| EXHIBIT R-2, RDT&E Budget Item Justification | | | | | | DATE: February 2008 | | |
|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5 | | | | | | R-1 ITEM NOMENCLATURE<br>0604727N, JOINT STANDOFF WEAPON SYSTEMS | | |
| COST ($ in Millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | |
| Total PE Cost | 26.768 | 29.112 | 22.510 | .466 | .527 | .562 | .592 | |
| 2068 JSOW | 26.768 | 24.343 | 22.510 | .466 | .527 | .562 | .592 | |
| 9999 Congressional Add | | 4.769 | | | | | | |

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

The Joint Standoff Weapon (JSOW) is an air-to-ground weapon designed to attack a variety of targets during day, night and adverse weather conditions. JSOW will enhance aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of most target area surface-to-air threat systems. The JSOW launch-and-leave capability will allow several target kills per aircraft sortie. The JSOW program first developed a baseline weapon for use against fixed area targets. JSOW is a Navy-led joint Navy/Air Force program.

The JSOW Baseline (AGM-154A) variant includes a kinematically efficient airframe, an integrated Inertial/Global Positioning System (INS/GPS) navigation capability, and a BLU-97/B or BLU-111 payload. This weapon was designed up front for pre-planned product improvements. Procurement of JSOW-A in the FYDP is deferred pending a fix to the Unexploded Ordnance (UXO) issue or a change in the inventory levels. The JSOW BLU-108 (AGM-154B) variant incorporates the Sensor Fuze Weapon submunition (BLU-108) into the baseline vehicle. Planned production of the JSOW/BLU-108 is deferred pending a change in the threat. The JSOW Unitary (AGM-154C) variant has a terminal seeker, Autonomous Target Acquisition (ATA) capability, and a Broach lethal package to enable the attack of blast/fragmentation and penetration type targets. The JSOW Unitary provides increased accuracy and lethality and the capability for aimpoint selection. Operational Testing of the JSOW-C was successfully completed in December 2004. Approval for Milestone-III/Full Rate Production was granted on 20 December 2004. JSOW-C Initial Operational Capability (IOC) was achieved in February 2005.

FY 2007 included funding to integrate a Selective Availability Anti-Spoofing Module (SAASM) based GPS receiver per the Joint Chiefs of Staff mandate. Concurrent with the SAASM integration, a new computer processor was integrated to replace the existing obsolete 486 processor. The effort focused on concurrent cost reduction opportunities (termed Block II). FY 2008 included funding to complete Follow-on Test & Evaluation of AGM-154C Block II. FY 2007-2013 includes funding to integrate new functionality into the Joint Mission Planning Systems (JMPS) and Common Unique Planning Component (CUPC). FY 2007-2010 also includes funding for development, integration, qualification and follow-on developmental/operational test and evaluation of a Network Enabled Weapon moving target capability into the JSOW Unitary weapon (termed Block III/AGM-154C-1). The moving target capability will be inserted as an engineering change proposal beginning with FY 2009 procured JSOW-C weapons. The new AGM-154C-1 capability will enable the weapon to attack sea moving targets via real-time pre-and post-launch targeting updates. FY 2008 includes funding to conduct demonstration of a JSOW extended range capability.

JSOW utilizes a "common truck" for both AGM-154A and AGM-154C variants. Through adherence to international standards for weapons interfaces, weight, and dimension considerations, JSOW is compatible with Air Force and NATO aircraft.

Congressional Add: FY 2008 includes funding to conduct a user demonstration to evaluate the feasibility of the JSOW Extended Range (ER) concept. A secondary goal of the demonstration program is to serve as risk reduction and proof of concept for potential future Navy initiatives in Next Generation Standoff Outside Theater Defense (SOTD) weapons. JSOW ER is an upgrade and modification to the existing JSOW weapon system. This upgrade provides JSOW with an extended range capability of 150-300 nautical miles for precision attacks through/under weather against pre-planned fixed targets, stationary targets of opportunity and moving or relocatable targets. The FY08 funds will enable the integration of a turbo jet engine into a JSOW Block II AGM-154A-1 weapon, ground testing of the ER configuration, and a captive and free flight test program.

