.000

Note

Funding for the Next Generation Land Attack Weapon has moved from Program Element 0204229N (Tomahawk Mission Planning Center) to 0604659N (Precision Strike Weapons Development Program) under the same Project Unit of 3378 effective FY 2016.

A. Mission Description and Budget Item Justification

Funds support development of the Tomahawk Weapon System (TWS) encompassing Tomahawk Land-Attack Missile (TLAM) upgrades, initiate baseline improvements into the Block IV weapon system, Tactical Tomahawk Weapons Controls System (TTWCS), Tomahawk Mission Planning Center (TMPC) upgrades and other missile system improvements to maintain pace with threats. The TWS provides a Tomahawk cruise missile attack capability against fixed and mobile targets. Tomahawk is capable of being deployed from both submarines and surface ships. Launched from mobile, sea-based platforms, the land attack variant significantly increases the total capability of joint forces. This Program Element also includes initial funding for the NGLAW Analysis of Alternatives (AoA).

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 (FRP) and anticipate funding in the current or subsequent fiscal year.

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	12.407	32.385	37.187	-	37.187
Current President's Budget	12.015	26.145	25.228	-	25.228
Total Adjustments	-0.392	-6.240	-11.959	-	-11.959
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.240			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.392	-			
• Program Adjustments	-	-	15.499	-	15.499
• Rate/Misc Adjustments	-	-	-27.458	-	-27.458

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy	Date: February 2015
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204229N *I Tomahawk Mssn Planning Ctr*

Change Summary Explanation

The FY 2016 funding request was reduced by $1.546 million to account for the availability of prior year execution balances.

Technical: FY16 increase in funding will be used to continue Anti-Access/Area Denial (A2AD) navigation improvements and A2AD communication upgrades as well as initiate baseline improvements into the Block IV Tomahawk weapon system to be incorporated as part of the recertification of the Tactical Tomahawk (TACTOM).

Schedule:

PU 3378- Removed FY16-FY20 schedule due to Next Generation Land Attack Weapon moving from Program Element 0204229N (Tomahawk Mission Planning Center) to 0604659N (Precision Strike Weapons Development Program.

AoA changed to AoA preparation and will now begin in Q2 FY15 due to delays associated with the congressional enactment of a new start program.

Added acquisition milestone Mission Technical Baseline/Capabilities Baseline Assessment (CBA/MTB) to 2Q-3Q FY15.

Added completion of acquisition milestone CBA to Q4 2015

PU 0545- Tomahawk Mission Planning Center (TMPC) Final Operational Capability (FOC) milestone dates were removed and replaced by TMPC Initial Operational Capability (IOC) dates for TMPC versions 5.0.1 and 6.0. TMPC is post MS-C /in sustainment and IOC is an acquisition milestone that is tracked and included in all the program acquisition documents for the TMPC program.

System Readiness Review and System Functionality Review due to updated System Engineering Technical Review (SETR) Strategy.

Navigation reviews were deleted due to Anti-Access/Area Denial (A2AD) navigation and communications taking place concurrently.

Baseline improvement Engineering Change Proposal (ECP) kit contract award and 1st modernized TACTOM missile delivery schedule added due to further development of the Tomahawk modernization acquisition strategy.

TTWCS V5.6 Developmental Test/Operational Test (DT/OT) added as part of the baseline improvement upgrades into the Block IV weapon system.

A2AD navigation and communications previous schedules still reflected remnants of image navigation. Cancellation of image navigation and continued A2AD navigation program planning, as well as the approval of A2AD communications for transition, have caused changes to the overall Tomahawk modernization schedule.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy											Date: February 2015	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning Ctr*				Project (Number/Name) 0545 / *TOMAHAWK*			
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**
0545: *TOMAHAWK*	3,103.133	12.015	21.145	25.228	-	25.228	40.764	32.240	20.227	16.081	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tomahawk Weapons System (TWS) provides a Tomahawk Land Attack Missile (TLAM) capability against fixed and mobile targets. This program ensures that the TWS exploits state-of the art technology to preserve the efficiency of this proven weapon system, and includes all missile development, mission planning system development, and submarine and surface ship weapons control system development.

