

| EXHIBIT R-2, RDT&E Budget Item Justification | | | | | | | DATE: | | |
|--|---------|---------|---------|---------|---------|---------|---------------------------|---------|--|
| APPROPRIATION/BUDGET ACTIVITY | | | | | | | R-1 ITEM NOMENCLATURE | | |
| RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-07 | | | | | | | 0204229N, TOMAHAWK & TMPC | | |
| COST (\$ in Millions) | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | |
| Total PE Cost | 26.096 | 24.144 | 11.405 | 14.227 | 13.507 | 10.904 | 9.626 | 9.353 | |
| 0545 TOMAHAWK | 19.196 | 18.565 | 11.405 | 14.227 | 13.507 | 10.904 | 9.626 | 9.353 | |
| 9999 CONGRESSIONAL ADD | 6.900 | 5.579 | | | | | | | |

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Tomahawk Weapons System (TWS) provides the Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)). The TLAM can be fitted with either Conventional unitary warhead (TLAM/C), nuclear warhead (TLAM/N) or submunition dispenser (TLAM/D). 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 Block IV missile development 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. A five-year multi-year (FY04-FY08) production contract was awarded in August 2004 for the production of up to 2200 Block IV Tomahawk missiles. The essential upgrades of the Block IV missile are: improved guidance, navigation, control and mission computer; two-way satellite communications; and a significantly lower production cost as compared to the Block III missile. Block IV provides a UHF 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 (BDI) messages. Block IV also includes a high anti-jam GPS receiver, navigation improvements and associated antenna systems. The Tomahawk program (A0545) also includes development of Torpedo Tube Launch (TTL) capability for submarines and the continuing advances identified as spiral development under the Tomahawk Baseline IV Operation Requirements Document (ORD), to include development of the Joint Chiefs of Staff (JCS)-Directed incorporation of Selective Availability Anti-Spoofing Module (SAASM) capability by FY 09.

The Tomahawk Command and Control System (TC2S) Theater Mission Planning Center (TMPC) and Afloat Planning System (APS) (a shipboard version of TMPC) provide mission planning and employment support information for both the nuclear (TMPC only) and conventional TLAM, including the distribution of mission data and command information essential to TLAM employment via the Mission Distribution System (MDS) and associated communications infrastructure. Development of Tactical Tomahawk capabilities in TMPC/APS/MDS includes software development, integration, test, and delivery, including support for TECHEVAL and OPEVAL, training development, installation planning, and simulation/model development required by COMOPTEVFOR to offset live missile flights in TECHEVAL and OPEVAL. This project also includes development related to national and tactical imagery architectures, as well as software development to decrease mission-planning time and increase the quality and accuracy of each mission for Block III and IV TLAM.

The Tomahawk Weapons Control System provides launch capability for surface and submarine platforms. Development of the Tactical Tomahawk Weapons Control System (TTWCS) provides a common architecture to launch the Tactical Tomahawk Block IV and all variants in inventory. Development of the Tactical Tomahawk Weapons Control System (TTWCS) requirements to meet the Joint Technical Architecture (JTA) version 6 requirements to meet FORCE Net compliance and be Internet Protocol Version 6 (IPv6) ready is essential for continued interoperability within the Joint Service Architecture. These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability. TTWCS entered Engineering and Manufacturing Development (EMD) in FY 99, with Phase A IOC (BLK III) in DEC 2003, and Phase B IOC (TACTOM) in June 2004.

