A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The MH-60R primary mission areas include Anti-Submarine Warfare (ASW) and Surface Warfare (SUW). Secondary mission areas include Search and Rescue (SAR), Vertical Replenishment (VERTREP), Naval Surface Fire Support (NSFS), logistics support, personnel transport and Medical Evacuation (MEDEVAC). The MH-60R provides direct support to the Carrier Strike Group and provides Link Communications Relay (COMREL) via VHF/UHF, Link-16, and Common Data Link (CDL) with the incorporation of Interface Design Specification (IDS) (SAU-07-000) full data exchange via CDL. Ku-Band will be provided to DDG-1000, CVN-78 Class and LCS platforms. Aircraft Ship Integrated Secure and Traverse (ASIST) reduces operational requirements aboard ships by eliminating need for hauldown capability and providing automatic movements and aircraft on deck. IFF Mode 5 Interrogator capability is being embedded in the APS-147 radar to provide positive determination of friendly combatants beyond visual range. The MH-60R is Post-Milestone III and executing Pre-Planned Product Improvements (P3I) to Air Vehicle and Mission systems. P3I includes upgrades to communication, navigation, Identification Friend or Foe (IFF), Multi-Spectral Targeting System (MTS)/Forward Looking Infrared Radar (FLIR) to include Automatic Radar Periscope Detection and Discrimination (ARPDD), weapons, data link, safety, maintenance, airframe and mission planning systems. IFF Mode 5 Interrogator capability is being embedded in the APS-147 Radar to provide positive determination of friendly combatants beyond visual range. ARPDD funding prior to FY2008 was in PE 0604261N/4017.
B. PROGRAM CHANGE SUMMARY:

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<thead>
<tr>
<th></th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
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<td>FY10 President's Budget:</td>
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<td>Total Adjustments</td>
<td>-2.277</td>
<td>-0.490</td>
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Summary of Adjustments

- Congressional Rescissions
- Congressional Adjustments: -0.300
- SBIR/STTR/FTT Assessments: -0.121
- Program Adjustments: -2.156
- Rate/Misc Adjustments: -0.190
- Subtotal: -2.277

Schedule:

- Schedule added: ARPDD SDD Contract 3Q/08.
- Schedule changed: Common Data Link (CDL) Integrated Test moved from 3Q/08-3Q/09 to 4Q/08-2Q/09 due to delayed NRE effort.
- Schedule added: ARPDD Preliminary Design Review (PDR) 1Q/09.
- Schedule changed: Production Deliveries for Lots V-IX moved from 3Q/08 to 1Q/09 due to Lot IV moving to 4Q/08.
- Schedule added: SAU-07-000 Test begins 3Q/10

Technical:

- Not Applicable
**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

The MH-60R primary mission areas include Anti-Submarine Warfare (ASW) and Surface Warfare (SUW). Secondary mission areas include Search and Rescue (SAR), Vertical Replenishment (VERTREP), Naval Surface Fire Support (NSFS), logistics support, personnel transport and Medical Evacuation (MEDEVAC). The MH-60R provides direct support to the Carrier Strike Group and provides Link Communications Relay (COMREL) via VHF/UHF, Link-16, and Common Data Link (CDL) with the incorporation of Interface Design Specification (IDS) (SAU-07-000) full data exchange via CDL. Ku-Band will be provided to DDG-1000, CVN-78 Class and LCS platforms. Aircraft Ship Integrated Secure and Traverse (ASIST) reduces operational requirements aboard ships by eliminating need for hauldown capability and providing automatic movements and aircraft on deck. The MH-60R is Post-Milestone III and executing Pre-Planned Product Improvements (P3I) to Air Vehicle and Mission systems. P3I includes upgrades to communication, navigation, Identification Friend or Foe (IFF), Multi-Spectral Targeting System (MTS)/Forward Looking Infrared Radar (FLIR) to include Automatic Radar Periscope Detection and Discrimination (ARPDD), weapons, data link, safety, maintenance, airframe and mission planning systems. IFF Mode 5 Interrogator capability is being embedded in the APS-147 Radar to provide positive determination of friendly combatants beyond visual range. ARPDD funding prior to FY2008 was in PE 0604261N/4017.
**UNCLASSIFIED**

**CLASSIFICATION:**

<table>
<thead>
<tr>
<th>EXHIBIT R-2a, RDT&amp;E Project Justification</th>
<th>DATE:</th>
<th>May 2009</th>
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<td>APPROPRIATION/BUDGET ACTIVITY</td>
<td>PROGRAM ELEMENT NUMBER AND NAME</td>
<td>PROJECT NUMBER AND NAME</td>
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<td>0604216N, MULTI-MISSION HELICOPTER UPGRADE</td>
<td>1707, MMH UPGRADE DEV RDT&amp;E</td>
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### B. Accomplishments/Planned Program

<table>
<thead>
<tr>
<th>Avionics H/W and S/W Development</th>
<th>FY 08</th>
<th>FY 09</th>
<th>FY 10</th>
<th>Accomplishments/Effort/Subtotal Cost</th>
<th>RDT&amp;E Articles Quantity</th>
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<tr>
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<td>40.462</td>
<td>42.173</td>
<td>45.261</td>
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</table>

Supports aircraft integration, problem investigation and resolution, lab management and upgrades, hardware investigations, and repairs in support of the test program. Provides for ILS support and Program Management Board Support and subvendor support. Avionics hardware and software development and integration to include: P3I/Link-16, Radar (ARPDD), IFF Mode 5 interrogator, Communications, GPS, Acoustics and post processing. Mission planning, MTS/FLIR, Weapons, Stores and self defense, Data fusion, and Logistics products including Integrated Electronic Technical Manuals (IETMS). ARPDD provides a fully automated periscope detection, classification, and tracking capability to reliably detect periscopes and masts, and reliably discriminate periscopes from clutter and confusion targets. This capability is suitable for air and surface platforms.