The Tactical Tomahawk (TACTOM) All-Up-Round (AUR) Block IV missile is a comprehensive spiral baseline upgrade to the TWS that provides the tactical commander a quick reaction response capability as well as improved flexibility, increased accuracy and higher lethality. The essential upgrades of the TACTOM missile are: improved guidance, navigation, control and mission computer two-way satellite communications (SATCOM), and a lower production cost as compared to the Block III missile. TACTOM provides a Ultra High Frequency SATCOM data link to enable the missile to receive in-flight mission modification messages, to transfer health and status messages and to broadcast Battle Damage Indication messages. TACTOM also includes a high anti-jam Global Postitioning System (GPS) receiver, navigation improvements and associated antenna systems. The Tomahawk program also includes development of continuing advances identified as spiral development under the Tomahawk Baseline IV Operational Requirements Document (ORD), to include development of the Joint Multiple Effects Warhead System/Joint Capability Technology Demonstration (JMEWS/JCTD) and Anti-Access Area-Denial (A2AD) Navigation and Communications.

The Theater Mission Planning Center (TMPC) previously referred to as Tomahawk Command and Control System (TC2S) consists of Commercial and Government Off-The-Shelf (COTS/GOTS) software and COTS hardware. TMPC provides targeting, mission planning, strike planning, mission distribution, command & control, and employment capabilities for Tomahawk Land Attack Missile (TLAM). Continuous TMPC software development decreases mission planning time and increases the quality and accuracy of each mission while reducing complexity. TMPC provides mission planning at the theater and operational levels and is designed for high rate mission planning production responsive to national strategic, operational, and tactical requirements. TMPC develops and distributes missions for the Tomahawk Missile; provides command information services for TWS; provides strike planning, execution, coordination, control and reporting, and provides Maritime Component Commanders (MCC) the capability to plan or modify conventional Tomahawk Land-Attack Missile (TLAM) missions. TMPC has evolved into scalable configurations deployed in four configurations at 180 sites: Cruise Missile Support Activities (CMSAs) (3+1 FMS), Tomahawk Strike Mission Planning Cells (TSMPCs) (3 - C5F, C6F, C7F), Carrier Strike Groups (CSGs) (16 - 10 CVN), Firing Units (FRUs) (84 Surface/56 Submarines), Fleet Training Sites and Labs (17).

The TTWCS provides launch capability for surface and submarine platforms. Development of the TTWCS provides a common architecture to launch the TACTOM and all variants in inventory. Development of upgrades to the TTWCS is required to meet the Department of Defense Information Technology Standards Registry, to meet FORCEnet compliance and be Internet Protocol Version 6 ready in order to remain interoperable within the Joint Service Architecture and to retain weapons system viability and usability for our Sailors. These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability.

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 0545 / *TOMAHAWK*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Tactical Tomahawk All-Up-Round (AUR) and Tactical Tomahawk Weapons Control System (TTWCS)	4.283	10.787	17.683	-	17.683
Articles:	-	-	-	-	-

Description: Continue Anti-Access/Area Denial (A2AD) navigation and communication integration into Block IV weapons system. Continue fleet experimentation and requirements coordination as well as Concept of Operations (CONOPS)/ Concept of Employment development. Continuation of the cooperatively funded United States Navy/United Kingdom Joint Multi-Effects Warhead System (JMEWS) / Joint Capability Technology Demonstration (JCTD). Include significant research and analysis of the worldwide target set capability gaps to include Hard and Buried Targets and Prompt Global Strike targets, for which JMEWS is a potential solution. In addition, NAWCAD also provides engine power data/analysis in order to determine reserve power available to power potential upgrades to the Tomahawk AUR, such as JMEWS.

FY 2014 Accomplishments:
Commence A2AD navigation and communication integration into Block IV weapons system. FY 2014 efforts include requirements development and documentation; CONOPS development; software development; mission planning updates; and integration efforts. Continuation of JMEWS transition, integration, and demonstration efforts. Assessing and testing communication architecture and technologies to overcome more challenging communication environments. Target assessments, engine performance analysis, campaign planning and mission analysis for potential Tactical Tomahawk upgrades or new applicable weapons. Non-recurring engineering, systems and software development, integration and testing of capability upgrades to address emergent threats, UONS, fleet gaps, and the Tomahawk ORD.