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| EXHIBIT R-2, RDT&E Budget Item Justification | | DATE: February 2007 |
| APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-07 | R-1 ITEM NOMENCLATURE 0204229N, TOMAHAWK & TMPC | |

B. PROGRAM CHANGE SUMMARY

| Funding: | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|--|---------------|---------------|---------------|---------------|
| Previous President's Budget: | 27.029 | 18.635 | 13.975 | 14.218 |
| Current President's Budget: | <u>26.096</u> | <u>24.144</u> | <u>11.405</u> | <u>14.227</u> |
| Total Adjustments | -0.933 | 5.509 | -2.570 | 0.009 |
| Summary of Adjustments | | | | |
| Congressional Reductions | -0.059 | | | |
| Congressional Rescissions | | | | |
| Congressional Undistributed Reductions | -0.639 | -0.091 | | |
| Congressional Increases | | 5.600 | | |
| Economic Assumptions | | | 0.066 | 0.165 |
| Miscellaneous Adjustments | <u>-0.235</u> | | <u>-2.636</u> | <u>-0.156</u> |
| Subtotal | -0.933 | 5.509 | -2.570 | 0.009 |

Schedule:

TTL DT/OT - Due to the four TTL flight test failures, the TTL program has experienced a delay and IOC slipped from 2Q FY08 to 3Q FY08. There are significant tasks that are required such as the failure investigation and additional testing that need to occur.

TT SAASM Integration - is extended through FY 09.

SAASM IOC - slipped from 3Q FY09 to 3Q FY10 - as SAASM integration activities shifted one-year, so will the target date of SAASM IOC.

TTWCS V5 OT and OTRR slipped from 3Q-4Q FY 06 to 1Q-2Q, FY07 - unanticipated delays in completion of DT/OT III dry-run testing delayed the start of TTWCS V5 OTRR. Launch platform availability for flight test surface validation of V5 did occur in 1Q FY07.

Technical: Not Applicable

| EXHIBIT R-2a, RDT&E Project Justification | | | | | | DATE: | | | |
|---|--|---------------------------------|---------|---------|-------------------------|---------|---------|---------|---------|
| APPROPRIATION/BUDGET ACTIVITY | | PROGRAM ELEMENT NUMBER AND NAME | | | PROJECT NUMBER AND NAME | | | | |
| RDT&E,N / BA-07 | | 0204229N, TOMAHAWK & TMPC | | | 0545, TOMAHAWK | | | | |
| COST (\$ in Millions) | | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| 0545 TOMAHAWK | | 19.196 | 18.565 | 11.405 | 14.227 | 13.507 | 10.904 | 9.626 | 9.353 |
| RDT&E Articles Qty | | | | | | | | | |

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification

DATE:

February 2007

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|--|--|---|
| APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-07 | PROGRAM ELEMENT NUMBER AND NAME 0204229N, TOMAHAWK & TMPC | PROJECT NUMBER AND NAME 0545, TOMAHAWK |
|--|--|---|

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

| Tactical Tomahawk All-Up-Round (TACTOM AUR) | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---------|---------|---------|---------|
| Accomplishments / Effort / Sub-total Cost | 11.427 | 12.397 | 6.405 | 7.918 |
| RDT&E Articles Qty | | | | |

Complete development of the Tactical Tomahawk Torpedo-Tube Launch (TT-TTL) capability. Completing TTL software and hardware qualification testing, DT/OT flight tests and IOC. Continue hardware and software trade studies for Phase 2 ORD requirements to include Selective Availability Anti-Spoofing Module (SAASM) capability into the GPS, Precision Terrain Aided Navigation (PTAN) capability.

Completed demonstration prototype of Precision Terrain Aided Navigation (PTAN) capability to demonstrate real-time operation. Initiated PTAN advance technology risk reduction efforts to develop next generation PTAN prototypes and to integrate PTAN capability into the missile simulation labs. Completed real-time processing capability for PTAN scenes.

