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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2014 Navy **DATE:** April 2013

| APPROPRIATION/BUDGET ACTIVITY                                                                                                               |                 |         |                      |              | R-1 ITEM NOMENCLATURE                           |               |         |         |         |         |                  |            |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|----------------------|--------------|-------------------------------------------------|---------------|---------|---------|---------|---------|------------------|------------|
| 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> |                 |         |                      |              | PE 0603512N: <i>Carrier Systems Development</i> |               |         |         |         |         |                  |            |
| COST (\$ in Millions)                                                                                                                       | All Prior Years | FY 2012 | FY 2013 <sup>#</sup> | FY 2014 Base | FY 2014 OCO <sup>##</sup>                       | FY 2014 Total | FY 2015 | FY 2016 | FY 2017 | FY 2018 | Cost To Complete | Total Cost |
| Total Program Element                                                                                                                       | 1,525.990       | 61.909  | 108.871              | 83.902       | -                                               | 83.902        | 49.195  | 50.881  | 47.344  | 46.022  | Continuing       | Continuing |
| 2208: <i>CVN 21</i>                                                                                                                         | 800.971         | 27.168  | 36.673               | 31.638       | -                                               | 31.638        | 37.297  | 40.833  | 40.650  | 39.234  | Continuing       | Continuing |
| 3216.: <i>Tactical Support Center-Integration</i>                                                                                           | 14.338          | 2.060   | 9.600                | 4.546        | -                                               | 4.546         | 4.660   | 4.724   | 4.831   | 4.901   | Continuing       | Continuing |
| 4004: <i>EMALS</i>                                                                                                                          | 694.848         | 30.995  | 60.861               | 43.003       | -                                               | 43.003        | 2.443   | 2.507   | 0.000   | 0.000   | 0.000            | 834.657    |
| 4005: <i>In-Service Carrier Systems Development</i>                                                                                         | 15.833          | 1.686   | 1.737                | 4.715        | -                                               | 4.715         | 4.795   | 2.817   | 1.863   | 1.887   | Continuing       | Continuing |

**MDAP/MAIS Code(s):** 223

<sup>#</sup> FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

<sup>##</sup> The FY 2014 OCO Request will be submitted at a later date

## **A. Mission Description and Budget Item Justification**

This Navy unique program addresses all technology areas associated with Navy/Marine Corps aircraft operations aboard ships. The program includes:

- (2208) - Development of ship hull, mechanical, propulsion, electrical, aviation, and combat support systems, subsystems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities, and to meet the requirements of existing and pending regulations and statutes critical to the operation of existing and future aircraft carriers.

- (3216) - Development of block upgrades to the MH-60R sensor suite into the AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC). The CV-TSC provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti Submarine Warfare (ASW). Through the integration of off-board sensors and signal, data and display processors, the AN/SQQ-34 is utilized in detecting, classifying, and localizing threats. An integrated element of the Carrier Combat System, the AN/SQQ-34 supports the tactical deployment of embarked ASW and Surface Warfare (SUW) assets (S-3B until retirement, SH-60F helicopter). This project provides the development and engineering foundation to refresh legacy AN/SQQ-34 systems on all Carriers and shore sites in support of Fleet introduction and shipboard integration of the MH-60R Multi Mission Helicopter. Upgrades to legacy systems enable the exchange of sensor, tactical and imagery data with the MH-60R initially, followed by incremental upgrades to support CVN air integration efforts.

- (4004) - Development of an advanced technology aircraft launch system in support of the CVN 78 Class design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 78 Class ships. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability and reduced operator and maintainer workload.

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| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2014 Navy | <b>DATE:</b> April 2013 |
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| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|

- (4005) - The In-Service Carrier Systems Development Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs (TOC). A portion of this effort is classified with details available at a higher classification level.

| <b>B. Program Change Summary (\$ in Millions)</b> | <b>FY 2012</b> | <b>FY 2013</b> | <b>FY 2014 Base</b> | <b>FY 2014 OCO</b> | <b>FY 2014 Total</b> |
|---------------------------------------------------|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget                       | 54.072         | 108.871        | 67.139              | -                  | 67.139               |
| Current President's Budget                        | 61.909         | 108.871        | 83.902              | -                  | 83.902               |
| Total Adjustments                                 | 7.837          | 0.000          | 16.763              | -                  | 16.763               |
| • Congressional General Reductions                | -              | -              |                     |                    |                      |
| • Congressional Directed Reductions               | -              | -              |                     |                    |                      |
| • Congressional Rescissions                       | -              | -              |                     |                    |                      |
| • Congressional Adds                              | -              | -              |                     |                    |                      |
| • Congressional Directed Transfers                | -              | -              |                     |                    |                      |
| • Reprogrammings                                  | 9.100          | 0.000          |                     |                    |                      |
| • SBIR/STTR Transfer                              | -1.263         | 0.000          |                     |                    |                      |
| • Program Adjustments                             | 0.000          | 0.000          | 17.486              | -                  | 17.486               |
| • Rate/Misc Adjustments                           | 0.000          | 0.000          | -0.723              | -                  | -0.723               |

**Change Summary Explanation**

Cost: Added funding in FY 12 and FY 14 to properly price the EMALS effort. Added FY 14 funds to project 4005 (details available at higher classification level). The FY 14 program for project 2208 was adjusted to properly phase program requirements with expenditures.

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| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |         |                      |              |                                                                   |               |         |         | DATE: April 2013        |         |                  |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |         |                      |              | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |               |         |         | PROJECT<br>2208: CVN 21 |         |                  |            |
| COST (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | All Prior Years | FY 2012 | FY 2013 <sup>#</sup> | FY 2014 Base | FY 2014 OCO <sup>##</sup>                                         | FY 2014 Total | FY 2015 | FY 2016 | FY 2017                 | FY 2018 | Cost To Complete | Total Cost |
| 2208: CVN 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 800.971         | 27.168  | 36.673               | 31.638       | -                                                                 | 31.638        | 37.297  | 40.833  | 40.650                  | 39.234  | Continuing       | Continuing |
| Quantity of RDT&E Articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0               | 0       | 0                    | 0            |                                                                   | 0             | 0       | 0       | 0                       | 0       |                  |            |
| # FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |         |                      |              |                                                                   |               |         |         |                         |         |                  |            |
| ## The FY 2014 OCO Request will be submitted at a later date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |         |                      |              |                                                                   |               |         |         |                         |         |                  |            |
| A. Mission Description and Budget Item Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |         |                      |              |                                                                   |               |         |         |                         |         |                  |            |
| This project provides for the development of aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project transitions the most promising technologies from the Navy technology base, other government laboratories, and the private sector into specific advanced development efforts. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to support CVN 78 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, test and evaluation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment (IDE). |                 |         |                      |              |                                                                   |               |         |         |                         |         |                  |            |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |         |                      |              |                                                                   |               |         |         | FY 2012                 | FY 2013 | FY 2014          |            |
| Title: CVN 78 Class Advanced Technology Design & Development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |         |                      |              |                                                                   |               |         |         | 22.954                  | 31.673  | 21.333           |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |         |                      |              |                                                                   |               |         |         | 0                       | 0       | 0                |            |
| Description: - CVN 78 Class Advanced Technology Design & Development: Continue development and transition of technologies to support CVN 78 Class Key Performance Parameters (KPPs): maintain sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate the new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |         |                      |              |                                                                   |               |         |         |                         |         |                  |            |
| FY 2012 Accomplishments:<br>Continued design, development and transition of key technologies to support CVN 21 (CVN 78 Class) Key Performance Parameters (KPPs) which include sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continued design activities to integrate new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |         |                      |              |                                                                   |               |         |         |                         |         |                  |            |
| Performed special studies and program management in support of warfare system integration and design. Identified risk mitigation options for a post-delivery installation of warfare systems. Provided an analysis on the changes required to incorporate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |         |                      |              |                                                                   |               |         |         |                         |         |                  |            |

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| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | DATE: April 2013                                                  |            |                         |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |            | PROJECT<br>2208: CVN 21 |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | FY 2012                                                           | FY 2013    | FY 2014                 |
| new systems in the CVN 78 design. Provided structural assessments for possible relocations of antennas which currently have interference issues with the Dual Band Radar (DBR) arrays. Identified options to resolve DBR high power issues. Modified the switchboard hardware design and software to provide the required ship signal interface. Located and provided impact for an Information Assurance solution within existing design parameters. Tested common display within flexible infrastructure design allowing for a single universal mounting option. Developed a Weapons System Explosive Safety Review Board (WSESRB) strategy and path forward, in collaboration with NAVSEA to include completion of a weapon system safety gap analysis to baseline the efforts and to identify shortfalls.<br><br><b>FY 2013 Plans:</b><br>Continue design, development and transition of key technologies to support CVN 21 (CVN 78 Class) Key Performance Parameters (KPPs) which include sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship. Continue existing studies and commence new studies required for integrated warfare system and C4I design, integration, test and validation efforts. Develop and review Pre-Planned Product Improvement (P3I) Technical Data Packages. Continue engineering and technical support of aircraft launch and recovery systems. Develop ship integration side studies to support NAVSEA documented class baseline changes. Continue shipbuilder system and cost engineering support to assess ship impacts from selected Engineering Change Requests (ECRs) and changes to the GFE/CFE equipment split.<br><br><b>FY 2014 Plans:</b><br>Continue design, development and transition of key technologies to support CVN 21 (CVN 78 Class) Key Performance Parameters (KPPs) which include sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship. Continue existing studies and commence new studies required for integrated warfare system and C4I design, integration, test and validation efforts. Develop and review Pre-Planned Product Improvement (P3I) Technical Data Packages. Continue engineering and technical support of aircraft launch and recovery systems. Develop ship integration side studies to support NAVSEA documented class baseline changes. Continue shipbuilder system and cost engineering support to assess ship impacts from selected Engineering Change Requests (ECRs) and changes to the GFE/CFE equipment split. |  |                                                                   |            |                         |
| Title: CVN 21 - Test & Evaluation (T&E)<br><br>Description: - CVN 21 - Test & Evaluation (T&E)<br><br>FY 2012 Accomplishments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | 4.214<br>Articles:<br>0                                           | 5.000<br>0 | 10.305<br>0             |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | <b>DATE:</b> April 2013               |                |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> | <b>PROJECT</b><br>2208: <i>CVN 21</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                 | <b>FY 2012</b>                        | <b>FY 2013</b> |
| Continued to develop the Test and Evaluation Master Plan (TEMP) 1610, Rev C. Continued to collaboratively develop the Commander, Operational Test and Evaluation (COTF) Integrated Evaluation Framework (IEF). Continued to map requirements from the IEF to the test events in the TEMP 1610, Rev C. Continued to update and maintain the Overall Platform Integrated Test Schedule (OP-ITS). Continued to co-chair the Integrated Coordination Team (ICT) efforts to optimize the pre- and post-delivery tests & trials schedule, while identifying and mitigating testing risks. Continued to develop a Full Ship Shock Trial (FSST) Alternative process, concentrating on the analysis of the LPD 19 Model and the comparison of its results with the LPD 19 FSST data. Successfully completed the navigation system risk mitigation testing. Continued to execute Integrated Test-Phase 1 (IT-1), which included: planning the IT-1 Operational Assessment (OA) 1 (formerly OT-B3); conducting the IT-1 OA1 Test Readiness Review (TRR); completing sortie generation rate assessment (SGRA) 11; and setting up for land-based testing at the PEO C4I Test Integration Facility (TIF), the NAVAIR Production Integration Facility (PIF) and the HII-NNS Platform Integration Center (PIC). Continued the spiral development of the Virtual Carrier (VCVN) Model to increase operational fidelity that will support the validation of the SGR key performance parameter (KPP) during Initial Operational Test & Evaluation (IOT&E). Commenced development of the Test and Certification Plan (TCP), which will document the required pre- and post-delivery special tests and certifications, the applicable references and the supporting activities. |                                                                                 |                                       |                |
| <b>FY 2013 Plans:</b><br>Complete development of the TEMP 1610, Rev C and route for signature. Complete development of the TCP. Continue updating and maintaining the OP-ITS. Continue to co-chair the ICT, focusing on pre- and post-launch activities. Continue the FSST Alternative process development. Complete IT-1, which includes completing the IT-1 OA 1 (formerly OT-B3) and producing the IT-1 OA Report (IT-1 OAR1). Commence IT-Phase 2, which includes: (1) completing the IT-1 Developmental Test Report (IT-1 DT RPT); PEO C4I TIF testing; and SGRA 12; (2) continuing NAVAIR PIF testing; HII-NNS PIC testing; and spiral development of the VCVN Model to increase operational fidelity that will support the validation of the SGR KPP during IOT&E; and (3) commencing Dual Band Radar (DBR) land-based testing; SGRA 13; and Information Assurance (IA) testing on Contractor-Furnished Equipment (CFE) during PIC testing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 |                                       |                |
| <b>FY 2014 Plans:</b><br>Continue updating and maintaining the OP-ITS. Continue to co-chair the ICT, focusing on post-launch activities. Complete the FSST Alternative process development and conduct the FSST Alternative Process Gate Review to gain acceptance of the Process as a technically-feasible and cost-effective alternative to a traditional FSST. Continue IT-Phase 2, which includes: (1) completing IT-2 OA 1; IT-2 OA Report (IT-2 OAR1); SGRA 13; and NAVAIR PIF testing; (2) continuing DBR land-based testing; HII-NNS PIC testing; IA testing on CFE during PIC testing; and spiral development of the VCVN Model to increase operational fidelity that will support the validation of the SGR KPP during IOT&E; and (3) commencing the Radiation Hazard (RADHAZ) assessment; and the Steering Gear industrial testing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 |                                       |                |
| <b>Accomplishments/Planned Programs Subtotals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                 | 27.168                                | 36.673         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                 |                                       | 31.638         |