FY 2015 Plans:
Continue A2AD navigation and communications transition and engineering change proposals to include software development, systems engineering, system testing, and transition documentation. Continuation of JMEWS transition, integration, and demonstration efforts. Target assessments, engine performance analysis, campaign planning and mission analysis for potential Tactical Tomahawk upgrades or new applicable weapons. Non-recurring engineering, systems and software development, integration and testing of capability upgrades to address emergent threats, UONS, fleet gaps, and the Tomahawk ORD.

FY 2016 Base Plans:
Continuation of A2AD navigation and communications transition and engineering change proposals to include software

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 0545 / *TOMAHAWK*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
development, hardware development, systems engineering, integration, system testing and transition documentation. Hardware development will include development and testing of either multiple or multi-band antennas, and continued development and testing of an integrated single box solution radio. Software development will include continued development and testing of Operationally Embedded Software for incorporation into the missile, as well as development of TTWCS for qualification testing. Update Tomahawk test and evaluation master plan. Continue JMEWS transition, integration, demonstration, and test efforts. Perform target and lethality assessments, engine performance analysis to include high-speed engine feasibility studies and SBIRs, data-fusion studies, campaign planning and mission analysis for potential TACTOM upgrades or new applicable weapons. Continue participation in fleet experimentation and kill chain analysis. Perform Non-Recurring Engineering activities, systems and software development, integration and testing of capability upgrades to address emergent threats, UONS, fleet gaps, and the Tomahawk ORD as directed. ***FY 2016 OCO Plans:*** N/A					
Title: Theater Mission Planning Center (TMPC)	7.732	10.358	7.545	-	7.545
Articles:	-	-	-	-	-
Description: Development and incorporation of new capabilities into the Theater Mission Planning Center (TMPC) necessary for the employment of the Tomahawk Weapon System (TWS). ***FY 2014 Accomplishments:*** Continue TLAM navigation and accuracy and weapons delivery CEP studies and assessments necessary to ensure the TWS is properly employed; continue evaluation of TMPC design process to ensure Tactical Tomahawk missile performance characteristics are adequately modeled in TMPC. Continue evaluation of imagery formats resulting from NGA mandated architectural changes. Initial evaluation of Anti-Access/Area Denial (A2AD) navigation and communications integration and mission planning timeline upgrades. Develop requirements and design for A2AD navigation and communications integration and mission planning timeline upgrades. ***FY 2015 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 0545 / *TOMAHAWK*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Continue TLAM navigation and accuracy and weapons delivery CEP studies and assessments necessary to ensure the TWS is properly employed; continue evaluation of TMPC design process to ensure Tactical Tomahawk missile performance characteristics are adequately modeled in TMPC. Continue evaluation of imagery formats resulting from NGA mandated architectural changes. Continue the development of navigation software improvements capability and software code completion associated with A2AD navigation and communications integration and mission planning timeline upgrades. The majority of the development will occur in FY15. ***FY 2016 Base Plans:*** Continue TLAM navigation and accuracy and weapons delivery CEP studies and assessments necessary to ensure the TWS is properly employed; continued evaluation of TMPC design process to ensure Tactical Tomahawk missile performance characteristics are adequately modeled in TMPC. Continue evaluation of imagery formats resulting from NGA mandated architectural changes. Continue development of A2AD software for targeting and navigation improvements. ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	12.015	21.145	25.228	-	25.228

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
• WPN/2101: *Tomahawk*	307.456	317.458	184.814	-	184.814	22.546	39.901	39.405	40.290	590.684	13,849.818
• OPN/5253: *Tomahawk Support Equip*	63.370	60.062	71.245	-	71.245	73.995	73.505	73.007	73.118	Continuing	Continuing
• OPN/9020: *Initial and Vendor Direct Spares*	0.158	0.240	0.161	-	0.161	0.216	0.220	0.277	0.152	Continuing	Continuing

Remarks

D. Acquisition Strategy

The TACTOM Weapon System achieved IOC in May 2004. The acquisition strategy involves maintaining production through FY16 and entrance into recertification starting in FY19. Recertification of TACTOM missiles starting in FY19 provides modernization opportunities to improve weapon system performance. TMPC and TTWCS

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 0545 / *TOMAHAWK*

are in sustainment requiring periodic hardware and software updates to maintain compliance with IA standards and maintain system relevance against emerging threats. Sustainment of TMPC and TTWCS segments will rely on a blend of industry and government expertise through the remaining life of the program.