Continue integration and development of a precision Radar Altimeter into the All-Up-Round (AUR).

| TACTOM Command and Control | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---------|---------|---------|---------|
| Accomplishments / Effort / Sub-total Cost | 3.863 | 3.483 | 2.418 | 2.695 |
| RDT&E Articles Qty | | | | |

Continue development and incorporation of new capabilities in Tomahawk Command and Control systems necessary for the employment of Tactical Tomahawk. Continue development of TTWS Integration Training Architecture. Continue development of related training and installation materials. Continue imagery upgrades to Tomahawk Command and Control System. Continue Test & Evaluation support for Tomahawk Command and Control Systems.

| TACTOM Weapons Control System (TTWCS) | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
|---|---------|---------|---------|---------|
| Accomplishments / Effort / Sub-total Cost | 3.906 | 2.685 | 2.582 | 3.614 |
| RDT&E Articles Qty | | | | |

Continue development of Tactical Tomahawk Weapons System Integrated Training Architecture, continue development of version 5 software. initiate version 6 development activities to develop JTA version 6 requirements. Complete TTWCS version 5 development, enter TECHEVAL/OPEVAL for TTWCS version 5, continue with TTWCS version 6 development efforts begin the TTWCS version 7 development efforts that complete the implementation of JTA version 6 requirements. Complete the development of TTWCS version 6, enter the TECHEVAL/OPEVAL for TTWCS version 6, continue with TTWCS version 7 development efforts.

EXHIBIT R-2a, RDT&E Project Justification

DATE:

February 2007

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|--|--|---|
| APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-07 | PROGRAM ELEMENT NUMBER AND NAME 0204229N, TOMAHAWK & TMPC | PROJECT NUMBER AND NAME 0545, TOMAHAWK |
|--|--|---|

| C. OTHER PROGRAM FUNDING SUMMARY: | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | To Complete | Total Cost |
|--|---------|---------|---------|---------|---------|---------|---------|---------|-------------|------------|
| WPN - BLI 210100 TOMAHAWK | 373.014 | 353.141 | 383.075 | 324.062 | 322.183 | 349.617 | 353.022 | 359.935 | CONT | 2,818.049 |
| OPN - BLI 525300 TOMAHAWK SUPPORT EQUIPMEN | 74.074 | 60.939 | 53.966 | 60.203 | 61.520 | 62.077 | 62.099 | 63.119 | 483.967 | 981.964 |
| OPN SPARES - BLI 902010 INITIAL SPARES | 1.698 | 0.789 | 0.871 | 3.706 | 2.246 | 2.959 | 3.538 | 3.061 | CONT | 18.868 |
| OPN SPARES - BLI 902090 VENDOR DIRECT SPAR | 0.597 | 0.605 | 0.315 | 0.180 | 0.046 | | | | CONT | 1.743 |

D. ACQUISITION STRATEGY:

(U) In 1998, the Tomahawk Baseline Improvement Program (TBIP) transitioned to the Tactical Tomahawk (Block IV) program. This program is outlined in the Class Justification and Approval (CJ&A No. AIR-22448) signed by the Under Secretary of the Navy on 29 May 1998. The acquisition strategy was to transition the TBIP to Tactical Tomahawk. The Tactical Tomahawk development program was a cost-sharing contract between the Government and the Contractor to add capability to the missile. A multi-year full-rate production contract was awarded in August 2004 for FY 2004-2008 production. Torpedo Tube Launch (TTL) capability will IOC in FY 2008. TTL missiles will be procured beginning in FY 08 within the current missile production budget as required to meet Fleet load-out requirements. Other spiral development capabilities (PTAN, Warhead Improvement, Anti Surface Warfare (ASUW)) will be introduced after successful qualification and testing.