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| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |         |                 |                                                                   |                  |           |           |                         |           | DATE: April 2013    |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |         |         |                 | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |                  |           |           | PROJECT<br>2208: CVN 21 |           |                     |            |
| C. Other Program Funding Summary (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |         |                 |                                                                   |                  |           |           |                         |           |                     |            |
| Line Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FY 2012 | FY 2013 | FY 2014<br>Base | FY 2014<br>OCO                                                    | FY 2014<br>Total | FY 2015   | FY 2016   | FY 2017                 | FY 2018   | Cost To<br>Complete | Total Cost |
| • RD TEN/0604567N: Project Units 3179, 4007                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 20.325  | 13.862  | 15.572          |                                                                   | 15.572           | 20.365    | 21.315    | 22.885                  | 20.140    | Continuing          | Continuing |
| • RD TEN/0603570N: Propulsion Plant Development (PU 2692)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 65.808  | 62.020  | 57.499          |                                                                   | 57.499           | 56.693    | 0.000     | 0.000                   | 0.000     | 0.000               | 1,526.874  |
| • SCN/2001: Carrier Replacement Program                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 554.798 | 608.195 | 944.866         |                                                                   | 944.866          | 1,834.072 | 1,918.441 | 2,539.826               | 2,954.419 | Continuing          | Continuing |
| • SCN/5300: Completion of Prior Year Shipbuilding Programs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.000   | 0.000   | 588.100         |                                                                   | 588.100          | 729.000   | 0.000     | 0.000                   | 0.000     | 0.000               | 1,317.100  |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |         |                 |                                                                   |                  |           |           |                         |           |                     |            |
| D. Acquisition Strategy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |         |                 |                                                                   |                  |           |           |                         |           |                     |            |
| The CVN 78 is the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, EMALS, advanced arresting gear (AAG) system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation rate, improved ship self-defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |         |                 |                                                                   |                  |           |           |                         |           |                     |            |
| E. Performance Metrics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |         |                 |                                                                   |                  |           |           |                         |           |                     |            |
| Successfully complete development of TEMP 1610, Rev C and route for signature. Successfully complete all PEO C4I TIF testing. Successfully execute SGRA 12 and SGRA 13. Gain acceptance of the FSST Alternative Process as a technically-feasible and cost-effective alternative to the traditional FSST. Successfully complete the NAVAIR PIF testing and the Consolidated Afloat Networks and Enterprise Services (CANES) testing. Successfully conduct and support feasibility and tradeoff studies and data packages on new and modified shipboard systems, technologies and proposed modification. Data packages shall include information to support program decisions to integrate these efforts into the whole ship design efforts. Successfully conduct IDC shock testing and reporting in order to finalize IDC R&D efforts. Successfully complete Advanced Weapons Elevator Shock and Electromagnetic Interference (EMI) Test qualifications. Successfully complete Plasma Arc Waste Destruction System (PAWDS) Land-Based Test. Successfully create and deliver 21 Decision Memorandums (DM) for Bents/Bays 1-21.on the 03 Level (Gallery Deck) with Layer 31 information. Successfully develop the baseline Technical Data Packages for 39 systems and mature packages in preparation for final GFI arrival. |         |         |                 |                                                                   |                  |           |           |                         |           |                     |            |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                             |                        |                                |                 |         |            |                                                                   |            |              |            |                         |            | DATE: April 2013 |                  |            |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------|-----------------|---------|------------|-------------------------------------------------------------------|------------|--------------|------------|-------------------------|------------|------------------|------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                        |                                |                 |         |            | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |            |              |            | PROJECT<br>2208: CVN 21 |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                                                                                                               |                        |                                |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO             |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                    | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Propulsion Plant Development                                                                                                                       | SS/CPFF                | Bettis:PA                      | 71.627          | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                       |            | 0.000            | 0.000            | 71.627     |                          |
| Propulsion Plant Development                                                                                                                       | C/CPFF                 | HII:VA                         | 164.409         | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                       |            | 0.000            | 0.000            | 164.409    |                          |
| Propulsion Plant Development                                                                                                                       | Various                | Miscellaneous:Various          | 10.562          | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                       |            | 0.000            | 0.000            | 10.562     |                          |
| Propulsion Plant Development                                                                                                                       | WR                     | NSWC Carderock:MD              | 0.050           | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                       |            | 0.000            | 0.000            | 0.050      |                          |
| Advanced Design & Development                                                                                                                      | C/CPAF                 | HII:VA                         | 155.748         | 0.378   | Oct 2011   | 15.041                                                            | Nov 2012   | 7.080        | Nov 2013   | -                       |            | 7.080            | Continuing       | Continuing | Continuing               |
| Advanced Design & Development                                                                                                                      | WR                     | NSWC Carderock:MD              | 73.446          | 5.012   | Oct 2011   | 4.989                                                             | Nov 2012   | 4.796        | Nov 2013   | -                       |            | 4.796            | Continuing       | Continuing | Continuing               |
| Advanced Design & Development                                                                                                                      | C/CPFF                 | SAIC:NM                        | 49.488          | 0.085   | Nov 2011   | 0.188                                                             | Dec 2012   | 0.196        | Dec 2013   | -                       |            | 0.196            | Continuing       | Continuing | Continuing               |
| Advanced Design & Development                                                                                                                      | WR                     | NAWCAD Patuxent River:MD       | 50.428          | 3.598   | Oct 2011   | 2.355                                                             | Nov 2012   | 2.099        | Nov 2013   | -                       |            | 2.099            | Continuing       | Continuing | Continuing               |
| Advanced Design & Development                                                                                                                      | WR                     | NAWC Lakehurst:NJ              | 8.249           | 0.200   | Dec 2011   | 0.000                                                             |            | 0.000        |            | -                       |            | 0.000            | 0.000            | 8.449      |                          |
| Advanced Design & Development                                                                                                                      | WR                     | NSWC Dahlgren:VA               | 26.555          | 1.938   | Oct 2011   | 1.741                                                             | Nov 2012   | 1.630        | Nov 2013   | -                       |            | 1.630            | Continuing       | Continuing | Continuing               |
| Advanced Design & Development                                                                                                                      | C/CPAF                 | Raytheon:VA                    | 33.365          | 3.229   | Oct 2011   | 3.351                                                             | Dec 2012   | 2.874        | Dec 2013   | -                       |            | 2.874            | Continuing       | Continuing | Continuing               |
| Advanced Design & Development                                                                                                                      | WR                     | NSWC Port Hueneme:CA           | 6.000           | 0.077   | Oct 2011   | 0.000                                                             |            | 0.000        |            | -                       |            | 0.000            | 0.000            | 6.077      |                          |
| Advanced Design & Development                                                                                                                      | WR                     | SPAWAR:CA                      | 10.668          | 0.622   | Oct 2011   | 0.635                                                             | Nov 2012   | 0.270        | Nov 2013   | -                       |            | 0.270            | Continuing       | Continuing | Continuing               |
| Advanced Design & Development                                                                                                                      | C/CPFF                 | NAVSEA Seaport:DC              | 37.375          | 4.838   | Dec 2011   | 3.006                                                             | Dec 2012   | 2.030        | Dec 2013   | -                       |            | 2.030            | Continuing       | Continuing | Continuing               |
| Advanced Design & Development                                                                                                                      | WR                     | SSC Atlantic:SC                | 0.122           | 0.264   | Nov 2011   | 0.000                                                             |            | 0.000        |            | -                       |            | 0.000            | 0.000            | 0.386      |                          |
| Advanced Design & Development                                                                                                                      | Various                | Miscellaneous:Various          | 39.949          | 2.713   | Oct 2011   | 0.367                                                             | Dec 2012   | 0.358        | Dec 2013   | -                       |            | 0.358            | Continuing       | Continuing | Continuing               |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                             |                        |                                |                 |         |            |                                                                   |            |              |            |                         |            | DATE: April 2013 |                  |            |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------|-----------------|---------|------------|-------------------------------------------------------------------|------------|--------------|------------|-------------------------|------------|------------------|------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                        |                                |                 |         |            | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |            |              |            | PROJECT<br>2208: CVN 21 |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                                                                                                               |                        |                                |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO             |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                    | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Subtotal                                                                                                                                           |                        |                                | 738.041         | 22.954  |            | 31.673                                                            |            | 21.333       |            | 0.000                   |            | 21.333           |                  |            |                          |
| Test and Evaluation (\$ in Millions)                                                                                                               |                        |                                |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO             |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                    | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation                                                                                                                    | C/CPAF                 | HII:VA                         | 9.821           | 0.000   | Dec 2011   | 0.341                                                             | Nov 2012   | 1.497        | Nov 2013   | -                       |            | 1.497            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NAWCAD Patuxent River:MD       | 16.975          | 1.689   | Nov 2011   | 0.000                                                             | Nov 2012   | 2.405        | Nov 2013   | -                       |            | 2.405            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NSWC Dahlgren:VA               | 4.147           | 1.044   | Nov 2011   | 0.000                                                             | Nov 2012   | 0.842        | Nov 2013   | -                       |            | 0.842            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NSWC Carderock:MD              | 11.028          | 0.000   | Nov 2011   | 3.321                                                             | Nov 2012   | 1.964        | Nov 2013   | -                       |            | 1.964            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | SPAWAR:CA                      | 3.291           | 0.000   | Nov 2011   | 0.000                                                             | Nov 2012   | 0.517        | Nov 2013   | -                       |            | 0.517            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | C/CPFF                 | NAVSEA SeaPort:DC              | 0.143           | 0.075   | Mar 2012   | 0.000                                                             |            | 0.000        |            | -                       |            | 0.000            | 0.000            | 0.218      |                          |
| Developmental Test & Evaluation                                                                                                                    | C/CPAF                 | Raytheon:VA                    | 2.174           | 0.499   | Dec 2011   | 0.341                                                             | Dec 2012   | 0.374        | Dec 2013   | -                       |            | 0.374            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | Various                | Miscellaneous:Various          | 10.328          | 0.120   | Nov 2011   | 0.000                                                             | Dec 2012   | 0.678        | Dec 2013   | -                       |            | 0.678            | Continuing       | Continuing | Continuing               |
| Developmental Test & Evaluation                                                                                                                    | WR                     | SSC Atlantic:SC                | 0.319           | 0.060   | Nov 2011   | 0.000                                                             | Nov 2012   | 0.109        | Nov 2013   | -                       |            | 0.109            | Continuing       | Continuing | Continuing               |
| Operational Test & Evaluation                                                                                                                      | WR                     | COMOPTEVFOR:VA                 | 4.429           | 0.727   | Nov 2011   | 0.997                                                             | Dec 2012   | 1.919        | Dec 2013   | -                       |            | 1.919            | Continuing       | Continuing | Continuing               |
| Subtotal                                                                                                                                           |                        |                                | 62.655          | 4.214   |            | 5.000                                                             |            | 10.305       |            | 0.000                   |            | 10.305           |                  |            |                          |