Research & Development technology demonstration capabilities (Multiple-Effects Warhead, Anti Surface Warfare) will be potentially introduced after successful qualification and testing.

E. Performance Metrics

The Navy seeks to improve the Tomahawk cruise missile attack capability against land targets through research and development done predominantly through defense contractors and government field activities.

Examples in the area of the All-Up-Round include development of candidate warheads and sensors that will enhance weapon ability to cover all assigned target types, provide a quick reaction response capability for the weapon system, and improved guidance, navigation, control, mission computer two-way satellite communications, and a high anti-jam GPS receiver all in line with state of the art technology.

In the area of the weapons control system, research and development is performed to ensure viability and usability of the system into the future, providing necessary upgrades to meet the Department of Defense Information Technology standards registry to comply with FORCEnet requirements and be Internet Protocol Version 6 ready to remain interoperable within Joint Service Architecture, in order to provide battle-group tactical flexibility and responsiveness needed to enable full wartime capability.

In the area of the TMPC, continue research and development in order to provide scalable configurations to deploy where and as needed to provide necessary command and control, development necessary to function with national and tactical imagery architectures, decrease mission planning time, and increase the quality and accuracy of each mission for the TWS.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 0545 / *TOMAHAWK*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engeineering - AUR Fleet Representative	SS/CPFF	UARC APL : Laurel, MD	0.000	0.047	Feb 2014	-	Feb 2015	0.235	Feb 2016	-		0.235	Continuing	Continuing	Continuing
Systems Engineering - Advanced Concepts A2AD Improvements (NAV/ COMMS)	WR	NAWC-AD : Pax River, MD	0.000	0.245	Feb 2014	0.069	Feb 2015	-		-		-	-	0.314	-
Systems Engineering - A2AD Improvements TDA (NAV/COMMS)	SS/CPFF	UARC APL : Laurel, MD	0.708	0.046	Feb 2014	0.236	Feb 2015	0.652	Feb 2016	-		0.652	Continuing	Continuing	Continuing
Systems Engineering - A2AD Improvements Prime Integrator (NAV/ COMMS)	SS/CPFF	Raytheon : Tucson, AZ	0.000	0.430	Feb 2014	1.390	Feb 2015	2.435	Feb 2016	-		2.435	Continuing	Continuing	Continuing
Systems Engineering - TTWCS A2AD Improvements (NAV/ COMMS)	WR	NSWC : Dahlgren, VA	0.000	0.939	Feb 2014	1.282	Feb 2015	0.887	Feb 2016	-		0.887	Continuing	Continuing	Continuing
Systems Engineering - Hardware Development- A2AD Improvements (NAV/COMMS)	MIPR	NRO : Chantilly, VA	0.000	1.050	Feb 2014	6.837	Feb 2015	10.055	Feb 2016	-		10.055	Continuing	Continuing	Continuing
Prior Year Prod Dev cost no longer funded in FYDP	Various	Various : Various	2,660.209	-		-		-		-		-	-	2,660.209	-
		Subtotal	2,660.917	2.757		9.814		14.264		-		14.264	-	-	-

