| EXHIBIT R-2, RDT&E Budget Item Justification | | | | | | | DATE: February 2006 | |
|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA 4 | | | | | | R-1 ITEM NOMENCLATURE<br>0603860N, JPALS | | |
| COST ($ in Millions) | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | |
| Total PE Cost | 32.652 | 38.670 | 41.242 | 37.653 | 50.867 | 31.306 | 11.966 | |
| 2329 JOINT PRECISION APPROACH | 32.652 | 38.670 | 41.242 | 37.653 | 50.867 | 31.306 | 11.966 | |

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
This program element provides for the development, integration, and testing of the Joint Precision Approach and Landing System (JPALS), which will be applicable to DoD Ground systems, DoD aircraft, and Navy and Coast Guard surface ships. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night precision approach and landing capability. Operating environments include fixed or permanent ground facilities, tactical facilities, shipboard, and special operations. Civil interoperability is envisioned. The JPALS program was established in response to the Joint Mission Need Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 94 and the Chief of Staff of the Air Force on 8 August 94. The PALC MNS was validated by the Joint Requirements Oversight Council on 29 August 95. Army Joint Service participation was included in the 28 May 96 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum (ADM), which also designated the Air Force as the Lead Service. In March 2004, the JPALS Overarching Integrated Program Team determined that the MNS should be converted to an Initial Capabilities Document (ICD). The JPALS ICD was approved by the JROC on 19 September 05. The Capability Development Document (CDD) and Analysis of Alternatives (AoA) update are in process and approval is planned in June 2006. Joint Capability Integration Development System (JCIDS) documentation staffing and approval requirements, and the need for additional technology maturation prior to awarding the SDD contract have resulted in the proposal to delay Milestone B until FY-07.

The funds cited above will support completion of the JPALS Technology Development phase by 3Q FY-07, will support Milestone B preparation requirements, will fund the System Development and Demonstration (SDD) contracts source selection efforts, and will initiate SDD phase efforts beginning in FY 2007. Funding supports the JPALS Tier 1 acquisition, which includes development of the Sea Based JPALS system, reference avionics, and the initial integration aboard CV and LH class ships.

| EXHIBIT R-2a, RDT&E Project Justification | | | | | | | | DATE: February 2006 |
|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, N / BA 4 | | PROGRAM ELEMENT NUMBER AND NAME<br>0603860N, JPALS | | | | PROJECT NUMBER AND NAME<br>2329, JOINT PRECISION APPROACH | | |

| COST ($ in Millions) | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | |
|---|---|---|---|---|---|---|---|---|
| W2329 JOINT PRECISION APPROACH | 32.652 | 38.670 | 41.242 | 37.653 | 50.867 | 31.306 | 11.966 | |
| RDT&E Articles Qty | | | | | | 5 | 4 | |

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:
This program element provides for the development, integration, and testing of the Joint Precision Approach and Landing System (JPALS), which will be applicable to DoD Ground systems, DoD aircraft, and Navy and Coast Guard surface ships. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night precision approach and landing capability. Operating environments include fixed or permanent ground facilities, tactical facilities, shipboard, and special operations. Civil interoperability is envisioned.
The JPALS program was established in response to the Joint Mission Need Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 94 and the Chief of Staff of the Air Force on 8 August 94. The PALC MNS was validated by the Joint Requirements Oversight Council on 29 August 95. Army Joint Service participation was included in the 28 May 96 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum (ADM), which also designated the Air Force as the Lead Service. In March 2004, the JPALS Overarching Integrated Program Team determined that the MNS should be converted to an Initial Capabilities Document (ICD). The JPALS ICD was approved by the JROC on 19 September 05. The Capability Development Document (CDD) and Analysis of Alternatives (AoA) update are in process and approval is planned in June 2006. JCIDS documentation staffing and approval requirements, and the need for additional technology maturation prior to awarding the SDD contract have resulted in the proposal to delay Milestone B until FY-07.

The funds cited above will support completion of the JPALS Technology Development phase by 3Q FY-07, will support Milestone B preparation requirements, will fund the System Development and Demonstration (SDD) contracts source selection efforts, and will initiate SDD phase efforts beginning in FY 2007. Funding supports the JPALS Tier 1 acquisition, which includes development of the Sea Based JPALS system, reference avionics, and the initial integration aboard CV and LH class ships.