| EXHIBIT R-2, RDT&E Budget Item Justification | DATE: February 2008 |
|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5 | R-1 ITEM NOMENCLATURE<br>0604727N, JOINT STANDOFF WEAPON SYSTEMS |

B. PROGRAM CHANGE SUMMARY

| Funding: | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Previous President's Budget: | 27.410 | 24.851 | 5.708 |
| Current President's Budget : | 26.768 | 29.112 | 22.510 |
| Total Adjustments | -0.642 | 4.261 | 16.802 |

| Summary of Adjustments | | | |
|---|---|---|---|
| Congressional Reductions | | | |
| Congressional Rescissions | | | |
| Congressional Undistributed Reductions | -0.642 | -0.188 | |
| Congressional Increases | | 4.800 | |
| Economic Assumptions | | | -0.153 |
| Miscellaneous Adjustments | | -0.351 | 16.955 |
| Subtotal | -0.642 | 4.261 | 16.802 |

Schedule:

1) JSOW-C Block II OT-IIIA start/completion dates were revised due to range/aircraft unavailability that delayed the completion of DT-IIIB. This change resulted in an adjustment to the OT test program from 3Q FY2007 through 1Q FY 2008 to 4Q FY 2007 through 2Q FY 2008.

2) The Network Enabled Weapon (NEW) Design/Integration/Qual program was revised to reflect later than planned deliveries of datalink hardware recently negotiated on a supplier subcontract. This change resulted in an adjustment in the completion of this effort from 4Q FY2008 to 1Q FY2009.

3) The NEW OT-III period was split into two test phases with the first phase titled Integrated Test & Evaluation (combined DT/OT) and scheduled for 2Q FY 2009 through 3Q FY 2009. The second phase was renamed OT-IIIB and changed from 2Q FY 2009 through 3Q FY 2009 to 4Q FY2009 through 2Q FY 2010 to reflect two distinct phases of OT.

Technical:

Congressional Increases reflect an add of $4.8M in FY 2008 to support a a JSOW Extended Range demonstration. Miscellaneous adjustments in FY09 include the addition of funding to incorporate a Sea Strike data link anti-jam capability in an electronic attack environment.

| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2008 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E,N / BA-5 | PROGRAM ELEMENT NUMBER AND NAME<br>0604727N, JOINT STANDOFF WEAPON SYSTEMS | PROJECT NUMBER AND NAME<br>2068, JSOW | |

| COST ($ in Millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | |
|---|---|---|---|---|---|---|---|---|
| 2068 JSOW | 26.768 | 24.343 | 22.510 | .466 | .527 | .562 | .592 | |
| RDT&E Articles Qty | | | | | | | | |

The Joint Standoff Weapon (JSOW) is an air-to-ground weapon designed to attack a variety of targets during day, night and adverse weather conditions. JSOW will enhance aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of most target area surface-to-air threat systems. The JSOW launch-and-leave capability will allow several target kills per aircraft sortie. The JSOW program first developed a baseline weapon for use against fixed area targets. JSOW is a Navy-led joint Navy/Air Force program.

The JSOW Baseline (AGM-154A) variant includes a kinematically efficient airframe, an integrated Inertial/Global Positioning System (INS/GPS) navigation capability, and a BLU-97/B or BLU-111 payload. This weapon was designed up front for pre-planned product improvements. Procurement of JSOW-A in the FYDP is deferred pending a fix to the Unexploded Ordnance (UXO) issue or a change in the inventory levels. The JSOW BLU-108 (AGM-154B) variant incorporates the Sensor Fuze Weapon submunition (BLU-108) into the baseline vehicle. Planned production of the JSOW/BLU-108 is deferred pending a change in the threat. The JSOW Unitary (AGM-154C) variant has a terminal seeker, Autonomous Target Acquisition (ATA) capability, and a Broach lethal package to enable the attack of blast/fragmentation and penetration type targets. The JSOW Unitary provides increased accuracy and lethality and the capability for aimpoint selection. Operational Testing of the JSOW-C was successfully completed in December 2004. Approval for Milestone-III/Full Rate Production was granted on 20 December 2004. JSOW-C Initial Operational Capability (IOC) was achieved in February 2005.