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|---------------------------------------------------------------------------------|--|--|--|---------------------------------------|--|-------------------------|--|--|--|
| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2014 Navy                                                                                                                   |  |  |  |  |  |                                                                                 |  |  |  |                                       |  | <b>DATE:</b> April 2013 |  |  |  |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> |  |  |  |  |  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> |  |  |  | <b>PROJECT</b><br>2208: <i>CVN 21</i> |  |                         |  |  |  |

| <b>Management Services (\$ in Millions)</b> |                                   |                                           |                        | <b>FY 2012</b> |                   | <b>FY 2013</b> |                   | <b>FY 2014 Base</b> |                   | <b>FY 2014 OCO</b> |                   | <b>FY 2014 Total</b> |                         |                   |                                 |  |
|---------------------------------------------|-----------------------------------|-------------------------------------------|------------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|--|
| <b>Cost Category Item</b>                   | <b>Contract Method &amp; Type</b> | <b>Performing Activity &amp; Location</b> | <b>All Prior Years</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>         | <b>Award Date</b> | <b>Cost</b>        | <b>Award Date</b> | <b>Cost</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |  |
| Defense Acquisition Workforce               | Various                           | Various:Various                           | 0.275                  | 0.000          |                   | 0.000          |                   | 0.000               |                   | -                  |                   | 0.000                | 0.000                   | 0.275             |                                 |  |
| <b>Subtotal</b>                             |                                   |                                           | 0.275                  | 0.000          |                   | 0.000          |                   | 0.000               |                   | 0.000              |                   | 0.000                | 0.000                   | 0.275             |                                 |  |

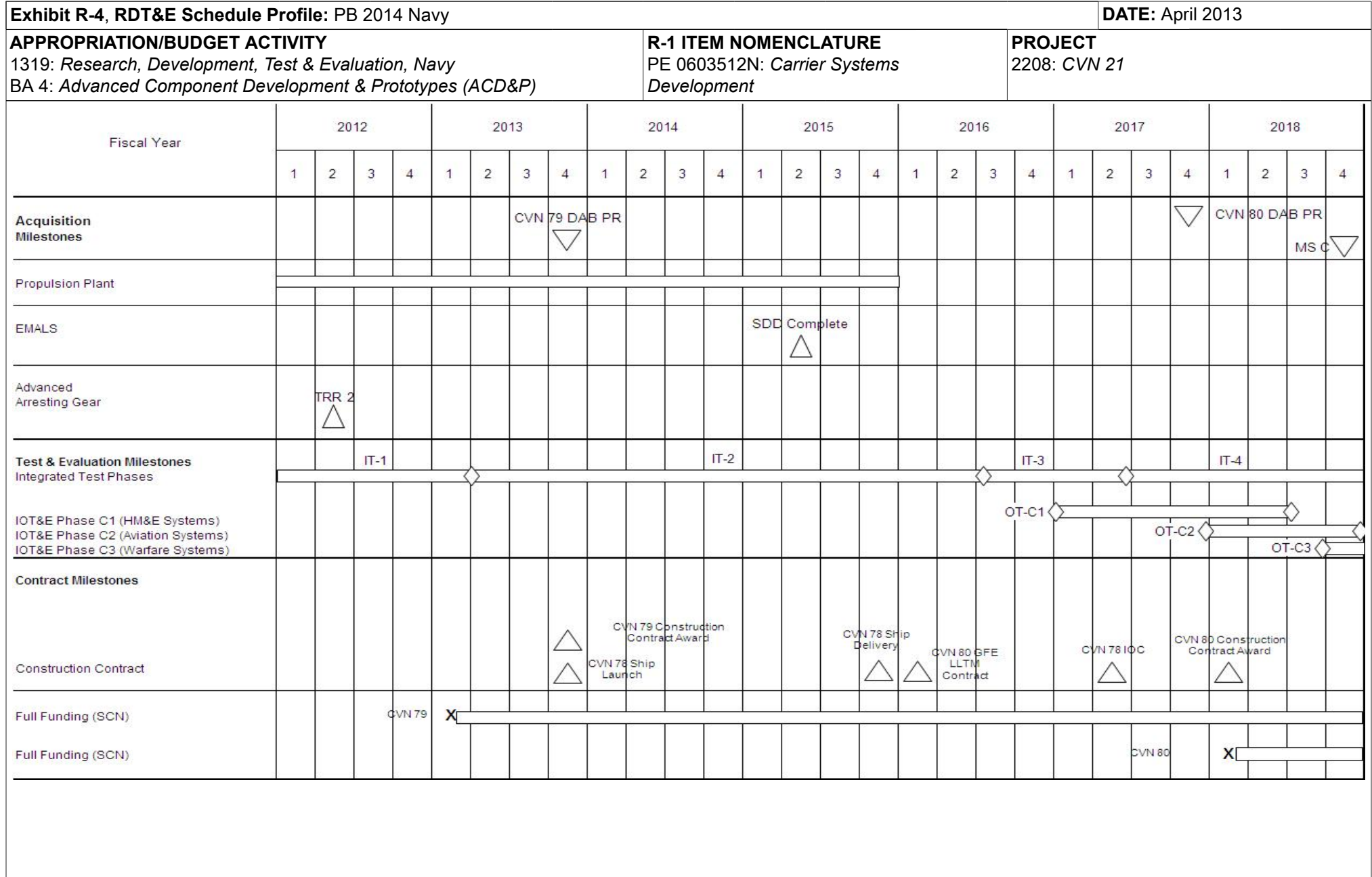
  

|                            | <b>All Prior Years</b> | <b>FY 2012</b> |  | <b>FY 2013</b> |  | <b>FY 2014 Base</b> |  | <b>FY 2014 OCO</b> |  | <b>FY 2014 Total</b> | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
|----------------------------|------------------------|----------------|--|----------------|--|---------------------|--|--------------------|--|----------------------|-------------------------|-------------------|---------------------------------|
| <b>Project Cost Totals</b> | 800.971                | 27.168         |  | 36.673         |  | 31.638              |  | 0.000              |  | 31.638               |                         |                   |                                 |

**Remarks**

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------|-------------------------|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Navy                                                                                                                       |                                                                                 |                                | <b>DATE:</b> April 2013 |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> | <b>PROJECT</b><br>2208: CVN 21 |                         |

Schedule Details

| Events by Sub Project                                    | Start   |      | End     |      |
|----------------------------------------------------------|---------|------|---------|------|
|                                                          | Quarter | Year | Quarter | Year |
| <b>Proj 2208</b>                                         |         |      |         |      |
| CVN 79 DAB PR                                            | 4       | 2013 | 4       | 2013 |
| CVN 80 DAB PR                                            | 4       | 2017 | 4       | 2017 |
| Milestone C                                              | 4       | 2018 | 4       | 2018 |
| Propulsion Plant                                         | 1       | 2012 | 4       | 2015 |
| EMALS SDD Complete                                       | 2       | 2015 | 2       | 2015 |
| AAG TRR 2 (IT)                                           | 2       | 2012 | 2       | 2012 |
| Integrated Tests 1 (IT-1)                                | 1       | 2012 | 1       | 2013 |
| Integrated Tests 2 (IT-2)                                | 1       | 2013 | 3       | 2016 |
| Integrated Tests 3 (IT-3)                                | 3       | 2016 | 2       | 2017 |
| Integrated Tests 4 (IT-4)                                | 2       | 2017 | 4       | 2018 |
| Initial Operational Test & Evaluation - Phase 1 (OT-C1)  | 1       | 2017 | 3       | 2018 |
| Initial Operational Test & Evaluation - Phase 2 (OT-C2)  | 4       | 2017 | 4       | 2018 |
| Initial Operational Test & Evaluation - Phase C3 (OT-C3) | 3       | 2018 | 4       | 2018 |
| CVN 78 Ship Launch                                       | 4       | 2013 | 4       | 2013 |
| CVN 78 Ship Delivery                                     | 4       | 2015 | 4       | 2015 |
| CVN 78 Initial Operational Capability (IOC)              | 2       | 2017 | 2       | 2017 |
| CVN 79 Construction Contract Award                       | 4       | 2013 | 4       | 2013 |
| CVN 80 GFE LLTM Contract Award                           | 1       | 2016 | 1       | 2016 |
| CVN 80 Construction Contract Award                       | 1       | 2018 | 1       | 2018 |
| CVN 79 SCN Full Funding                                  | 1       | 2013 | 4       | 2018 |
| CVN 80 SCN Full Funding                                  | 1       | 2018 | 4       | 2018 |