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<th>Engineering, Integration, and Testing</th>
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<th>FY 10</th>
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<td>1.600</td>
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Airframe test articles, engineering support, GFE, and risk management board support. Integration and testing of P3I. ASIST integration to support aircraft movement aboard ships.

<table>
<thead>
<tr>
<th>Common Data Link</th>
<th>FY 08</th>
<th>FY 09</th>
<th>FY 10</th>
<th>Accomplishments/Effort/Subtotal Cost</th>
<th>RDT&amp;E Articles Quantity</th>
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Avionics P3I Upgrade for the Common Data Link (CDL) and reversibility between C-Band and KuBand software design interface (SAU-07-000) provides connectivity and full data exchange with DDG-1000, LCS and CVN-78 Class.

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**R-1 SHOPPING LIST - Item No. 83**
CLASSIFICATION:

**EXHIBIT R-2a, RDT&E Project Justification**

<table>
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<th>APPROPRIATION/BUDGET ACTIVITY</th>
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**B. Accomplishments/Planned Program (Cont.)**

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<td>9.470</td>
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**RDT&E Articles Quantity**

Engineering specialists, integrated logistics support, Government Furnished Equipment (GFE), Systems Engineering, Program Management, Contractor Support Services, Travel as required to support the MH-60R development program and test activities.

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<thead>
<tr>
<th>Avionics Testing and Evaluation</th>
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<td>Accomplishments/Effort/Subtotal Cost</td>
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**RDT&E Articles Quantity**

MH-60R Mission Avionics testing, Avionics Mission P3I, ARPDD, and IFF Mode 5 Interrogator testing and evaluation efforts.
C. OTHER PROGRAM FUNDING SUMMARY:

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<th>Line Item No. &amp; Name</th>
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<td>APN-6 BLI: 060510</td>
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<tr>
<td>APN-5 OSIPs 001-06, &amp; 009-09</td>
<td>22.395</td>
<td>25.413</td>
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</table>

Related RDT&E
- 0604507N Enhanced Modular Signal Processor
- 0604212N Other Helo Development
- 0604261N Acoustics Search Sensors

D. ACQUISITION STRATEGY:

Initial Operating Capability (IOC) was achieved in Dec 05 and the MSIII, Full Rate Production (FRP) decision occurred in March 2006. As the SH-60B and SH-60F reach the end of their service life, the MH-60R serves as the replacement weapon system. The MH-60R weapon system began fielding in FY2006. The mission systems include Common Cockpit, ALFS, sonobuoy launcher, COTS AP, ESM, MTS/FLIR system, MMR, ARPDD, CDL Hawklink, ISD and weapons capability. Pre-Planned Product Improvement (P3I) upgrades will be integrated, tested, and fielded to ensure increased capabilities are provided to the Fleet User.
### Cost Analysis

**Exhibit R-3**

#### Appropriation/Budget Activity
- **RDT&E**, N / BA-5
- **0604216N, MULTI-MISSION HELICOPTER UPGRADE**
- **1707, MMH UPGRADE DEV RDT&E**

#### Cost Categories

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<th>Total PY Cost</th>
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<th>FY 09 Award Date</th>
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Subtotal Product Development: 1,001.877

#### SUPPORT

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Subtotal Support: 131.744

Remarks:

---

**R-1 SHOPPING LIST** - Item No. 83

---

**Exhibit R-2, RDTEN Budget Item Justification**
### Exhibit R-3 Cost Analysis (page 2)

#### APPROPRIATION/BUDGET ACTIVITY

**RDT&E, N / BA-5**

#### PROGRAM ELEMENT

0604216N, MULTI-MISSION HELICOPTER UPGRADE

#### PROJECT NUMBER AND NAME

1707, MMH UPGRADE DEV RDT&E

<table>
<thead>
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<th>Cost Categories</th>
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**R-1 SHOPPING LIST - Item No. 83**
## EXHIBIT R4, Schedule Profile

**APPROPRIATION/BUDGET ACTIVITY**: RDT&E, N  
**PROGRAM ELEMENT NUMBER AND NAME**: BA-5  
**PROJECT NUMBER AND NAME**: 0604216N, MULTI-MISSION HELICOPTER UPGRADE  
**DATE**: May 2009

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### Acquisition Milestones

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### ARPDD Contract and Engineering Milestones

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### Test & Evaluation Milestones

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### Production Milestones

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### Production Deliveries

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**R-1 SHOPPING LIST - Item No.**: 83

---

**UNCLASSIFIED**

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Exhibit R-2, RDTEN Budget Item Justification
### Exhibit R-4a, Schedule Detail

<table>
<thead>
<tr>
<th>APPROPRIATION/BUDGET ACTIVITY</th>
<th>PROGRAM ELEMENT</th>
<th>PROJECT NUMBER AND NAME</th>
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<tr>
<td>RDT&amp;E, N / BA5</td>
<td>0604216N, MULTI-MISSION HELICOPTER UPGRADE</td>
<td>1707, MMH UPGRADE DEV RDT&amp;E</td>
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#### Schedule Profile

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<th>Description</th>
<th>FY 2008</th>
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<th>FY 2010</th>
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<tr>
<td>LRIP III (6)</td>
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<td>Q</td>
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<td>Multi-Year Award (Lockheed/SAC)</td>
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<td>P3I Integrated Test (IT-III)</td>
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<td>1Q - 4Q</td>
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<td>ARPDD SDD Contract</td>
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