FY 2007 included funding to integrate a Selective Availability Anti-Spoofing Module (SAASM) based GPS receiver per the Joint Chiefs of Staff mandate. Concurrent with the SAASM integration, a new computer processor was integrated to replace the existing obsolete 486 processor. The effort focused on concurrent cost reduction opportunities (termed Block II). FY 2008 included funding to complete Follow-on Test & Evaluation of AGM-154C Block II. FY 2007-2013 includes funding to integrate new functionality into the Joint Mission Planning Systems (JMPS) and Common Unique Planning Component (CUPC). FY 2007-2010 also includes funding for development, integration, qualification and follow-on developmental/operational test and evaluation of a Network Enabled Weapon moving target capability into the JSOW Unitary weapon (termed Block III/AGM-154C-1). The moving target capability will be inserted as an engineering change proposal beginning with FY 2009 procured JSOW-C weapons. The new AGM-154C-1 capability will enable the weapon to attack sea moving targets via real-time pre-and post-launch targeting updates.

JSOW utilizes a "common truck" for both AGM-154A and AGM-154C variants. Through adherence to international standards for weapons interfaces, weight, and dimension considerations, JSOW is compatible with Air Force and NATO aircraft.

| EXHIBIT R-2a, RDT&E Project Justification | | DATE: February 2008 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E,N / BA-5 | PROGRAM ELEMENT NUMBER AND NAME<br>0604727N, JOINT STANDOFF WEAPON SYSTEMS | PROJECT NUMBER AND NAME<br>2068, JSOW |

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

| SAASM | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Accomplishments / Effort / Sub-total Cost | 1.394 | 1.442 | |
| RDT&E Articles Qty | | | |
| | | | |

Complete Follow-on Operational Test and Evaluation (FOT&E) of a Selective Availability Anti-Spoofing Module (SAASM) based Guidance Electronic Unit (GEU) weapon and demonstrate compatibility with currently integrated aircraft. Efforts will complete with FY2008 funding for the Operational Test program.

| JSOW Common Unique Planning Component (CUPC) | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Accomplishments / Effort / Sub-total Cost | 1.242 | .341 | .688 |
| RDT&E Articles Qty | | | |
| | | | |

Plan new functions into the JSOW Common Unique Planning Component (CUPC) and develop new software releases of CUPC. The FY2007-2009 effort will address new mission planning functionality related to the incorporation of the Network Enabled Weapon moving target capability into the JSOW-C-1 weapons. The FY2008-2009 efforts will also address follow-on mission planning updates to incorporate new imagery architectures and formats.

| Network Enabled Weapon | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Accomplishments / Effort / Sub-total Cost | 24.132 | 22.560 | 21.822 |
| RDT&E Articles Qty | | | |
| | | | |

Develop and integrate the Network Enabled Weapon moving target capability into JSOW-C, termed AGM-154C-1. The FY2007-2009 efforts will involve seeker software updates to enable receipt of revised target coordinates after missile launch, the integration of a weapon datalink, and the update of the F/A-18 Operational Flight Program (OFP) to incorporate the AGM-154C-1 changes. The FY2008-2009 budget includes funding to complete weapon qualification and follow-on developmental test/operational test efforts. FY09 includes funding to incorporate a Sea Strike Data Link Anti-Jam capability in an Electronic Attack (EA) environment.

| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2008 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E,N / BA-5 | PROGRAM ELEMENT NUMBER AND NAME<br>0604727N, JOINT STANDOFF WEAPON SYSTEMS | PROJECT NUMBER AND NAME<br>2068, JSOW | |

| C. OTHER PROGRAM FUNDING SUMMARY: | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| USN WP,N BLI 223000 JSOW* | 124.051 | 130.436 | 149.144 | 158.049 | 162.121 | 166.348 | 169.623 | 1,145.9 | 3,319.4 |
| Qtys | 388 | 416 | 496 | 515 | 535 | 524 | 546 | 3,649 | 9,800 |

* Does not include Spares

D. ACQUISITION STRATEGY:

The contracting strategy for JSOW is planned to be sole source for the life of the program. Cost type contracts are utilized for the Engineering and Manufacturing Development and follow-on modification program (i.e., Block II (AGM-154C), Block III (AGM-154C-1) efforts.