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|----------------------|--------------|-------------------------------------------------------------------|---------------|---------|---------|-------------------------------------------------------|---------|------------------|------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |         |                      |              |                                                                   |               |         |         | DATE: April 2013                                      |         |                  |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |         |                      |              | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |               |         |         | PROJECT<br>3216.: Tactical Support Center-Integration |         |                  |            |
| COST (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | All Prior Years | FY 2012 | FY 2013 <sup>#</sup> | FY 2014 Base | FY 2014 OCO <sup>##</sup>                                         | FY 2014 Total | FY 2015 | FY 2016 | FY 2017                                               | FY 2018 | Cost To Complete | Total Cost |
| 3216.: Tactical Support Center-Integration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14.338          | 2.060   | 9.600                | 4.546        | -                                                                 | 4.546         | 4.660   | 4.724   | 4.831                                                 | 4.901   | Continuing       | Continuing |
| Quantity of RDT&E Articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0               | 0       | 0                    | 0            |                                                                   | 0             | 0       | 0       | 0                                                     | 0       |                  |            |
| # FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |         |                      |              |                                                                   |               |         |         |                                                       |         |                  |            |
| ## The FY 2014 OCO Request will be submitted at a later date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |         |                      |              |                                                                   |               |         |         |                                                       |         |                  |            |
| A. Mission Description and Budget Item Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |         |                      |              |                                                                   |               |         |         |                                                       |         |                  |            |
| The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). Through the integration of off-board sensors with shipboard systems, including data processing and displays, the AN/SQQ-34 is utilized in detecting, classifying, and localizing threats. An integrated element of the Carrier Combat System, the AN/SQQ-34 supports the tactical deployment of embarked ASW and Surface Warfare (SUW) assets (SH-60F and MH-60R helicopters). This project provides the design, development and engineering foundation to refresh legacy AN/SQQ-34 systems on all Carriers and shore sites in support of Fleet introduction and shipboard integration of the MH-60R Multi-Mission Helicopter. Upgrades to legacy systems enable the exchange of sensor, tactical and imagery data with the MH-60R initially, followed by incremental upgrades to support CVN ASW improvements and air integration and efforts. |                 |         |                      |              |                                                                   |               |         |         |                                                       |         |                  |            |
| Additionally, this project will mature the development of low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems, and addresses the major cost drivers of planar arrays and their associated radios. This effort will be the first spiral of a major cost reduction effort for multi-beam arrays, with a goal of showing a path to a production cost of less than one third the cost of existing array technologies. This development will produce key integrated components needed to reduce the cost of arrays and will provide prototype multi-beam Ku-Band receiving and transmitting arrays/radios using these components. The effort will also emphasize advances in technologies associated with multi-path interference, scan angle losses and networking waveforms.                                                                                                                                                                                                                       |                 |         |                      |              |                                                                   |               |         |         |                                                       |         |                  |            |
| (Speed to Fleet) The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). A portion of this program will focus on maturing low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems that will be used to support data links to multiple MH-60Rs. This specific effort will address the need for low cost communications security (COMSEC) devices that are compatible with phased array systems, and that are needed to secure these data links.                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |         |                      |              |                                                                   |               |         |         |                                                       |         |                  |            |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |         |                      |              |                                                                   |               |         |         | FY 2012                                               | FY 2013 | FY 2014          |            |
| Title: MH-60R Integration Development for CV-TSC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |         |                      |              |                                                                   |               |         |         | 2.060                                                 | 7.605   | 3.570            |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |         |                      |              |                                                                   |               |         |         | 0                                                     | 0       | 0                |            |
| FY 2012 Accomplishments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |         |                      |              |                                                                   |               |         |         |                                                       |         |                  |            |
| - Completed development of software version 7.0 to include new capabilities: additional MH-60R data exchange support, remote control of MH-60R shipboard data-link, automated acoustic analysis aids, improved Directional Command Active Sonobouy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |         |                      |              |                                                                   |               |         |         |                                                       |         |                  |            |

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| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | DATE: April 2013                                                  |            |                                                       |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |            | PROJECT<br>3216.: Tactical Support Center-Integration |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | FY 2012                                                           | FY 2013    | FY 2014                                               |
| <p>System (DICASS) acoustic processing techniques, transition to Linux operating system, and coordinated replay of tactical and sensor data.</p> <ul style="list-style-type: none"><li>- Completed interface testing with the MH-60R, Common Data Link System (CDLS), Ship Self-Defense System (SSDS), and Integrated Shipboard Network System (ISNS)/ Global Command and Control System (GCCS).</li><li>- Completed notional definition of capabilities for software version 8.0.</li><li>- Obtained Platform Information Technology (PIT) Platform Risk Assessment (PRA) for software version 8.0, providing authority to operate in shipboard environment.</li><li>- Completed update of Navy Training System Plan (NTSP) and established new Navy Enlisted Classification (NEC) codes for operator and maintainer training of the new variants of the system.</li></ul> <p><b>FY 2013 Plans:</b></p> <ul style="list-style-type: none"><li>- Begin development on software version 8.0 to include: integration of Periscope Detection Radar (PDR) data, common Anti-Submarine Warfare (ASW) air control decision aids, sensor performance prediction tools for MH-60R acoustic sensors, required changes for interoperability with SSDS and CDL, transitioning Science and Technology (S&amp;T) efforts for embedded training and automate sensor analysis aids.</li><li>- Conduct incremental requirements, design, and test reviews.</li><li>- Complete Technology Transition Agreement (TTA) between the Office of Naval Research (ONR), OPNAV N980C, and PEO IWS5 for low cost planar arrays to support multiple MH-60R datalinks.</li></ul> <p><b>FY 2014 Plans:</b></p> <ul style="list-style-type: none"><li>- Continue development on software version 8.0 to include: integration of PDR data, common ASW air control decision aids, sensor performance prediction tools for MH-60R acoustic sensors, required changes for interoperability with SSDS and CDL, transitioning S&amp;T efforts for embedded training and automate sensor analysis aids.</li><li>- Conduct incremental requirements, design, and test reviews.</li><li>- Complete software and prepare for combat system certification testing.</li><li>- Define capabilities definition and decompose requirements for software version 9.0.</li></ul> |  |                                                                   |            |                                                       |
| <p><b>Title:</b> Phased Array COMSEC</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). A portion of this program will focus on maturing low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems that will be used to support data links to multiple MH-60Rs. This specific effort will address the need for low cost communications security (COMSEC) devices that are compatible with phased array systems, and that are needed to secure these data links.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | 0.000                                                             | 1.995<br>0 | 0.976<br>0                                            |