Remarks

A2AD Improvements (NAV/COMMS) increase is due to transition from antenna/harness development in FY15 to radio system integration in FY16 to the TACTOM.
Activity TBD was changed to NRO-Chantilly, VA due to updates to the security classification guide.
NRO increase due to transition from sub-component development to full-up radio assembly and component level testing for compatibility with Tomahawk interfaces, Guidance Electronics Unit (GEU), and antenna.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 0545 / *TOMAHAWK*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A2AD Improvements (NAV/COMMS) - Mission Planning upgrade	SS/CPFF	ComGlobal : San Jose, CA	0.000	0.357	Feb 2014	1.686	Feb 2015	1.000	Feb 2016	-		1.000	Continuing	Continuing	Continuing
A2AD Improvements (NAV/COMMS) - Mission Planning upgrade	SS/CPFF	Boeing : St. Louis, MO	0.000	0.907	Feb 2014	1.913	Feb 2015	0.813	Feb 2016	-		0.813	Continuing	Continuing	Continuing
A2AD Improvements (NAV/COMMS) - Mission Planning upgrade	SS/CPFF	BAE Systems : San Diego, CA	0.000	1.269	Feb 2014	1.809	Feb 2015	0.443	Feb 2016	-		0.443	Continuing	Continuing	Continuing
A2AD Improvements (NAV/COMMS) - Mission Planning upgrade	SS/CPFF	Leidos : California, MD	0.000	1.871	Feb 2014	1.370	Feb 2015	1.319	Feb 2016	-		1.319	Continuing	Continuing	Continuing
A2AD Improvements (NAV/COMMS) - Mission Planning upgrade	SS/CPFF	UARC APL : Laurel, MD	1.294	0.870	Feb 2014	0.459	Feb 2015	1.243	Feb 2016	-		1.243	Continuing	Continuing	Continuing
TLAM MP Analysis - Mission Planning	SS/CPFF	UARC APL : Laurel, MD	0.000	0.300	Feb 2014	1.040	Feb 2015	1.060	Feb 2016	-		1.060	Continuing	Continuing	Continuing
Imagery Format Analysis - Mission Planning	SS/CPFF	Navy Sys Mgt Act : Arlington, VA	1.432	1.343	Feb 2014	1.391	Feb 2015	1.164	Feb 2016	-		1.164	-	5.330	5.330
A2AD Improvements (NAV/COMMS) - Mission Planning upgrade	WR	NAWC-AD : Pax River, MD	0.000	0.329	Feb 2014	0.690	Feb 2015	0.503	Feb 2016	-		0.503	Continuing	Continuing	Continuing
A2AD Improvements (NAV/COMMS) - Mission Planning upgrade	Various	Various : Various	0.000	0.486	Feb 2014	-		-		-		-	Continuing	Continuing	Continuing
Development Support - TTWCS AUR	WR	NSWC : Dahlgren, VA	2.857	-	Feb 2014	0.040	Feb 2015	0.450	Feb 2016	-		0.450	Continuing	Continuing	Continuing
Development Support - Logistics AUR	WR	NSWC : Pt. Hueneme, CA	0.000	-		0.095	Feb 2015	0.300	Feb 2016	-		0.300	-	0.395	-
Development Support - CSS AUR	SS/CPFF	Leidos : Arlington, VA	0.000	0.716	Feb 2014	0.347	Feb 2015	0.347	Feb 2016	-		0.347	-	1.410	1.410
Development Support - Advanced Concepts AUR	WR	NAWC-WD : China Lake, CA	78.783	0.456	Feb 2014	0.144	Feb 2015	0.450	Feb 2016	-		0.450	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning Ctr*	Project (Number/Name) 0545 / *TOMAHAWK*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support - AUR Fleet Representative	SS/CPFF	UARC APL : Laurel, MD	0.000	0.114	Feb 2014	-	Feb 2015	1.060	Feb 2016	-		1.060	-	1.174	1.174
Development Support - Advanced Concepts AUR	WR	NAWC-AD : Pax River, MD	0.105	0.240	Feb 2014	-	Feb 2015	0.190	Feb 2016	-		0.190	Continuing	Continuing	Continuing
Development Support - CSS AUR	SS/CPFF	Various : PMA 280 Follow on CSS	0.000	-		0.347	Feb 2015	0.347	Feb 2016	-		0.347	-	0.694	0.694
Prior Year Support cost no longer funded in FYDP	Various	Various : Various	273.932	-		-		-		-		-	-	273.932	-
		Subtotal	358.403	9.258		11.331		10.689		-		10.689	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test and Evaluation - A2AD Improvements (NAV/ COMMS)	WR	NAWC : China Lake, CA	0.000	-		-		0.275	Feb 2016	-		0.275	-	0.275	-
Operational Test and Evaluation - A2AD Improvements (NAV/ COMMS)	WR	NSWC : Dahlgren, VA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Prior Year T&E cost no longer funded in FYDP	Various	Various : Various	83.412	-		-		-		-		-	-	83.412	-
		Subtotal	83.412	-		-		0.275		-		0.275	-	-	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Mgmt cost no longer funded in FYDP	Various	Various : Various	0.401	-		-		-		-		-	-	0.401	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 0545 / *TOMAHAWK*