Fixed price type contracts are utilized for production.

| Exhibit R-3 Cost Analysis (page 1) | | | | | | | | | | | DATE: February 2008 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E,N / BA-5 | | PROGRAM ELEMENT<br>0604727N, JOINT STANDOFF WEAPON SYSTEMS | | | | PROJECT NUMBER AND NAME<br>2068, JSOW | | | | | | | |
| Cost Categories | Contract Method & Type | Performing Activity & Location | Total PYs 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 | | | | | | | | | | | | |
| Primary Hdw Development-NEW | SS-CPFF | RAYTHEON SYSTEMS, TUCSON, AZ | | 18.670 | Mar 2007 | 16.177 | Dec 2007 | 17.743 | Dec 2008 | | 52.590 | 59.117 |
| Primary Hdw Development-NEW Studie | SS-CPFF | RAYTHEON SYSTEMS, TUCSON, AZ | 1.567 | | | | | | | | 1.567 | 1.567 |
| Primary Hdw Development-SAASM | SS-CPFF | RAYTHEON SYSTEMS, TUCSON, AZ | 20.182 | | | | | | | | 20.182 | 16.347 |
| Systems Eng | WX | NAWCWD, CHINA LAKE CA | 107.823 | .904 | Nov 2006 | .230 | Nov 2007 | .322 | Nov 2008 | | 109.279 | |
| All Management costs from program implementation through FY06 not reflected above. | Various | Various | 579.188 | | | | | | | | 579.188 | |
| SUBTOTAL PRODUCT DEVELOPMENT | | | 708.760 | 19.574 | | 16.407 | | 18.065 | | | 762.806 | |

Remarks: SAASM - The budgeted amount exceeds the target value of the contract due to increased contractor costs for Selective Availablity Anti-Spoofing Module (SAASM) Guidance Electronic Unit (GEU) hardware/software integration and flight testing.
NEW - The target value of the contract exceeds the JSOW funding due to Harpoon Block III program sharing a portion of the common weapon data link development costs.

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SUPPORT | | | | | | | | | | | | |
| Software Development - JMPS | SS-CPFF | RAYTHEON SYSTEMS, TUCSON, AZ | 4.536 | 1.242 | Mar 2007 | .341 | Nov 2007 | .688 | Nov 2008 | 1.742 | 8.549 | 8.549 |
| Software Development - NEW | SS-CPFF | BOEING, ST LOUIS, MO | .712 | 4.008 | Nov 2006 | 4.683 | Nov 2007 | .697 | Nov 2008 | | 10.100 | 10.100 |
| SUBTOTAL SUPPORT | | | 5.248 | 5.250 | | 5.024 | | 1.385 | | 1.742 | 18.649 | |

Remarks:

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEST & EVALUATION | | | | | | | | | | | | |
| Dev Test & Eval | WX | NAWCWD, CHINA LAKE CA | 27.510 | .400 | Nov 2006 | 1.450 | Nov 2007 | .550 | Nov 2008 | | 29.910 | |
| Oper Test & Eval | WX | OPER T & E FOR CD, NORFOLK VA | 7.699 | 1.394 | Jan 2007 | 1.442 | Oct 2007 | 2.490 | Nov 2008 | .405 | 13.430 | |
| SUBTOTAL TEST & EVALUATION | | | 35.209 | 1.794 | | 2.892 | | 3.040 | | .405 | 43.340 | |

Remarks:

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MANAGEMENT | | | | | | | | | | | | |
| Travel | Various | NAVAIR, Patuxent River, MD | 7.242 | .150 | Nov 2006 | .020 | Nov 2007 | .020 | Nov 2008 | | 7.432 | |
| All Management costs from program implementation through FY06 not reflected above. | Various | Various | 18.156 | | | | | | | | 18.156 | |
| SUBTOTAL MANAGEMENT | | | 25.398 | .150 | | .020 | | .020 | | | 25.588 | |

Remarks:

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Cost | | | 774.615 | 26.768 | | 24.343 | | 22.510 | | 2.147 | 850.383 | |

Remarks:

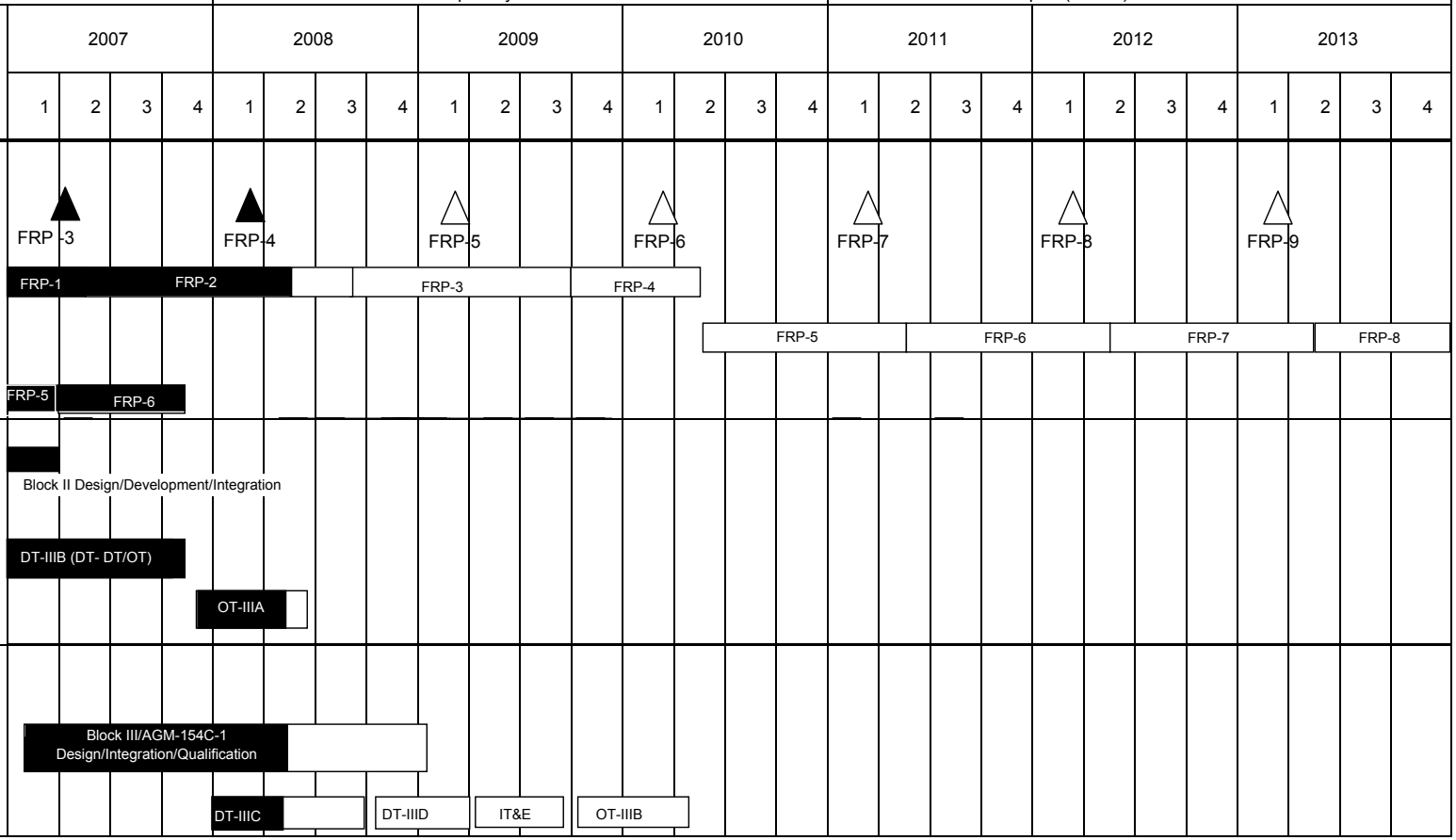
**CLASSIFICATION:**

EXHIBIT R4, Schedule Profile — DATE: **February 2008**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-5**

PROGRAM ELEMENT NUMBER AND NAME: 0604727N Joint Standoff Weapon System

PROJECT NUMBER AND NAME: 2068 Joint Standoff Weapon (JSOW)