Several JPALS Land and Ship based EDM test articles will be procured and delivered in FY-10 and FY-11 to support system development and demonstration. A total of nine ship system EDMs will be procured for SDD: two will be used at the contractor facility, three will be delivered to NAS Patuxent River LSTF (including 1 for the facility, 1 for the mobile test van, and 1 spare), and four will be installed and deployed on ships. Two of the ship system EDMs will be installed on CVNs and two will be installed on LHAs to support integrated test at sea. Test platforms are tentatively identified as USS CARL VINSON (CVN 70), USS RONALD REAGAN (CVN 76), USS NASSAU (LHA 4), and USS PELELIU (LHA 5) based on current ship availability plans. Two land based EDMs (one fixed system and one mobile system) will be delivered to NAS Patuxent River LSTF for SDD. Each EDM is anticipated to consist of GPS sensors (receiver, anti-jam antenna, and antenna electronics), an inertial navigation system, a control and display subsystem, an uninterruptible power supply, and equipment racks & cabling.

| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2006 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, N / | BA 4 | PROGRAM ELEMENT NUMBER AND NAME<br>0603860N, JPALS | PROJECT NUMBER AND NAME<br>2329, JOINT PRECISION APPROACH |

B. ACCOMPLISHMENTS / PLANNED PROGRAM:

| Technology Development Phase | FY 2005 | FY 2006 | FY 2007 | |
|---|---|---|---|---|
| Accomplishments/Effort/Sub-total cost | 32.652 | 38.670 | 21.990 | |
| RDT&E Articles Qty | | | | |

Complete technology maturation and risk reduction tasks in support of Technology Development (TD) phase. Tasks include hardware and software development for critical technologies (including precision Global Positioning Satellite (GPS)/Inertial Navigation System (INS), anti-jam antenna electronics, Low Probability of Intercept data link hardware subsystems, and critical software components to include relative navigation integrity, guidance and control, system monitoring and communications functions). Prepare documentation to support Milestone-B. Develop an SDD contract solicitation package for release to industry. Complete TD phase tasking (assessment of technology maturation, evaluation of data link requirements and assessment of JPALS incorporation into Embedded GPS/INS).

| System Development & Demonstration Phase | FY 2005 | FY 2006 | FY 2007 | |
|---|---|---|---|---|
| Accomplishments/Effort/Sub-total Cost | | | 19.252 | |
| RDT&E Articles Qty | | | | |

Award SDD contract(s) in 3rd quarter FY07. Commence preparations for Systems Functional Review (SRR) and Systems Requirements Review (SFR).

| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2006 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, N / | BA 4 | PROGRAM ELEMENT NUMBER AND NAME<br>0603860N, JPALS | PROJECT NUMBER AND NAME<br>2329, JOINT PRECISION APPROACH |

C. PROGRAM CHANGE SUMMARY

| Funding: | | FY 2005 | FY 2006 | FY 2007 |
|---|---|---|---|---|
| FY06 President's Budget: | | 32.077 | 39.260 | 44.341 |
| FY07 President's Budget: | | 32.652 | 38.670 | 41.242 |
| Total Adjustments | | 0.575 | -0.590 | -3.099 |
| Summary of Adjustments | | | | |
| Other general provisions | | | -0.590 | |
| Programmatic adjustments | | | | -3.273 |
| SBIR | | -0.587 | | |
| BTR | | 1.187 | | |
| Miscellaneous Adjustments | | -0.025 | | 0.174 |
| | Subtotal | 0.575 | -0.590 | -3.099 |

Schedule:
Milestone B was adjusted from FY06 to 3Q FY07 in order to complete JCIDS process, and to continue maturation of key JPALS technologies. This schedule will allow the program to transition to the System Development and Demonstration (SDD) phase with more mature technologies to reduce risk during the SDD phase.

Technical: Not applicable.

| EXHIBIT R-2a, RDT&E Project Justification | | | DATE: February 2006 |
|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, N / BA 4 | PROGRAM ELEMENT NUMBER AND NAME<br>0603860N, JPALS | PROJECT NUMBER AND NAME<br>2329, JOINT PRECISION APPROACH | |

D. OTHER PROGRAM FUNDING SUMMARY: Not Applicable

E. ACQUISITION STRATEGY:

TD phase development is being conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic systems Command (Global Air) and ARINC Engineering Services, Calfornia, MD. This effort will provide the concept of operations, performance specifications and integration guides, which will furnish the foundation from which to launch the SDD phase development. Prior to the SDD phase, overall joint program leadership will transition from the USAF to the USN. SDD phase development will consist of seabased JPALS, related ship and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment. system simulation software. and other RDT&E products and tasks. The SDD contact will be decided by a full and open competition. Future procurement of airborne systems will consist of modifications to Original Equipment Manufacture (OEM) aircraft integration and to existing avionics.