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| Exhibit R-3 Cost Analysis (page 1) | | | | | | | | | | DATE: February 2007 | | |
|------------------------------------|------------------------|-----------------------------------|-----------------|--------------|--------------------|-------------------------|--------------------|--------------|--------------------|---------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY | | PROGRAM ELEMENT | | | | PROJECT NUMBER AND NAME | | | | | | |
| RDT&E,N / BA-7 | | 0204229N, TOMAHAWK & TMPC | | | | 0545, TOMAHAWK | | | | | | |
| Cost Categories | Contract Method & Type | Performing Activity & Location | Total PY s Cost | FY 2007 Cost | FY 2007 Award Date | FY 2008 Cost | FY 2008 Award Date | FY 2009 Cost | FY 2009 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| PRODUCT DEVELOPMENT | | | | | | | | | | | | |
| PHD - Weapons Control System | C-CPAF | LOCKHEED MARTIN, Valley Forge, PA | 91.064 | .900 | Dec 2006 | | | | | | 91.964 | 91.964 |
| Award Fees - WCS | | | 4.996 | | | | | | | | 4.996 | |
| PHD - Weapons Control System | RX | NAVSEASYSKOM, WNY DC | .875 | | | 1.004 | Nov 2007 | 1.035 | Nov 2008 | 2.092 | 5.006 | |
| PHD-Mission Plan Systems TC2S | SS/CPFF | COMGLOBAL SYSTEMS, San Jose CA | 36.314 | | | .400 | Dec 2007 | .403 | Dec 2008 | 3.100 | 40.217 | 40.217 |
| PHD-Mission Plan Systems TC2S | VARIOUS | VARIOUS | 7.674 | | | | | | | | 7.674 | |
| Primary Hardware Devel - AUR | C/CPFF | RAYTHEON COMPANY, TUCSON, AZ | 217.782 | | | 1.984 | Nov 2007 | 3.930 | Nov 2008 | 11.563 | 235.259 | 235.259 |
| Primary Hardware Devel - PTAN | C/CPFF | HONEYWELL INT'L INC. MINN, MN | | 2.800 | Apr 2007 | | | | | | 2.800 | 2.800 |
| Primary Hardware Devel - PTAN | C/CPFF | RAYTHEON COMPANY, TUCSON, AZ | 2.644 | .779 | Apr 2007 | | | | | | 3.423 | 3.423 |
| Primary Hardware Devel- SAASM | C/CPFF | RAYTHEON COMPANY, TUCSON, AZ | 5.582 | 1.143 | Mar 2007 | | | | | | 6.725 | 6.725 |
| Primary Hardware Devel - TTL | C/CPAF | RAYTHEON COMPANY, TUCSON, AZ | 11.272 | .830 | Nov 2006 | | | | | | 12.102 | 12.102 |
| Prim H/W Devel -TTL AWARD FEE | | RAYTHEON COMPANY, TUCSON, AZ | .819 | | | | | | | | .819 | .819 |
| Prim Hardware Develt -TTPC | C/CPFF | RAYTHEON COMPANY, TUCSON, AZ | 3.189 | | | | | | | | 3.189 | 3.189 |
| Primary Hardware Devel - ASUW | C/CPFF | RAYTHEON COMPANY, TUCSON, AZ | | 1.700 | Nov 2006 | | | | | 1.152 | 2.852 | 2.852 |
| Primary Hardware Devel - WCS | C/CPFF | RAYTHEON COMPANY, TUCSON, AZ | .828 | | | | | | | | .828 | .828 |
| Ship Integr - Launch Integr | RX | NAVSEASYSKOM, WNY DC | 25.422 | 3.550 | Nov 2006 | 2.475 | Nov 2007 | .983 | Nov 2008 | | 32.430 | |
| Ship Integration - Award Fee | | | .752 | | | | | | | | .752 | |
| Systems Engineering | RX | JOHNS HOPKINS UNIV, COLUMBIA, MD | 3.735 | 1.575 | Various | | | .150 | Various | .437 | 5.897 | |
| Systems Engineering - AUR | RX | JOHNS HOPKINS UNIV, COLUMBIA, MD | 26.979 | | | .352 | Various | .473 | Various | 1.981 | 29.785 | |
| Systems Engineering - AUR | C/FP | BOEING, St. Louis, MO | 3.000 | | | | | | | | 3.000 | 3.000 |
| Systems Engineering - PTAN | RX | JOHNS HOPKINS UNIV, COLUMBIA, MD | 2.691 | | | | | | | | 2.691 | |
| Systems Engineering - SAASM | C/CPFF | VARIOUS | .334 | .240 | Various | .140 | Various | .250 | Various | | .964 | .964 |
| Systems Engineering - AUR | C/FP | RAYTHEON COMPANY, TUCSON, AZ | 14.237 | | | | | | | | 14.237 | 14.237 |
| Systems Engineering - TTL | C/FP | RAYTHEON COMPANY, TUCSON, AZ | .496 | | | | | | | | .496 | .496 |
| Systems Engineering - TTL | SS/CPFF | JOHNS HOPKINS UNIV, COLUMBIA, MD | .837 | | | | | | | | .837 | .837 |
| 1974 thru TBIP Costs in 1996 | | | 2,176.447 | | | | | | | | 2,176.447 | |
| SUBTOTAL PRODUCT DEVELOPMENT | | | 2,637.969 | 13.517 | | 6.355 | | 7.224 | | 20.325 | 2,685.390 | |