**CLASSIFICATION:**

| Exhibit R-4a, Schedule Detail | | | | | | DATE: **February 2008** | |
|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5** | PROGRAM ELEMENT 0604727N Joint Standoff Weapon System | | | | PROJECT NUMBER AND NAME 2068 Joint Standoff Weapon (JSOW) | | |
| Schedule Profile | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 |
| | | | | | | | |
| Full Rate Production (FRP)/AGM-154C | 2Q | 1Q | 1Q | 1Q | 1Q | 1Q | 1Q |
| FRP-1 Deliveries-AGM-154C | 1Q-2Q | | | | | | |
| FRP-2 Deliveries-AGM-154C | 2Q-4Q | 1Q-3Q | | | | | |
| FRP-3 Deliveries-AGM-154C | | 3Q-4Q | 1Q-3Q | | | | |
| FRP-4 Deliveries-AGM-154C | | | 4Q | 1Q-2Q | | | |
| FRP-5 Deliveries-AGM-154C-1 | | | | 2Q-4Q | 1Q-2Q | | |
| FRP-6 Deliveries-AGM-154C-1 | | | | | 2Q-4Q | 1Q-2Q | |
| FRP-7 Deliveries-AGM-154C-1 | | | | | | 2Q-4Q | 1Q-2Q |
| FRP-8 Deliveries-AGM-154C-1 | | | | | | | 2Q-4Q |
| FRP-5 Deliveries-AGM-154A | 1Q | | | | | | |
| FRP-6 Deliveries-AGM-154A | 2Q-4Q | | | | | | |
| SAASM | | | | | | | |
| Design/Development/Integration | 1Q | | | | | | |
| Development Test (DT) | 1Q-3Q | | | | | | |
| Development Test/Operational Test (DT/OT) | 3Q-4Q | | | | | | |
| Operational Test (OT) | 4Q | 1Q-2Q | | | | | |
| | | | | | | | |
| Network Enabled Weapon / Moving Target / AGM-154C-1 | | | | | | | |
| Design/Integration/Qual | 1Q-4Q | 1Q-4Q | 1Q | | | | |
| Development Test (DT-IIIC) | | 1Q-3Q | | | | | |
| Development Test (DT-IIID) | | 4Q | 1Q | | | | |
| Integrated Test (IT&E) | | | 2Q-3Q | | | | |
| Operational Test (OT-IIIB) | | | 4Q | 1Q-2Q | | | |

| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2008 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E,N / BA-5 | PROGRAM ELEMENT NUMBER AND NAME<br>0604727N, JOINT STANDOFF WEAPON SYSTEMS | PROJECT NUMBER AND NAME<br>9999, Congressional Add | |

| COST ($ in Millions) | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | |
|---|---|---|---|---|---|---|---|---|
| 9999 Congressional Add | | 4.769 | | | | | | |
| RDT&E Articles Qty | | | | | | | | |

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

The Joint Standoff Weapon (JSOW) is an air-to-ground weapon designed to attack a variety of targets during day, night and adverse weather conditions. JSOW will enhance aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of most target area surface-to-air threat systems. The JSOW launch-and-leave capability will allow several target kills per aircraft sortie. The JSOW program first developed a baseline weapon for use against fixed area targets. JSOW is a Navy-led joint Navy/Air Force program.

FY 2008 includes funding to conduct a user demonstration to evaluate the feasibility of the JSOW Extended Range (ER) concept. A secondary goal of the demonstration program is to serve as risk reduction and proof of concept for potential future Navy initiatives in Next Generation Standoff Outside Theater Defense (SOTD) weapons. JSOW ER is an upgrade and modification to the existing JSOW weapon system. This upgrade provides JSOW with an extended range capability of 150-300 nautical miles for precision attacks through/under weather against pre-planned fixed targets, stationary targets of opportunity and moving or relocatable targets. The FY08 funds will enable the integration of a turbo jet engine into a JSOW Block II AGM-154A-1 weapon, ground testing of the ER configuration, and a captive and free flight test program.

| EXHIBIT R-2a, RDT&E Project Justification | | DATE: February 2008 |
|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E,N / BA-5 | PROGRAM ELEMENT NUMBER AND NAME<br>0604727N, JOINT STANDOFF WEAPON SYSTEMS | PROJECT NUMBER AND NAME<br>9999, Congressional Add |

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

| Extended Range Demonstraton | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| Accomplishments / Effort / Sub-total Cost | | 4.769 | |
| RDT&E Articles Qty | | | |
| | | | |

The FY08 funds will enable the integration of a turbo jet engine into a JSOW Block II AGM-154A-1 weapon and allow for the completion of ground, captive carry and free flight testing.