Seabased JPALS will be developed by the Navy with government owned or non-proprietary algorithms to an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. Landbased JPALS units will be developed by the Air Force to meet the requirements of all the services.

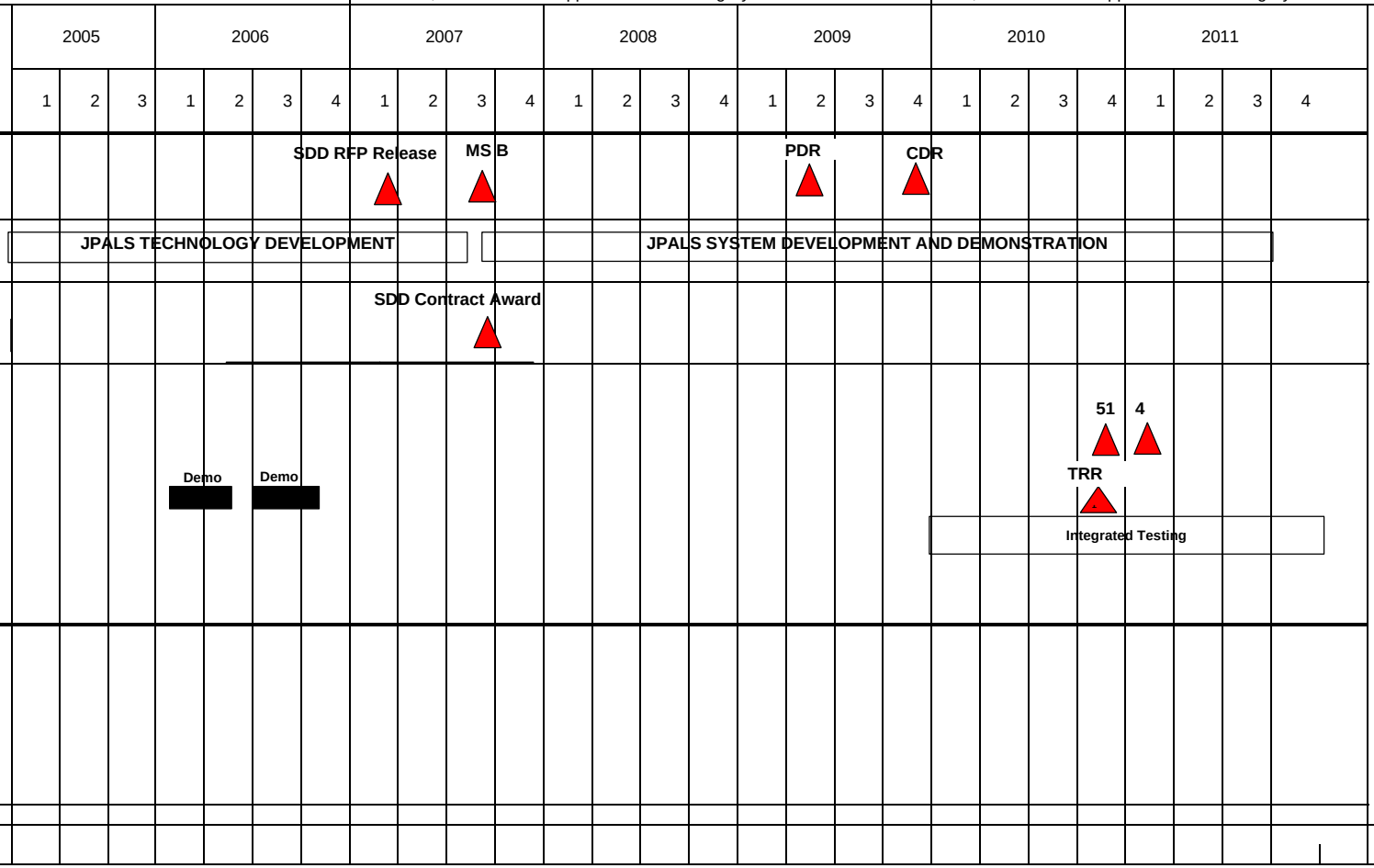
| Exhibit R-3 Cost Analysis (page 1) | | | | | | | | | | | DATE: February 2006 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, N / BA 4 | | PROGRAM ELEMENT<br>0603860N, JPALS | | | | PROJECT NUMBER AND NAME<br>2329, JOINT PRECISION APPROACH | | | | | | |
| Cost Categories | Contract Method & Type | Performing Activity & Location | Total PY s Cost | FY 2005 Cost | FY 2005 Award Date | FY 2006 Cost | FY 2006 Award Date | FY 2007 Cost | FY 2007 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
| PRODUCT DEVELOPMENT | | | | | | | | | | | | |
| Technology Development and Demo | C-CPFF | ARINC ENGINEERING SERVICES, LLC, ANN/ | 16.896 | 18.000 | 12/04 | 15.300 | 11/05 | 2.000 | | | 42.896 | 42.896 |
| Systems Engineering - Risk Management/technology maturation studies | C-CPFF | ARINC ENGINEERING SERVICES | | 2.000 | 12/04 | 2.000 | | | | | 2.000 | 2.000 |
| Systems Engineering | WR | NAWCAD, Pax River, MD | 15.542 | 4.100 | 12/04 | | | | | | 19.642 | |
| Systems Engineering- | C-CPFF | Eagan Mcallister/Lexington Park, MD | 2.714 | 2.230 | 02/05 | | | | | | 4.944 | 4.944 |
| Systems Engineering - SRGPS H/W Prototyping | C-CPFF | Titan/Lexington Park, MD | 2.520 | 1.655 | 02/05 | | | | | | 4.175 | 4.175 |
| Systems Engineering - SRGPS Studies and Analyses | Various | Various | 3.966 | .499 | 12/04 | | | | | | 4.465 | |
| Systems Engineering - SRGPS H/W Development | C-CPFF | Honeywell/Clearwater, FL | 1.194 | 1.515 | 01/05 | | | | | | 2.709 | 2.709 |
| Curriculum Development - TD Phase | C/T&M | IDSI, Indian Head, MD | .070 | .035 | 02/05 | | | | | | .105 | .105 |
| Studies and Analyses - TD Phase | C/IDIQ | IRM Ltd, Lexington Park, MD | .060 | | | | | | | | .060 | .060 |
| Integration and Fielding Support | WR | NAWCAD, Pax River, MD | | | | 2.910 | 01/06 | 2.590 | 12/06 | Continuing | Continuing | |
| SDD Contract | C/CR | TBD | | | | | | 19.252 | 12/06 | Continuing | Continuing | |
| | | | | | | | | | | | | |