| | | | | | | | | | | | | |
|-----------------------------|---------|---------------------------------|--------|------|----------|------|----------|-------|----------|-------|--------|--------|
| SUPPORT | | | | | | | | | | | | |
| Dev Sup- Weapons Contrl Sys | WX | NUWC DET, NEWPORT RI | 20.632 | .686 | Nov 2006 | .796 | Nov 2007 | 1.272 | Nov 2008 | 1.445 | 24.831 | |
| Dev Sup- Weapons Contrl Sys | WX | NUWC KEYPORT DIV, KEYPORT WA | | .116 | Nov 2006 | .050 | Nov 2007 | | | | .166 | |
| Development Support | SS/CPFF | SAIC, SAN DIEGO, CA | 9.700 | .300 | Nov 2006 | | | .040 | Dec 2008 | .253 | 10.293 | 10.293 |
| Development Support | WX | NAWCWD, CHINA LAKE CA | | .400 | Nov 2006 | | | .090 | Nov 2008 | .500 | .990 | |
| Development Support - AUR | C/CPFF | SAIC, SAN DIEGO, CA | 1.112 | | | .300 | Nov 2007 | | | | 1.412 | 1.412 |
| Development Support - AUR | SS/CPFF | SAIC, SAN DIEGO, CA | | | | | | .491 | Various | 1.088 | 1.579 | 1.579 |
| Development Support - AUR | WX | VARIOUS | | | | .021 | Various | .020 | Various | .060 | .101 | |
| Development Support - AUR | WX | NAWC-WD CHINA LAKE, CA | 63.256 | | | .530 | Various | .480 | Various | 1.652 | 65.918 | |
| Development Support - PTAN | VARIOUS | VARIOUS | .020 | | | | | | | | .020 | |
| Development Support - PTAN | C/CPFF | HONEYWELL INTL INC. Minneapolis | 3.924 | | | | | | | | 3.924 | 3.924 |
| Development Support - PTAN | WX | NAWCWD, CHINA LAKE CA | .606 | .400 | Nov 2006 | | | | | | 1.006 | |
| Development Support - SAASM | C/CPFF | VARIOUS | | .050 | Nov 2006 | .283 | Various | | | | .333 | .333 |
| Development Support - SAASM | WX | VARIOUS | | | | .020 | Various | .259 | Various | | .279 | |
| Development Support - TTL | SS/CPFF | SAIC, SAN DIEGO, CA | .391 | .100 | Nov 2006 | | | | | | .491 | .491 |