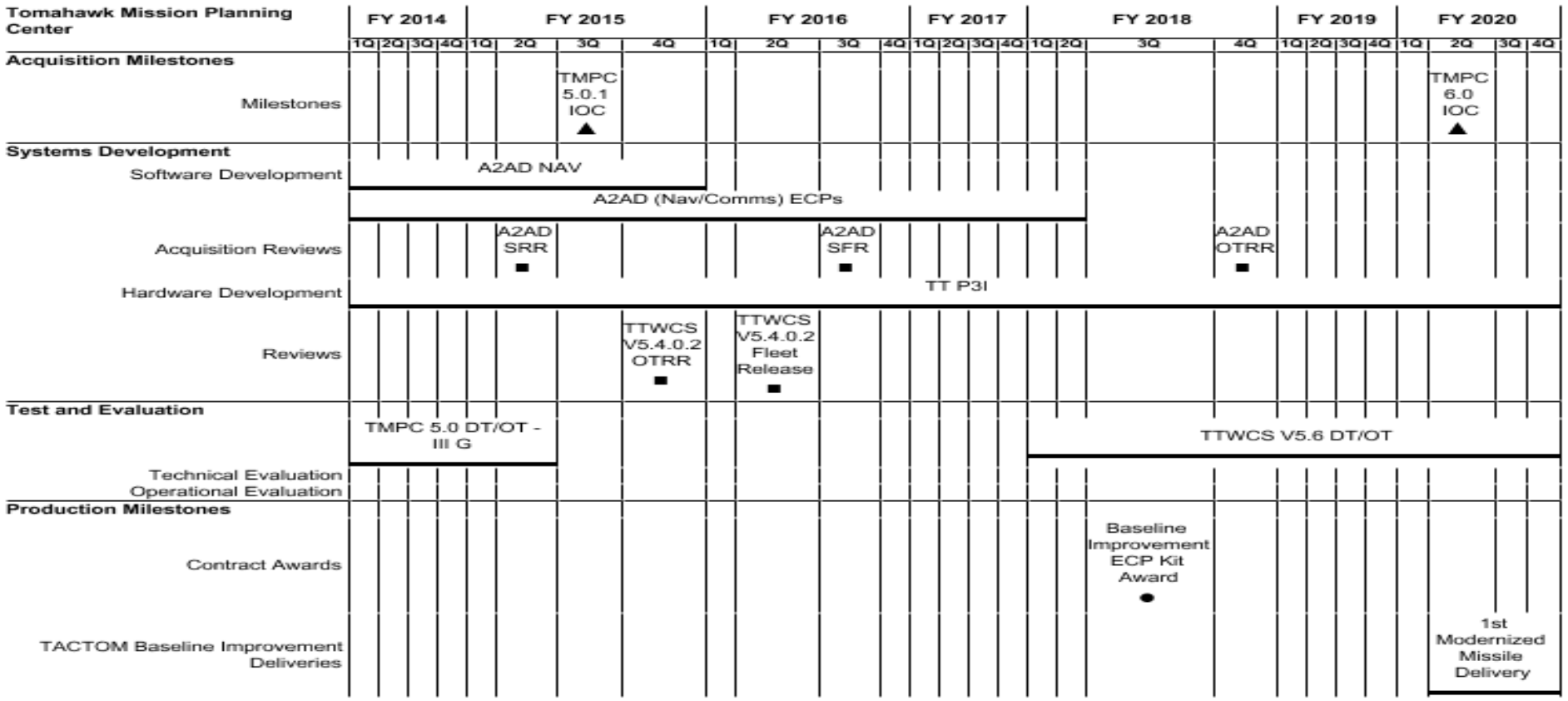
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.401	-		-		-		-		-	-	0.401	-

	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	3,103.133	12.015		21.145		25.228		-		25.228	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 0545 / *TOMAHAWK*