| SUBTOTAL PRODUCT DEVELOPMENT | | | 42.962 | 30.034 | | 20.210 | | 23.842 | | Continuing | Continuing | |
| Remarks: Continue systems engineering process, prepare for and conduct an integrated baseline review, and establish joint government/contractor risk management process. Conduct system requirements review and preliminary design review. Begin preparations for the system critical design review. Continue non-recurring engineering efforts under the SDD contract, including requirements identification and decomposition. | | | | | | | | | | | | |
| SUPPORT | | | | | | | | | | | | |
| Engineering Support Services | C/CR | Titan/ Lexington Park, MD | | | | 2.650 | 01/06 | 3.000 | 12/06 | Continuing | Continuing | |
| Test Support Services/Ship Integration | C/CR | Eagan Mcallister/ Lexington Park MD | | | | 1.200 | 01/06 | .500 | 12/06 | Continuing | Continuing | |
| Test Support Services/TEMP | C/CR | TBD | | | | .950 | 01/06 | 1.000 | 12/06 | Continuing | Continuing | |
| R&M Support | C/CR | Mantech/Lexington Park, MD | | | | .200 | 01/06 | .200 | 12/06 | Continuing | Continuing | |
| Logistics Support | C/CPFF | Wylie Labs/Lexington Park, MD | | .386 | 06/05 | .400 | 01/06 | .400 | 12/06 | Continuing | Continuing | |
| Requirements Analysis | C/CR | Holmes-Tucker/Hampton, VA | | | | .200 | 01/06 | .200 | 12/06 | Continuing | Continuing | |
| EGI Technology Maturation | SS | Honeywell/Clearwater, FL | | | | .500 | 01/06 | 2.500 | | | 3.000 | 3.000 |
| Engineering Studies/Analysis | SS/COST | Stanford University, CA | | .480 | 06/05 | 0.200 | 11/05 | | | | .680 | .680 |
| Integrated Logistics Support - TD Phase | WR | NAWCAD, Pax River, MD | .594 | .500 | 12/04 | | | | | | 1.094 | |
| Program Office support-TD Phase | WR | NAWCAD, Pax River, MD | .613 | | | | | | | | .613 | |
| Logistics Management Support | WR | NAWCAD, Pax River, MD | .156 | | | .700 | 01/06 | .700 | 12/06 | Continuing | Continuing | |
| | | | | | | | | | | | | |
| SUBTOTAL SUPPORT | | | 1.363 | 1.366 | | 7.000 | | 8.500 | | Continuing | Continuing | |
| Remarks: Tasking supports completion of Technology Development phase activities. Support includes development of Milestone-B documentation, completion of TD phase test ad demonstration efforts and systems engineering support. | | | | | | | | | | | | |