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| Exhibit R-3 Cost Analysis (page 1) | | | | | | | | | | DATE: February 2007 | |
| APPROPRIATION/BUDGET ACTIVITY RDT&E,N / BA-7 | | PROGRAM ELEMENT 0204229N, TOMAHAWK & TMPC | | | | PROJECT NUMBER AND NAME 0545, TOMAHAWK | | | | | |
| Development Support - TTL | WX | NUWC DET, NEWPORT RI | 10.521 | | | | | | | 10.521 | |
| Development Support - TTL | WX | VARIOUS | 4.488 | | | | | | | 4.488 | |
| Government Eng Sup - SAASM | WX | STRATEGIC SYSTEMS PROGRAMS, WASH, DC | | 2.900 | Nov 2006 | | | | | 2.900 | |
| Government Eng Sup - SAASM | WX | VARIOUS | .035 | .025 | Various | | | | | .060 | |
| Soft Dev-Mission Plan SysTC2S | RX | RAYTHEON COMPANY, TUCSON,AZ | 5.100 | | | | | | | 5.100 | |
| Soft Dev-Mission Plan SysTC2S | MIPR | HQ SEC OF AF-FMB, WASHINGTON DC | | 1.183 | Various | | | | 1.243 | 2.426 | |
| Soft Dev-Mission Plan SysTC2S | RX | JOHNS HOPKINS UNIV, COLUMBIA, MD | 17.846 | 1.150 | Various | | | | .672 | 19.668 | |
| Soft Dev-Mission Plan SysTC2S | MIPR | LOCKHEED, Valley Forge, PA | 7.104 | | | | | | | 7.104 | |
| Soft Dev-Mission Plan SysTC2S | RX | NAVY SYST MGT ACT, ARLINGTON VA | 2.889 | .250 | Various | 2.018 | Various | 2.292 | Various | 6.223 | 13.672 |
| Soft Dev-Mission Plan SysTC2S | RX | NAVY SYST MGT ACT, ARLINGTON VA | 4.326 | | | | | | | 4.326 | |
| Soft Dev-Mission Plan SysTC2S | RX | SAIC, SAN DIEGO, CA | 14.307 | | | | | | | 14.307 | |
| Software Dev - Wpns Contr Sys | WX | NSWC Dahlgren | 30.306 | .908 | Nov 2006 | .732 | Nov 2007 | 1.312 | Nov 2008 | 3.423 | 36.681 |
| Software Dev - Wpns Contr Sys | C/CPFF | LOCKHEED, Valley Forge, PA | 99.246 | | | | | | | 99.246 | 99.246 |
| Software Development - SAASM | C/CPFF | TBD | | .314 | Various | | | .017 | Various | .331 | .331 |
| Software Development - PTAN | RX | JOHNS HOPKINS UNIV, COLUMBIA, MD | 1.702 | 1.550 | | | | | | 3.252 | |
| SUBTOTAL SUPPORT | | | 297.511 | 10.332 | | 4.750 | | 6.273 | | 16.559 | 335.425 |

| | | | | | | | | | | | |
|----------------------------|---------|----------------------------------|--------|--|--|------|----------|------|---------|--------|--------|
| TEST & EVALUATION | | | | | | | | | | | |
| Dev Test & Eval | SS/CPFF | RAYTHEON COMPANY, TUCSON,AZ | 42.883 | | | | | | | 42.883 | 42.883 |
| Dev Test & Eval | RX | JOHNS HOPKINS UNIV, COLUMBIA, MD | 1.602 | | | .075 | Jan 2008 | | | .801 | 2.478 |
| Dev Test & Eval | WX | VARIOUS | 37.023 | | | .025 | Various | | | .060 | 37.108 |
| Dev Test & Eval | WX | VARIOUS | .275 | | | .200 | Various | .730 | Various | 4.822 | 6.027 |
| Dev Test & Eval | WX | NUWC DET, NEWPORT RI | .375 | | | | | | | .375 | |
| SUBTOTAL TEST & EVALUATION | | | 82.158 | | | .300 | | .730 | | 5.683 | 88.871 |

| | | | | | | | | | | | |
|-----------------------------------|---------|---------------------|------|------|----------|--|--|--|--|------|------|
| MANAGEMENT | | | | | | | | | | | |
| MGT & PROF SUPPT SRVC (NON-FFRDC) | SS/CPFF | SAIC, SAN DIEGO, CA | .227 | .295 | Dec 2006 | | | | | .522 | .522 |
| SUBTOTAL MANAGEMENT | | | .227 | .295 | | | | | | .522 | |