2016PB - 0204229N - 0545

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 0545 / *TOMAHAWK*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Tomahawk Mission Planning Center				
Acquisition Milestones: Milestones: TMPC 5.0.1 IOC	3	2015	3	2015
Acquisition Milestones: Milestones: TMPC 6.0 IOC	2	2020	2	2020
Systems Development: Software Development: A2AD Navigation	1	2014	4	2015
Systems Development: Software Development: A2AD Navigation/Communications ECPs	1	2014	2	2018
Systems Development: Acquisition Reviews: A2AD - SRR	2	2015	2	2015
Systems Development: Acquisition Reviews: A2AD- SFR	3	2016	3	2016
Systems Development: Acquisition Reviews: A2AD- OTRR	4	2018	4	2018
Systems Development: Hardware Development: TT Preplanned Product Improvement (P3I)	1	2014	4	2020
Systems Development: Reviews: TTWCS V5.4.0.2 OTRR	4	2015	4	2015
Systems Development: Reviews: TTWCS V5.4.0.2 Fleet Release	2	2016	2	2016
Test and Evaluation: TTWCS V5.6 Modernized Missile DT/OT	1	2018	4	2020
Test and Evaluation: TMPC 5.0 Test	1	2014	2	2015
Production Milestones: Contract Awards: ECP Kit Award	3	2018	3	2018
Production Milestones: TACTOM Baseline Improvement Deliveries: 1st Modernized Missile Delivery	2	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy			Date: February 2015
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning Ctr*	Project (Number/Name) 3378 / *Next Generation Land Attack Weapon (NGLAW)*	

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
3378: *Next Generation Land Attack Weapon (NGLAW)*	-	-	5.000	-	-	-	-	-	-	-	-	5.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding for the Next Generation Land Attack Weapon has moved from Program Element 0204229N (Tomahawk Mission Planning Center) to 0604659N (Precision Strike Weapons Development Program) under the same Project Unit of 3378 effective FY 2016.

A. Mission Description and Budget Item Justification

Funding is provided for a Next Generation Land Attack Weapon (NGLAW), a weapons system that is long range, survivable and can be launched from multiple surface and submarine platforms. NGLAW will incorporate evaluated existing and emergent technologies to support an improved strike capability with an Initial Operational Capability (IOC) no later than 2024.

This effort will enter the Analysis of Alternatives (AoA) phase of the acquisition cycle in FY15. Upon completion, the Department of the Navy will assess the results of the AoA and make a determination on a preferred material approach, the phase of the acquisition cycle the program will enter, and when the NGLAW weapon will achieve IOC.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: Next Generation Land Attack Weapon	-	5.000	-	-	-
Articles:	-	-	-	-	-
FY 2014 Accomplishments: N/A					
FY 2015 Plans: Conduct a thorough AoA assessing existing weapons systems, emergent technologies, and industry Internal Research and Development (IRAD) activities/proposals; develop potential Program of Record (POR) costs, schedules, and risks, as they apply to each. Conduct threat assessments based on current and future scenarios and environments to inform performance requirements and relevant technology which will be matured to provide potential NGLAW solution.					
FY 2016 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 3378 / *Next Generation Land Attack Weapon (NGLAW)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
N/A ***FY 2016 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	-	5.000	-	-	-

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
• WPN/2101: *Tomahawk*	307.456	317.458	184.814	-	184.814	22.546	39.901	39.405	40.290	590.684	13,849.818
• OPN/5253: *Tomahawk Support Equipment*	63.370	60.062	71.245	-	71.245	73.995	73.505	73.007	73.118	Continuing	Continuing
• OPN/9020: *Initial and Vendor Direct Spares*	0.158	0.240	0.161	-	0.161	0.216	0.220	0.277	0.152	Continuing	Continuing

Remarks

D. Acquisition Strategy

Initiate AoA in FY15.

E. Performance Metrics

Obtain CBA and initiate AoA for NGLAW by the end of FY15.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 3378 / *Next Generation Land Attack Weapon (NGLAW)*