| Exhibit R-3 Cost Analysis (page 1) | | | | | | | | | | DATE: February 2006 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>RDT&E, N / BA 4 | | PROGRAM ELEMENT<br>0603860N, JPALS | | | | PROJECT NUMBER AND NAME<br>2329, JOINT PRECISION APPROACH | | | | | | |
| TEST & EVALUATION | | | | | | | | | | | | |
| Development Test & Evaluation | WR | NAWCAD, Pax River, MD | | 1.000 | 12/04 | 2.300 | 01/06 | 1.200 | 12/06 | Continuing | Continuing | |
| OT&E | WR | OPTEVFOR, Norfolk, VA | | .100 | 11/04 | .100 | 01/06 | .600 | 12/06 | Continuing | Continuing | |
| Test Range | WR | NAWCAD, Pax River, MD | | | | .500 | 01/06 | .500 | 12/06 | Continuing | Continuing | |
| | | | | | | | | | | | | |
| SUBTOTAL TEST & EVALUATION | | | | 1.100 | | 2.900 | | 2.300 | | Continuing | Continuing | |
| Remarks: DT focus on SDD phase test documentation planning and test range coordination. Develop DT test cases. Monitoring of SDD contractor system integration build up. Operational test activities include test and evaluation master plan requirements flow into test cases. | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Travel | TO | NAVAIRHQ, Pax River, MD | .075 | .015 | 12/04 | .200 | 12/05 | .150 | 12/06 | Continuing | Continuing | |
| Government Engineering Support | WR | NAWCAD, Pax River, MD | | | | 6.300 | 12/05 | 3.700 | 12/06 | Continuing | Continuing | |
| Program Management | WR | NAWCAD, Pax River, MD | | .046 | 12/04 | 1.310 | 12/05 | 2.050 | 12/06 | Continuing | Continuing | |
| Program Office Support | C/CPFF | American Electronics/Lexington Park, MD | | .091 | 12/04 | .750 | 12/05 | .700 | 12/06 | Continuing | Continuing | |
| | | | | | | | | | | | | |
| SUBTOTAL MANAGEMENT | | | .075 | .152 | | 8.560 | | 6.600 | | Continuing | Continuing | |
| Remarks: Tasking includes execution of SDD contract activities, coordination of Prime Mission Product and support contractor activities, coordination with other USN aircraft and ship program offices, development of ship installation drawings, and non-recurring engineering support. | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Total Cost | | | 44.400 | 32.652 | | 38.670 | | 41.242 | | Continuing | Continuing | |

**CLASSIFICATION:**

EXHIBIT R4, Schedule Profile | DATE: **February 2006**

| APPROPRIATION/BUDGET ACTIVITY | PROGRAM ELEMENT NUMBER AND NAME | PROJECT NUMBER AND NAME |
|---|---|---|
| **RDT&E, N / BA-4** | 0603860N, Joint Precision Approach and Landing System | 2329, Joint Precision Approach and Landing System |




R-1 SHOPPING LIST - Item No. 77

| Exhibit R-4a, Schedule Detail | | | | | DATE: **February 2006** | | | |
|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>**RDT&E, N / BA-4** | PROGRAM ELEMENT<br>0603860N, Joint Precision Approach and Landing System | | | | PROJECT NUMBER AND NAME<br>2329, Joint Precision Approach and Landing System | | | |
| Schedule Profile | | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| Technology Development | | 1-4Q | 1-4Q | 1-3Q | | | | |
| SDD RFP Release | | | | 1Q | | | | |
| Milestone B (MS B) | | | | 3Q | | | | |
| SDD Contract Award | | | | 3Q | | | | |
| System Development & Demonstration | | | | 3-4Q | 1-4Q | 1-4Q | 1-4Q | 1-4Q |
| Demonstration/integration | | | 1-4Q | | | | | |
| Preliminary Design Review (PDR) | | | | | | 2Q | | |
| Critical Design Review (CDR) | | | | | | | 1Q | |
| Test Readiness Review (TRR) | | | | | | | 4Q | |
| Test Article Delivery | | | | | | | 4Q | 1Q |
| Ship Integration | | | | | | | 4Q | 1-3Q |
| Lab Integration | | | | | | | 1-4Q | 1-4Q |
| Aircraft Integration | | | | | | | 1-4Q | 1-4Q |
| Integrated Testing | | | | | | | 1-4Q | 1-4Q |

R-1 SHOPPING LIST - Item No. 77