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|-------------------------------|---------------------------------------------------------------------------------|--------------------------------|----------------|---------------------------------------------------------------------|----------------|----------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                |                               |                                                                                 |                                |                | <b>DATE:</b> April 2013                                             |                |                |                         |                   |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |                |                               | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> |                                |                | <b>PROJECT</b><br>3216.: <i>Tactical Support Center-Integration</i> |                |                |                         |                   |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |                |                               |                                                                                 |                                |                | <b>FY 2012</b>                                                      | <b>FY 2013</b> | <b>FY 2014</b> |                         |                   |
| <b><i>FY 2013 Plans:</i></b><br>- Develop low cost COMSEC suitable for use with phased array-based Ku-band data links to MH-60R.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |                |                               |                                                                                 |                                |                |                                                                     |                |                |                         |                   |
| <b><i>FY 2014 Plans:</i></b><br>- Complete development of low cost COMSEC suitable for use with phased array-based Ku-band data links to MH-60R.<br>- Initiate and complete testing and certification activities associated with COMSEC end units.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                |                               |                                                                                 |                                |                |                                                                     |                |                |                         |                   |
| <b>Accomplishments/Planned Programs Subtotals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                |                |                               |                                                                                 |                                |                | 2.060                                                               | 9.600          | 4.546          |                         |                   |
| <b>C. Other Program Funding Summary (\$ in Millions)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                |                |                               |                                                                                 |                                |                |                                                                     |                |                |                         |                   |
| <u>Line Item</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <u>FY 2012</u> | <u>FY 2013</u> | <u>FY 2014</u><br><u>Base</u> | <u>FY 2014</u><br><u>OCO</u>                                                    | <u>FY 2014</u><br><u>Total</u> | <u>FY 2015</u> | <u>FY 2016</u>                                                      | <u>FY 2017</u> | <u>FY 2018</u> | <u>Cost To Complete</u> | <u>Total Cost</u> |
| • OPN/2176: <i>Undersea Support Equipment (CV-TSC/CDL portion)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 15.740         | 8.348          | 0.342                         |                                                                                 | 0.342                          | 0.361          | 0.399                                                               | 0.408          | 0.415          | Continuing              | Continuing        |
| <b>Remarks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                |                               |                                                                                 |                                |                |                                                                     |                |                |                         |                   |
| <b>D. Acquisition Strategy</b><br>The CV-TSC acquisition strategy utilizes an incremental development approach that aims to deliver required capability updates on two-year intervals to the fleet. This approach allows required capability to be delivered in a timely manner and provides frequent opportunities to ensure interoperability is synchronized with the Ship Self Defense System (SSDS) Advanced Capability Builds (ACBs). The acquisition strategy places heavy emphasis on the use of open architecture best practices to ensure ease of upgrades and make developed products available to other platforms.<br>In support of MH-60R, COMSEC development and certification will be conducted under the auspices of the Naval Center for High Assurance Computer Systems at the Naval Research Laboratory (NRL). |                |                |                               |                                                                                 |                                |                |                                                                     |                |                |                         |                   |
| <b>E. Performance Metrics</b><br>- Successfully complete Preliminary Design Review (PDR) and Critical Design Review (CDR) for MH-60R system upgrade.<br>- Successfully field system that supports integration of the MH-60R on the CVN.<br>- Utilize Commercial Off-The-Shelf (COTS) based Common Processor/Common Display Systems (CPS/CDS) to minimize Total Ownership Costs (TOC).<br>Successfully complete Certification requirements for COMSEC being developed.                                                                                                                                                                                                                                                                                                                                                            |                |                |                               |                                                                                 |                                |                |                                                                     |                |                |                         |                   |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                             |                        |                                |                 |         |            |                                                                   |            |              |            |                                                       |            | DATE: April 2013 |                  |            |                          |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                        |                                |                 |         |            | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |            |              |            | PROJECT<br>3216.: Tactical Support Center-Integration |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                                                                                                               |                        |                                |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO                                           |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                                                  | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Engineering / H/W & S/W Devel / Integration                                                                                                        | WR                     | NAWC/Pax River:MD              | 0.000           | 0.000   |            | 0.669                                                             | Apr 2013   | 0.359        | Nov 2013   | -                                                     |            | 0.359            | 0.000            | 1.028      |                          |
| Engineering / H/W & S/W Devel / Integration                                                                                                        | WR                     | NRL:DC                         | 0.000           | 0.000   |            | 0.500                                                             | Apr 2013   | 0.000        |            | -                                                     |            | 0.000            | 0.000            | 0.500      |                          |
| Engineering / H/W & S/W Devel / Integration                                                                                                        | WR                     | NSWC/ Carderock:MD             | 0.000           | 0.000   |            | 0.795                                                             | Dec 2012   | 0.000        |            | -                                                     |            | 0.000            | 0.000            | 0.795      |                          |
| Engineering / H/W & S/W Devel / Integration                                                                                                        | WR                     | NSWC/Dahlgren:VA               | 0.000           | 0.000   |            | 0.500                                                             | Apr 2013   | 0.000        |            | -                                                     |            | 0.000            | 0.000            | 0.500      |                          |
| Engineering / H/W & S/W Devel / Integration                                                                                                        | WR                     | NUWC/Keyport:WA                | 9.583           | 1.515   | Dec 2011   | 3.090                                                             | Nov 2012   | 2.214        | Nov 2013   | -                                                     |            | 2.214            | Continuing       | Continuing | Continuing               |
| Engineering / H/W & S/W Devel / Integration                                                                                                        | WR                     | NUWC/Newport:RI                | 0.000           | 0.000   |            | 0.266                                                             | Apr 2013   | 0.179        | Nov 2013   | -                                                     |            | 0.179            | 0.000            | 0.445      |                          |
| System Eng / S/W Development                                                                                                                       | C/CPFF                 | Adaptive Methods:VA            | 0.300           | 0.000   |            | 0.775                                                             | Feb 2013   | 0.538        | Dec 2013   | -                                                     |            | 0.538            | 0.000            | 1.613      |                          |
| System Eng / S/W Development                                                                                                                       | C/CPFF                 | JHU/APL:MD                     | 0.250           | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                                                     |            | 0.000            | 0.000            | 0.250      |                          |
| System Eng / S/W Development                                                                                                                       | WR                     | SPAWAR:CA                      | 3.610           | 0.000   |            | 0.200                                                             | Nov 2012   | 0.000        |            | -                                                     |            | 0.000            | 0.000            | 3.810      |                          |
| Engineering / H/W & S/W Development                                                                                                                | C/CPFF                 | VAR*:VAR*                      | 0.000           | 0.000   |            | 0.520                                                             | Apr 2013   | 0.000        |            | -                                                     |            | 0.000            | 0.000            | 0.520      |                          |
| Advanced Design & Development                                                                                                                      | WR                     | NRL:DC                         | 0.000           | 0.000   |            | 1.995                                                             | Nov 2012   | 0.000        |            | -                                                     |            | 0.000            | 0.000            | 1.995      |                          |
| Subtotal                                                                                                                                           |                        |                                | 13.743          | 1.515   |            | 9.310                                                             |            | 3.290        |            | 0.000                                                 |            | 3.290            |                  |            |                          |
| Remarks<br>Engineering/H/W & S/W Development/Integration                                                                                           |                        |                                |                 |         |            |                                                                   |            |              |            |                                                       |            |                  |                  |            |                          |
| Test and Evaluation (\$ in Millions)                                                                                                               |                        |                                |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO                                           |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                                                  | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Test and Certification                                                                                                                             | WR                     | NUWC//Keyport:WA               | 0.500           | 0.470   | Dec 2011   | 0.235                                                             | Nov 2012   | 0.225        | Nov 2013   | -                                                     |            | 0.225            | Continuing       | Continuing | Continuing               |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2014 Navy</b>                                                                                                                   |                                   |                                           |                        |                |                   |                                                                                 |                   |                     |                   |                    |                   | <b>DATE:</b> April 2013                                             |                         |                   |                                 |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> |                                   |                                           |                        |                |                   | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> |                   |                     |                   |                    |                   | <b>PROJECT</b><br>3216.: <i>Tactical Support Center-Integration</i> |                         |                   |                                 |
| <b>Test and Evaluation (\$ in Millions)</b>                                                                                                                                         |                                   |                                           |                        | <b>FY 2012</b> |                   | <b>FY 2013</b>                                                                  |                   | <b>FY 2014 Base</b> |                   | <b>FY 2014 OCO</b> |                   | <b>FY 2014 Total</b>                                                |                         |                   |                                 |
| <b>Cost Category Item</b>                                                                                                                                                           | <b>Contract Method &amp; Type</b> | <b>Performing Activity &amp; Location</b> | <b>All Prior Years</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>                                                                     | <b>Award Date</b> | <b>Cost</b>         | <b>Award Date</b> | <b>Cost</b>        | <b>Award Date</b> | <b>Cost</b>                                                         | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| Functional and Certification Testing                                                                                                                                                | WR                                | NRL:DC                                    | 0.000                  | 0.000          |                   | 0.000                                                                           |                   | 0.976               | Oct 2013          | -                  |                   | 0.976                                                               | 0.000                   | 0.976             |                                 |
| <b>Subtotal</b>                                                                                                                                                                     |                                   |                                           | 0.500                  | 0.470          |                   | 0.235                                                                           |                   | 1.201               |                   | 0.000              |                   | 1.201                                                               |                         |                   |                                 |
| <b>Remarks</b><br>Testing and Certification                                                                                                                                         |                                   |                                           |                        |                |                   |                                                                                 |                   |                     |                   |                    |                   |                                                                     |                         |                   |                                 |
| <b>Management Services (\$ in Millions)</b>                                                                                                                                         |                                   |                                           |                        | <b>FY 2012</b> |                   | <b>FY 2013</b>                                                                  |                   | <b>FY 2014 Base</b> |                   | <b>FY 2014 OCO</b> |                   | <b>FY 2014 Total</b>                                                |                         |                   |                                 |
| <b>Cost Category Item</b>                                                                                                                                                           | <b>Contract Method &amp; Type</b> | <b>Performing Activity &amp; Location</b> | <b>All Prior Years</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>                                                                     | <b>Award Date</b> | <b>Cost</b>         | <b>Award Date</b> | <b>Cost</b>        | <b>Award Date</b> | <b>Cost</b>                                                         | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| Program Management Support                                                                                                                                                          | C/CPAF                            | BAE Systems:MD                            | 0.095                  | 0.075          | Feb 2012          | 0.055                                                                           | Apr 2013          | 0.055               | Dec 2013          | -                  |                   | 0.055                                                               | Continuing              | Continuing        | Continuing                      |
| <b>Subtotal</b>                                                                                                                                                                     |                                   |                                           | 0.095                  | 0.075          |                   | 0.055                                                                           |                   | 0.055               |                   | 0.000              |                   | 0.055                                                               |                         |                   |                                 |
| <b>Remarks</b><br>N/A                                                                                                                                                               |                                   |                                           |                        |                |                   |                                                                                 |                   |                     |                   |                    |                   |                                                                     |                         |                   |                                 |
|                                                                                                                                                                                     |                                   |                                           | <b>All Prior Years</b> | <b>FY 2012</b> |                   | <b>FY 2013</b>                                                                  |                   | <b>FY 2014 Base</b> |                   | <b>FY 2014 OCO</b> |                   | <b>FY 2014 Total</b>                                                | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| <b>Project Cost Totals</b>                                                                                                                                                          |                                   |                                           | 14.338                 | 2.060          |                   | 9.600                                                                           |                   | 4.546               |                   | 0.000              |                   | 4.546                                                               |                         |                   |                                 |
| <b>Remarks</b>                                                                                                                                                                      |                                   |                                           |                        |                |                   |                                                                                 |                   |                     |                   |                    |                   |                                                                     |                         |                   |                                 |

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy

DATE: April 2013

## APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy

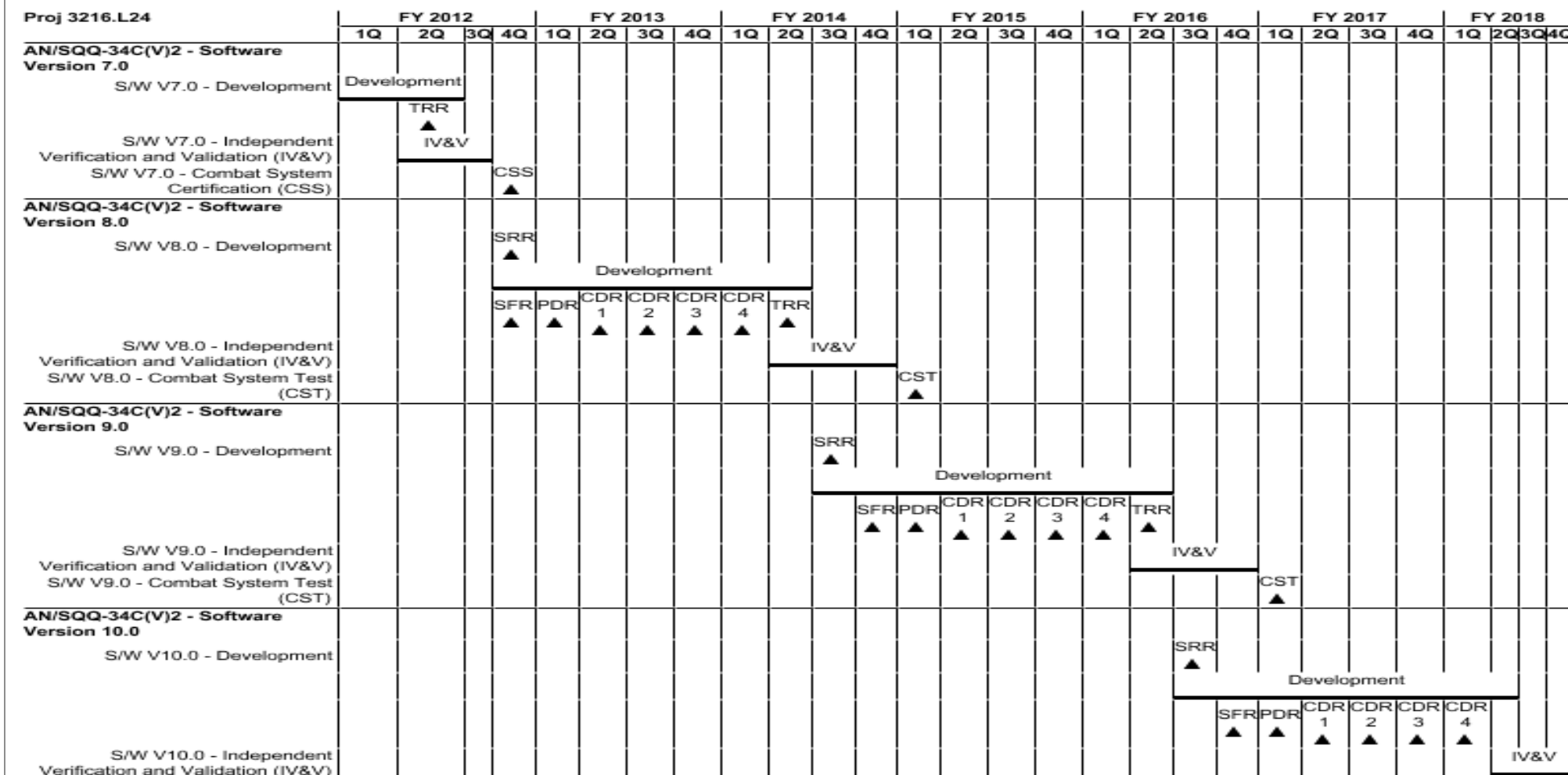
BA 4: Advanced Component Development & Prototypes (ACD&P)

## R-1 ITEM NOMENCLATURE

PE 0603512N: Carrier Systems Development

## PROJECT

3216.: Tactical Support Center-Integration



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| Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy                                                                                                                            |                                                                          | DATE: April 2013                                             |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | R-1 ITEM NOMENCLATURE<br>PE 0603512N: <i>Carrier Systems Development</i> | PROJECT<br>3216.: <i>Tactical Support Center-Integration</i> |
| 2014PB - 0603512N - 3216.L24                                                                                                                                                 |                                                                          |                                                              |
|                                                                                                                                                                              |                                                                          |                                                              |

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy

DATE: April 2013

## APPROPRIATION/BUDGET ACTIVITY

1319: Research, Development, Test & Evaluation, Navy  
BA 4: Advanced Component Development & Prototypes (ACD&P)