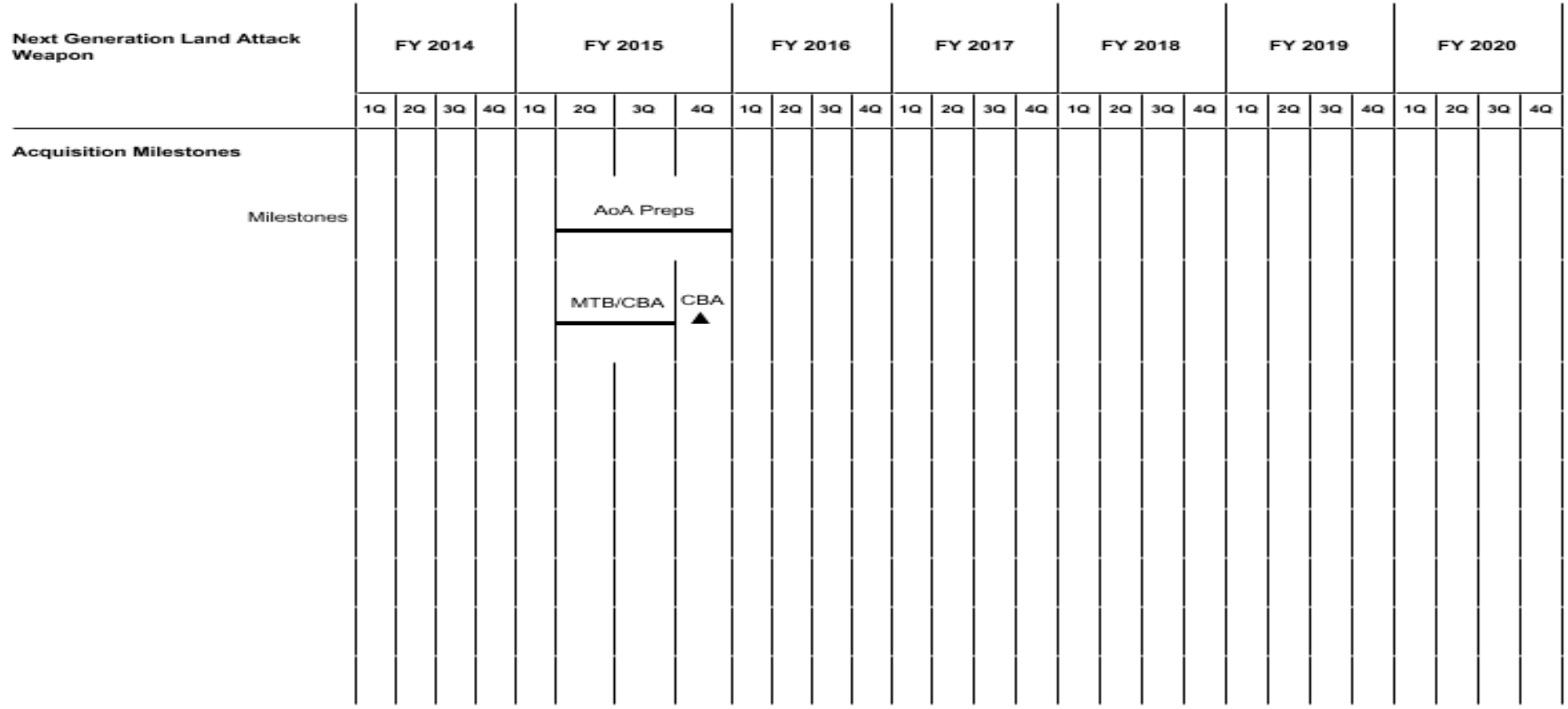
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NAWC-WD : China Lake, CA	0.000	-		2.000	Feb 2015	-		-		-	-	2.000	-
Development Support	WR	NAWC-AD : Pax River MD	0.000	-		2.000	Feb 2015	-		-		-	-	2.000	-
Development Support	SS/CPFF	UARC APL : Laurel, MD	0.000	-		1.000	Apr 2015	-		-		-	-	1.000	-
		Subtotal	0.000	-		5.000		-		-		-	-	5.000	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		5.000		-		-		-	-	5.000	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 3378 / *Next Generation Land Attack Weapon (NGLAW)*



2016PB - 0204229N - 3378

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy		Date: February 2015
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 3378 / *Next Generation Land Attack Weapon (NGLAW)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Next Generation Land Attack Weapon				
Acquisition Milestones: Milestones: AoA Preparations	2	2015	4	2015
Acquisition Milestones: Milestones: Mission Technical Baseline/Capabilities Baseline Assessment	2	2015	3	2015
Acquisition Milestones: Milestones: CBA	4	2015	4	2015