Remarks:

| | | | | | | | | | | | |
|------------|--|--|-----------|--------|--|--------|--|--------|--|--------|-----------|
| Total Cost | | | 3,017.865 | 24.144 | | 11.405 | | 14.227 | | 42.567 | 3,110.208 |
|------------|--|--|-----------|--------|--|--------|--|--------|--|--------|-----------|

CLASSIFICATION:

| EXHIBIT R4, Schedule Profile | | | | | | | | | | | | | | | | | | | | | | | | DATE: | | | | | | | | | | | | | | |
|---|---|---|---|---|---------|-----|----|---|---------|---|---|---|---------|-----|-----|---|---------|-------|-----|---|---------|---|---|---------------------------------|---------|---|---|-------------------------|---------|---|---|---|--|--|--|--|--|--|
| APPROPRIATION/BUDGET ACTIVITY | | | | | | | | | | | | | | | | | | | | | | | | PROGRAM ELEMENT NUMBER AND NAME | | | | PROJECT NUMBER AND NAME | | | | | | | | | | |
| RDT&E,N / BA-7 | | | | | | | | | | | | | | | | | | | | | | | | 0204229N, TOMAHAWK & TMPC | | | | 0545, TOMAHAWK | | | | | | | | | | |
| Fiscal Year | FY 2006 | | | | FY 2007 | | | | FY 2008 | | | | FY 2009 | | | | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | | | |
| Acquisition Milestones | | | | | ★ | TTL | MS | C | | | | | ☆ | TTL | IOC | | | | | | | | | | | | | | | | | | | | | | | |
| Missile Integration | SAASM INTEGRATION | | | | | | | | | | | | | | | | ☆ | SAASM | IOC | | | | | | | | | | | | | | | | | | | |
| TTWCS V5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TTWCS V6 | | | | | | | | | | | | | OTRR | | | | | | | | | | | | | | | | | | | | | | | | | |
| P31 | [Gantt bar spanning FY 2006 Q1 to FY 2007 Q4] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test & Evaluation Milestones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Development Test (SAASM) | | | | | | | | | | | | | D/OT&E | | | | | | | | | | | | | | | | | | | | | | | | | |
| Development Test (TTL) | | | | | D/OT&E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operational Test (V5) | | | | | | | | | OT&E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operational Test (V6) | | | | | | | | | | | | | OT&E | | | | | | | | | | | | | | | | | | | | | | | | | |
| Production Milestones | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Deliveries LRIP III FY03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FRP FY04 Deliveries | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| EXHIBIT R-2a, RDT&E Project Justification | | | | | | | DATE: February 2007 | | | | | |
| APPROPRIATION/BUDGET ACTIVITY RDT&E, N / | | BA 7 | | PROGRAM ELEMENT NUMBER AND NAME 0204229N, TOMAHAWK & TMPC | | | PROJECT NUMBER AND NAME 9999 CONGRESSIONAL ADD | | | | | |
| COST (\$ in Millions) | | | | | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| 9999 CONGRESSIONAL ADD | | | | | 6.900 | 5.579 | | | | | | |
| RDT&E Articles Qty | | | | | | | | | | | | |

Congressional Adds: Precision Terrain-Aided Navigation (PTAN)

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

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|---|---------|---------|---------|---------|
| 0545C PTAN | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
| Accomplishments / Effort / Sub-total Cost | 6.900 | 5.579 | | |
| RDT&E Articles Qty | | | | |

Initiate PTAN Advance technology risk reduction effort to develop next generation PTAN prototypes and to integrate PTAN capability into the missile simulation labs.