## R-1 ITEM NOMENCLATURE

PE 0603512N: Carrier Systems Development

## PROJECT

3216.: Tactical Support Center-Integration

| Speed to Fleet: COMSEC                 | FY 2012 |    |    |    | FY 2013       |              |       |    | FY 2014               |               |    |    | FY 2015 |    |    |    | FY 2016 |    |    |    | FY 2017 |    |    |    | FY 2018 |    |    |    |
|----------------------------------------|---------|----|----|----|---------------|--------------|-------|----|-----------------------|---------------|----|----|---------|----|----|----|---------|----|----|----|---------|----|----|----|---------|----|----|----|
|                                        | 1Q      | 2Q | 3Q | 4Q | 1Q            | 2Q           | 3Q    | 4Q | 1Q                    | 2Q            | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q | 1Q      | 2Q | 3Q | 4Q |
| <b>COMSEC Requirement</b>              |         |    |    |    |               |              |       |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| Identify COMSEC Requirement            |         |    |    |    | Requirement   |              |       |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| <b>COMSEC Design &amp; Development</b> |         |    |    |    |               |              |       |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| COMSEC Initial Design                  |         |    |    |    | Prelim Design |              |       |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| COMSEC Detailed Design                 |         |    |    |    |               | Final Design |       |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| COMSEC Hardware/Software               |         |    |    |    |               |              | HW/SW |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| <b>COMSEC Testing</b>                  |         |    |    |    |               |              |       |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| COMSEC Functional Testing              |         |    |    |    |               |              |       |    | HW/SW Functional Test |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| COMSEC Certification Testing           |         |    |    |    |               |              |       |    |                       | Certification |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| <b>COMSEC Reviews</b>                  |         |    |    |    |               |              |       |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| COMSEC Initial Design                  |         |    |    |    | IDR ▲         |              |       |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |
| COMSEC Final Design                    |         |    |    |    |               | FDR ▲        |       |    |                       |               |    |    |         |    |    |    |         |    |    |    |         |    |    |    |         |    |    |    |

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Navy                                                                                                                       |                                                                                 |                                                                     | <b>DATE:</b> April 2013 |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> | <b>PROJECT</b><br>3216.: <i>Tactical Support Center-Integration</i> |                         |

**Schedule Details**

| Events by Sub Project                                                                                      | Start   |      | End     |      |
|------------------------------------------------------------------------------------------------------------|---------|------|---------|------|
|                                                                                                            | Quarter | Year | Quarter | Year |
| <b>Proj 3216.L24</b>                                                                                       |         |      |         |      |
| AN/SQQ-34C(V)2 - Software Version 7.0: S/W V7.0 - Development: S/W V7.0 - Development                      | 1       | 2012 | 2       | 2012 |
| AN/SQQ-34C(V)2 - Software Version 7.0: S/W V7.0 - Development: S/W V7.0 - Test Readiness Review (TRR)      | 2       | 2012 | 2       | 2012 |
| AN/SQQ-34C(V)2 - Software Version 7.0: S/W V7.0 - Independent Verification and Validation (IV&V): IV&V     | 2       | 2012 | 3       | 2012 |
| AN/SQQ-34C(V)2 - Software Version 7.0: S/W V7.0 - Combat System Certification (CSS): CSS                   | 4       | 2012 | 4       | 2012 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - System Requirements Review (SRR) | 4       | 2012 | 4       | 2012 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Development                      | 4       | 2012 | 2       | 2014 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - System Functional Review (SFR)   | 4       | 2012 | 4       | 2012 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Preliminary Design Review (PDR)  | 1       | 2013 | 1       | 2013 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Critical Design Review (CDR) 1   | 2       | 2013 | 2       | 2013 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Critical Design Review (CDR) 2   | 3       | 2013 | 3       | 2013 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Critical Design Review (CDR) 3   | 4       | 2013 | 4       | 2013 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Critical Design Review (CDR) 4   | 1       | 2014 | 1       | 2014 |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy                                                                                                 |  |                                                                   | DATE: April 2013 |                                                       |      |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |  | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |                  | PROJECT<br>3216.: Tactical Support Center-Integration |      |
|                                                                                                                                                    |  | Start                                                             |                  | End                                                   |      |
| Events by Sub Project                                                                                                                              |  | Quarter                                                           | Year             | Quarter                                               | Year |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Development: S/W V8.0 - Test Readiness Review (TRR)                                              |  | 2                                                                 | 2014             | 2                                                     | 2014 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Independent Verification and Validation (IV&V): IV&V                                             |  | 2                                                                 | 2014             | 4                                                     | 2014 |
| AN/SQQ-34C(V)2 - Software Version 8.0: S/W V8.0 - Combat System Test (CST): CST                                                                    |  | 1                                                                 | 2015             | 1                                                     | 2015 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - System Requirements Review (SRR)                                         |  | 3                                                                 | 2014             | 3                                                     | 2014 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Development                                                              |  | 3                                                                 | 2014             | 2                                                     | 2016 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - System Functional Review (SFR)                                           |  | 4                                                                 | 2014             | 4                                                     | 2014 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Preliminary Design Review (PDR)                                          |  | 1                                                                 | 2015             | 1                                                     | 2015 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Critical Design Review (CDR) 1                                           |  | 2                                                                 | 2015             | 2                                                     | 2015 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Critical Design Review (CDR) 2                                           |  | 3                                                                 | 2015             | 3                                                     | 2015 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Critical Design Review (CDR) 3                                           |  | 4                                                                 | 2015             | 4                                                     | 2015 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Critical Design Review (CDR) 4                                           |  | 1                                                                 | 2016             | 1                                                     | 2016 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Development: S/W V9.0 - Test Readiness Review (TRR)                                              |  | 2                                                                 | 2016             | 2                                                     | 2016 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Independent Verification and Validation (IV&V): IV&V                                             |  | 2                                                                 | 2016             | 4                                                     | 2016 |
| AN/SQQ-34C(V)2 - Software Version 9.0: S/W V9.0 - Combat System Test (CST): CST                                                                    |  | 1                                                                 | 2017             | 1                                                     | 2017 |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy                                                                                                 |  |                                                                   | DATE: April 2013 |                                                       |      |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |  | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |                  | PROJECT<br>3216.: Tactical Support Center-Integration |      |
|                                                                                                                                                    |  | Start                                                             |                  | End                                                   |      |
| Events by Sub Project                                                                                                                              |  | Quarter                                                           | Year             | Quarter                                               | Year |
| AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - System Requirements Review (SRR)                                      |  | 3                                                                 | 2016             | 3                                                     | 2016 |
| AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Development                                                           |  | 3                                                                 | 2016             | 2                                                     | 2018 |
| AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - System Functional Review (SFR)                                        |  | 4                                                                 | 2016             | 4                                                     | 2016 |
| AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Preliminary Design Review (PDR)                                       |  | 1                                                                 | 2017             | 1                                                     | 2017 |
| AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Critical Design Review (CDR) 1                                        |  | 2                                                                 | 2017             | 2                                                     | 2017 |
| AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Critical Design Review (CDR) 2                                        |  | 3                                                                 | 2017             | 3                                                     | 2017 |
| AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Critical Design Review (CDR) 3                                        |  | 4                                                                 | 2017             | 4                                                     | 2017 |
| AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Development: S/W V10.0 - Critical Design Review (CDR) 4                                        |  | 1                                                                 | 2018             | 1                                                     | 2018 |
| AN/SQQ-34C(V)2 - Software Version 10.0: S/W V10.0 - Independent Verification and Validation (IV&V): IV&V                                           |  | 2                                                                 | 2018             | 4                                                     | 2018 |
| Speed to Fleet: COMSEC                                                                                                                             |  |                                                                   |                  |                                                       |      |
| COMSEC Requirement: Identify COMSEC Requirement: COMSEC Requirement                                                                                |  | 1                                                                 | 2013             | 1                                                     | 2013 |
| COMSEC Design & Development: COMSEC Initial Design: Preliminary Design                                                                             |  | 1                                                                 | 2013             | 2                                                     | 2013 |
| COMSEC Design & Development: COMSEC Detailed Design: Final Design                                                                                  |  | 2                                                                 | 2013             | 3                                                     | 2013 |
| COMSEC Design & Development: COMSEC Hardware/Software: Hardware/Software Completion                                                                |  | 3                                                                 | 2013             | 4                                                     | 2013 |
| COMSEC Testing: COMSEC Functional Testing: Hardware/Software Functional Testing                                                                    |  | 1                                                                 | 2014             | 1                                                     | 2014 |
| COMSEC Testing: COMSEC Certification Testing: Formal Certification Testing                                                                         |  | 2                                                                 | 2014             | 4                                                     | 2014 |
| COMSEC Reviews: COMSEC Initial Design: Initial Design Review                                                                                       |  | 1                                                                 | 2013             | 1                                                     | 2013 |

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|-----------------------------------------------------------|--|------------------------------|--------------------------------------------|--------------|
| Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy        |  |                              | DATE: April 2013                           |              |
| APPROPRIATION/BUDGET ACTIVITY                             |  | R-1 ITEM NOMENCLATURE        | PROJECT                                    |              |
| 1319: Research, Development, Test & Evaluation, Navy      |  | PE 0603512N: Carrier Systems | 3216.: Tactical Support Center-Integration |              |
| BA 4: Advanced Component Development & Prototypes (ACD&P) |  | Development                  |                                            |              |
|                                                           |  | Start                        |                                            | End          |
| Events by Sub Project                                     |  | Quarter                      | Year                                       | Quarter Year |
| COMSEC Reviews: COMSEC Final Design: Final Design Review  |  | 2                            | 2013                                       | 2 2013       |

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|----------------------|--------------|-------------------------------------------------------------------|---------------|---------|---------|------------------------|---------|------------------|------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |         |                      |              |                                                                   |               |         |         | DATE: April 2013       |         |                  |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |         |                      |              | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |               |         |         | PROJECT<br>4004: EMALS |         |                  |            |
| COST (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | All Prior Years | FY 2012 | FY 2013 <sup>#</sup> | FY 2014 Base | FY 2014 OCO <sup>##</sup>                                         | FY 2014 Total | FY 2015 | FY 2016 | FY 2017                | FY 2018 | Cost To Complete | Total Cost |
| 4004: EMALS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 694.848         | 30.995  | 60.861               | 43.003       | -                                                                 | 43.003        | 2.443   | 2.507   | 0.000                  | 0.000   | 0.000            | 834.657    |
| Quantity of RDT&E Articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0               | 0       | 0                    | 0            |                                                                   | 0             | 0       | 0       | 0                      | 0       |                  |            |
| # FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |         |                      |              |                                                                   |               |         |         |                        |         |                  |            |
| ## The FY 2014 OCO Request will be submitted at a later date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |         |                      |              |                                                                   |               |         |         |                        |         |                  |            |
| A. Mission Description and Budget Item Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |         |                      |              |                                                                   |               |         |         |                        |         |                  |            |
| This project provides for the development of an advanced technology aircraft launch system in support of the CVN 78 design and construction schedule, as well as Engineering and Life Cycle System (E&LCS) design. The Electromagnetic Aircraft Launch System (EMALS) will be the aircraft catapult for CVN 78 Class ships. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability, and reduced operator and maintainer workload.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |         |                      |              |                                                                   |               |         |         |                        |         |                  |            |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |         |                      |              |                                                                   |               |         |         | FY 2012                | FY 2013 | FY 2014          |            |
| Title: EMALS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |         |                      |              |                                                                   |               |         |         | 30.995                 | 60.861  | 43.003           |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |         |                      |              |                                                                   |               |         |         | Articles: 0            | 0       | 0                |            |
| Description: EMALS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |         |                      |              |                                                                   |               |         |         |                        |         |                  |            |
| FY 2012 Accomplishments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |         |                      |              |                                                                   |               |         |         |                        |         |                  |            |
| (1) EMALS System Development and Demonstration (SDD) Phase - Transition to Test and Evaluation phase. Continued shipboard representative system development, testing and risk mitigation efforts including: 1) Highly Accelerated Life Testing (HALT) of trough components; 2) High Cycle Testing (HCT) of power equipment; 3) Full Scale Catapult System Functional Demonstration (SFD); 4) Aircraft Compatibility Testing (ACT) Phase I; 5) Site re-configuration to support further risk mitigation testing for shared Energy Storage Subsystem (ESS) and Shared Inverter Testing; 6) Electromagnetic Interference (EMI) tests; 7) Shock and Vibration of the EMALS Control and Instrumentation Unit, Cable Disconnect Unit and Large Capacity Deck Simulation Fixture; 8) Humidity, Harmonics and Thermal Performance Testing of the Transformer/Rectifier and General Environment Testing of various other EMALS components. Continued and completed EMALS Integrated Logistics Support (ILS) Development tasks under the SDD contract. |                 |         |                      |              |                                                                   |               |         |         |                        |         |                  |            |
| (2) EMALS ILS Development Order against the EMALS Basic Ordering Agreement (BOA) with General Atomics - Developed and released the Request for Proposal, conducted Technical and Cost Evaluations against contractor proposals, entered formal negotiations for a 4Q FY12 Award.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |         |                      |              |                                                                   |               |         |         |                        |         |                  |            |
| FY 2013 Plans:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |         |                      |              |                                                                   |               |         |         |                        |         |                  |            |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                 | <b>DATE:</b> April 2013              |                |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> | <b>PROJECT</b><br>4004: <i>EMALS</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 | <b>FY 2012</b>                       | <b>FY 2013</b> |
| <p>EMALS SDD - Conduct and complete Shared ESS Testing, Shared Inverter Testing and ACT Phase 2 at the SFD site and perform shipboard risk mitigation testing prior to conducting multiple ESS motor generators feeding multiple launchers onboard ship. The shared Inverter testing will execute no load and deadload launches with Inverters in a shipboard master/two slave configuration vice the SFD master/one slave configuration that has already been demonstrated. Complete ACT Phase 2 requirements verification testing at SFD requiring aircraft launches as well as development of the aircraft launch bulletins for shipboard operations. Continue Environmental Qualification Testing of EMALS components including the completion of General Environment Tests and EMI Susceptibility Tests.</p> <p>(2) EMALS BOA ILS Order - Continue the execution of the EMALS ILS Development Program. Conduct annual Logistics Reviews, Training In Process Reviews (IPRs) and Organizational and Intermediate (O &amp; I) Technical Manual IPRs. Develop or update Failure Mode Effectiveness and Criticality Analyses (FMECA), the Logistics Management Information (LMI) Database, Reliability-Centered Maintenance (RCM) Analyses, Calibration Analysis, Calibration/Measurements Requirements Summary / Instrument Calibration Procedures (CMRS/ICP), Manpower Analyses, O&amp;I Maintenance Plans, Task Analyses/Narratives, Provisioning Documentation, Post Production Support Planning/ Diminishing Manufacturing Sources &amp; Material Shortages (PPSP/ DMSMS) Screening and Analyses, and Support Equipment Identification and Technical Data. Continue to develop and complete O&amp;I Level Interactive Electronic Technical Manuals for both the Operators and Maintainers. Continue to develop Training Documents and the Navy Formal Training Course. Develop the Maintenance Demonstration (M-Demo) Plan, Shipboard Facility Requirements Document (FRD) and the Training FRD.</p> <p><b>FY 2014 Plans:</b></p> <p>EMALS SDD - Conduct full system and risk mitigation testing at the SFD site by completing Repeated Cycles with Deadload Testing and Gap Variation Tests. Run multiple Cycles with Deadloads to bring the EMALS system up to 4000 deadload launches as part of the reliability growth Program. Perform Gap Variation Tests to simulate shipboard variations in the Launch Motor Subsystem gap at the SFD site as a shipboard risk mitigation.</p> <p>(2) EMALS BOA ILS Order - Continue the execution of the EMALS ILS Development Program. Conduct annual Logistics Reviews, Training IPR and O &amp; I Level Technical Manual IPRs. Based on the development and availability of Engineering source data for each of the six EMALS subsystems and allocated resources, develop or update FMECAs, LMI Database, CMRS/ ICP, Manpower Analyses, O&amp;I Maintenance Plans, Provisioning Documentation, PPSP/DMSMS Screening and Analyses, and Support Equipment Identification and Technical Data. Continue to develop Training Documents, the Navy Formal Training Course and conduct Pre-Commissioning Unit Training. Conduct the M-Demo at the SFD facility. Complete the Shipboard FRD and the Training FRD.</p> |                                                                                 |                                      |                |
| <b>Accomplishments/Planned Programs Subtotals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 | 30.995                               | 60.861         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                 |                                      | 43.003         |

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| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |         |                 |                                                                   |                  |           |           |                        |           | DATE: April 2013    |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |         |                 | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |                  |           |           | PROJECT<br>4004: EMALS |           |                     |            |
| C. Other Program Funding Summary (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |         |                 |                                                                   |                  |           |           |                        |           |                     |            |
| Line Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FY 2012 | FY 2013 | FY 2014<br>Base | FY 2014<br>OCO                                                    | FY 2014<br>Total | FY 2015   | FY 2016   | FY 2017                | FY 2018   | Cost To<br>Complete | Total Cost |
| • RD TEN/0604567N: Project Units 3179, 4007                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 20.325  | 13.862  | 15.572          |                                                                   | 15.572           | 20.365    | 21.315    | 22.885                 | 20.140    | Continuing          | Continuing |
| • RD TEN/0603570N: Propulsion Plant Development (PU 2692)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 65.808  | 62.020  | 57.499          |                                                                   | 57.499           | 56.693    | 0.000     | 0.000                  | 0.000     | 0.000               | 1,526.874  |
| • SCN/2001: Carrier Replacement Program                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 554.798 | 608.195 | 944.866         |                                                                   | 944.866          | 1,834.072 | 1,918.441 | 2,539.826              | 2,954.419 | Continuing          | Continuing |
| • SCN/5300: Completion of Prior Year Shipbuilding Programs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.000   | 0.000   | 588.100         |                                                                   | 588.100          | 729.000   | 0.000     | 0.000                  | 0.000     | 0.000               | 1,317.100  |
| Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |         |                 |                                                                   |                  |           |           |                        |           |                     |            |
| D. Acquisition Strategy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |         |                 |                                                                   |                  |           |           |                        |           |                     |            |
| The CVN 78 is the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system (EMALS), advanced arresting gear (AAG) system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation rate, improved ship self-defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades. |         |         |                 |                                                                   |                  |           |           |                        |           |                     |            |
| E. Performance Metrics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |         |                 |                                                                   |                  |           |           |                        |           |                     |            |
| Successfully complete Highly Accelerated Life Test (HALT) Phase II. Successfully complete System Functional Demonstration (SFD) testing. Successfully complete Environmental Qualification Testing (EQT). Successfully complete Shipset Controls Lab testing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |         |                 |                                                                   |                  |           |           |                        |           |                     |            |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                             |                        |                                      |                 |         |            |                                                                   |            |              |            |                        |            | DATE: April 2013 |                  |            |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------------|-----------------|---------|------------|-------------------------------------------------------------------|------------|--------------|------------|------------------------|------------|------------------|------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                        |                                      |                 |         |            | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |            |              |            | PROJECT<br>4004: EMALS |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                                                                                                               |                        |                                      |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO            |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location       | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                   | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Aircraft Launch, Recovery & Support                                                                                                                | C/CPAF                 | Northrop Grumman:VA                  | 86.673          | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                      |            | 0.000            | 0.000            | 86.673     |                          |
| Aircraft Launch, Recovery & Support                                                                                                                | C/CPAF                 | General Atomics (PDRR):CA            | 82.719          | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                      |            | 0.000            | 0.000            | 82.719     |                          |
| Aircraft Launch, Recovery & Support                                                                                                                | C/CPAF                 | General Atomics (SDD):CA             | 390.728         | 16.698  | Dec 2011   | 23.861                                                            | Dec 2012   | 22.203       | Dec 2013   | -                      |            | 22.203           | 0.000            | 453.490    | 408.301                  |
| Aircraft Launch, Recovery & Support                                                                                                                | C/CPFF                 | General Atomics (BOA):CA             | 0.000           | 4.000   | Aug 2012   | 21.300                                                            | Nov 2012   | 15.000       | Nov 2013   | -                      |            | 15.000           | 0.000            | 40.300     |                          |
| Aircraft Launch, Recovery & Support                                                                                                                | WR                     | NAWC Lakehurst:NJ                    | 44.704          | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                      |            | 0.000            | 0.000            | 44.704     |                          |
| Aircraft Launch, Recovery & Support                                                                                                                | C/CPAF                 | HIINC:VA                             | 3.126           | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                      |            | 0.000            | 0.000            | 3.126      |                          |
| Aircraft Launch, Recovery & Support                                                                                                                | C/CPAF                 | General Atomics (SDD) - Award Fee:CA | 14.253          | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                      |            | 0.000            | 0.000            | 14.253     | 14.253                   |
| Subtotal                                                                                                                                           |                        |                                      | 622.203         | 20.698  |            | 45.161                                                            |            | 37.203       |            | 0.000                  |            | 37.203           | 0.000            | 725.265    |                          |
| Test and Evaluation (\$ in Millions)                                                                                                               |                        |                                      |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO            |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location       | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                   | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Aircraft Launch, Recovery & Support                                                                                                                | WR                     | NAWC Lakehurst:NJ                    | 72.346          | 10.297  | Dec 2011   | 15.700                                                            | Dec 2012   | 5.800        | Dec 2013   | -                      |            | 5.800            | 0.000            | 104.143    |                          |
| Subtotal                                                                                                                                           |                        |                                      | 72.346          | 10.297  |            | 15.700                                                            |            | 5.800        |            | 0.000                  |            | 5.800            | 0.000            | 104.143    |                          |
| Management Services (\$ in Millions)                                                                                                               |                        |                                      |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO            |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location       | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                   | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Defense Acquisition Workforce                                                                                                                      | Various                | Not Specified:Not Specified          | 0.299           | 0.000   |            | 0.000                                                             |            | 0.000        |            | -                      |            | 0.000            | 0.000            | 0.299      |                          |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2014 Navy                                                                                                                   |  |  |  |  |  |                                                                                 |  |  |  |                                      |  | <b>DATE:</b> April 2013 |  |  |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> |  |  |  |  |  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> |  |  |  | <b>PROJECT</b><br>4004: <i>EMALS</i> |  |                         |  |  |

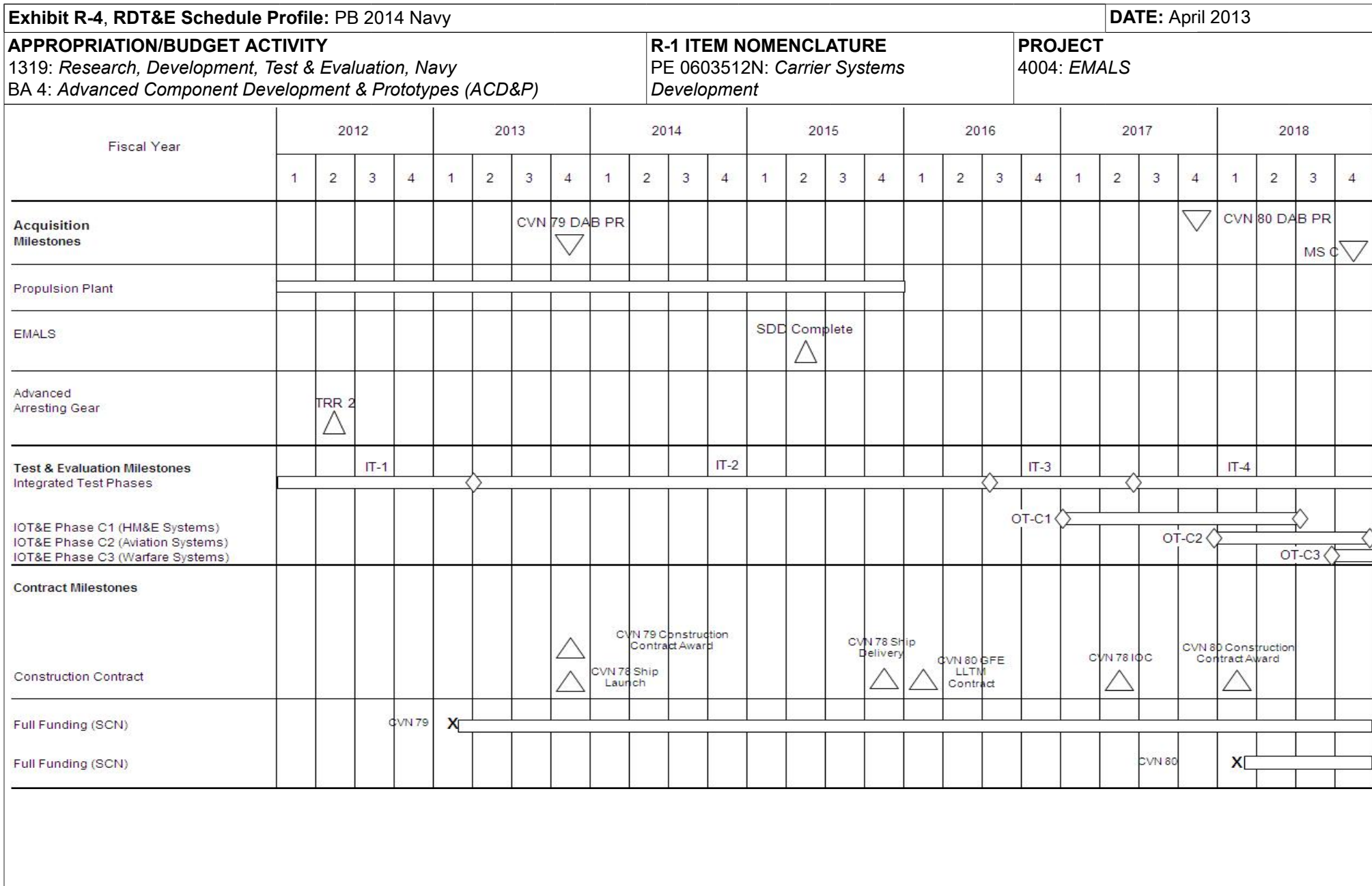
| Management Services (\$ in Millions) |                        |                                |                 | FY 2012 |            | FY 2013 |            | FY 2014 Base |            | FY 2014 OCO |            | FY 2014 Total |            |                  |            |                          |
|--------------------------------------|------------------------|--------------------------------|-----------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------|------------------|------------|--------------------------|
| Cost Category Item                   | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          | Award Date | Cost To Complete | Total Cost | Target Value of Contract |
| <b>Subtotal</b>                      |                        |                                | 0.299           | 0.000   |            | 0.000   |            | 0.000        |            | 0.000       |            | 0.000         |            | 0.000            | 0.299      |                          |

|                            | All Prior Years | FY 2012 | FY 2013 | FY 2014 Base | FY 2014 OCO | FY 2014 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-----------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| <b>Project Cost Totals</b> | 694.848         | 30.995  | 60.861  | 43.003       | 0.000       | 43.003        | 0.000            | 829.707    |                          |

**Remarks**

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------|-------------------------|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Navy                                                                                                                       |                                                                                 |                                      | <b>DATE:</b> April 2013 |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> | <b>PROJECT</b><br>4004: <i>EMALS</i> |                         |

Schedule Details

| Events by Sub Project                                   | Start   |      | End     |      |
|---------------------------------------------------------|---------|------|---------|------|
|                                                         | Quarter | Year | Quarter | Year |
| <b>Proj 4004</b>                                        |         |      |         |      |
| CVN 79 DAB PR                                           | 4       | 2013 | 4       | 2013 |
| CVN 80 DAB PR                                           | 4       | 2017 | 4       | 2017 |
| Milestone C                                             | 4       | 2018 | 4       | 2018 |
| Propulsion Plant                                        | 1       | 2012 | 4       | 2015 |
| EMALS SDD Complete                                      | 2       | 2015 | 2       | 2015 |
| AAG TRR 2 (IT)                                          | 2       | 2012 | 2       | 2012 |
| Integrated Tests 1 (IT-1)                               | 1       | 2012 | 1       | 2013 |
| Integrated Tests 2 (IT-2)                               | 1       | 2013 | 3       | 2016 |
| Integrated Tests 3 (IT-3)                               | 3       | 2016 | 2       | 2017 |
| Integrated Tests 4 (IT-4)                               | 2       | 2017 | 4       | 2018 |
| Initial Operational Test & Evaluation - Phase 1 (OT-C1) | 1       | 2017 | 3       | 2018 |
| Initial Operational Test & Evaluation - Phase 2 (OT-C2) | 4       | 2017 | 4       | 2018 |
| Initial Operational Test & Evaluation - Phase 3 (OT-C3) | 3       | 2018 | 4       | 2018 |
| CVN 78 Ship Launch                                      | 4       | 2013 | 4       | 2013 |
| CVN 78 Ship Delivery                                    | 4       | 2015 | 4       | 2015 |
| CVN 78 Ship Initial Operational Capability (IOC)        | 2       | 2017 | 2       | 2017 |
| CVN 79 Construction Contract Award                      | 4       | 2013 | 4       | 2013 |
| CVN 80 GFE LLTM Contract Award                          | 1       | 2016 | 1       | 2016 |
| CVN 80 Construction Contract Award                      | 1       | 2018 | 1       | 2018 |
| CVN 79 SCN Full Funding                                 | 1       | 2013 | 4       | 2018 |
| CVN 80 SCN Full Funding                                 | 1       | 2018 | 4       | 2018 |

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|----------------------|--------------|-------------------------------------------------------------------|---------------|---------|---------|---------------------------------------------------------|---------|------------------|------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |         |                      |              |                                                                   |               |         |         | DATE: April 2013                                        |         |                  |            |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |         |                      |              | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |               |         |         | PROJECT<br>4005: In-Service Carrier Systems Development |         |                  |            |
| COST (\$ in Millions)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | All Prior Years | FY 2012 | FY 2013 <sup>#</sup> | FY 2014 Base | FY 2014 OCO <sup>##</sup>                                         | FY 2014 Total | FY 2015 | FY 2016 | FY 2017                                                 | FY 2018 | Cost To Complete | Total Cost |
| 4005: In-Service Carrier Systems Development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15.833          | 1.686   | 1.737                | 4.715        | -                                                                 | 4.715         | 4.795   | 2.817   | 1.863                                                   | 1.887   | Continuing       | Continuing |
| Quantity of RDT&E Articles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0               | 0       | 0                    | 0            |                                                                   | 0             | 0       | 0       | 0                                                       | 0       |                  |            |
| # FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |         |                      |              |                                                                   |               |         |         |                                                         |         |                  |            |
| ## The FY 2014 OCO Request will be submitted at a later date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |         |                      |              |                                                                   |               |         |         |                                                         |         |                  |            |
| Note                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |         |                      |              |                                                                   |               |         |         |                                                         |         |                  |            |
| A portion of this effort in FY 2014 (\$3.0 million) is classified. Details are available at a higher classification level.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |         |                      |              |                                                                   |               |         |         |                                                         |         |                  |            |
| A. Mission Description and Budget Item Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |         |                      |              |                                                                   |               |         |         |                                                         |         |                  |            |
| The In-Service Carrier Systems Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs. Initial technologies include the Ship Control System Governor Software Development, Tank Preservation, Uninterruptible Power Supply (UPS) Replacements, Advanced Damage Control System (ADCS), Weapons Elevator Control Accumulator Replacement, and the Integrated Condition Assessment System. Demonstration technologies include Advanced Damage Control System (ADCS) software improvements, A/C Plant Model, Input/Output Controller (IOC) Replacement, Fleet Wireless Personal digital Assistant (PDA), Weapons Elevator Laser Positioning System, Legacy Steering Interface upgrades, CVN Integrated Topside Design (ITD) location option evaluation tools, Antenna to Antenna coupling analysis tools. Wireless systems, smart sensors, lighting systems, knowledge-based systems, automated casualty control, automated technology for workload reduction, linked smart devices, common software tools for interoperability, and self-healing network are technologies being considered for future applications including the following: Integrated Bridge control Data Logger, C4I Network Performance Modeling and Analysis, NCDS Packet Filtering Device, Network Data Logger Device, Portable Communication System (PCS) proof of concept, Ship Control System (SCS) Onboard trainer, Universal Portable Command and Control Unit (PCCU). Additionally there is a classified project starting in FY14. |                 |         |                      |              |                                                                   |               |         |         |                                                         |         |                  |            |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |         |                      |              |                                                                   |               |         |         | FY 2012                                                 | FY 2013 | FY 2014          |            |
| Title: In-Service Carrier Systems Development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |         |                      |              |                                                                   |               |         |         | 1.686                                                   | 1.737   | 1.715            |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |         |                      |              |                                                                   |               |         |         | 0                                                       | 0       | 0                |            |
| FY 2012 Accomplishments:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |         |                      |              |                                                                   |               |         |         |                                                         |         |                  |            |
| Continued support to technologies with modifications, upgrades and development of systems and software support of In-Service aircraft carrier modernization initiatives.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |         |                      |              |                                                                   |               |         |         |                                                         |         |                  |            |
| FY 2013 Plans:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |         |                      |              |                                                                   |               |         |         |                                                         |         |                  |            |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2014 Navy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | <b>DATE:</b> April 2013                                                         |                                                                       |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> | <b>PROJECT</b><br>4005: <i>In-Service Carrier Systems Development</i> |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <b>FY 2012</b>                                                                  | <b>FY 2013</b>                                                        |
| Continue support to technologies with modifications, upgrades and development of systems and software support of In-Service aircraft carrier modernization initiatives.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                 |                                                                       |
| <b>FY 2014 Plans:</b><br>Continue support to technologies with modifications, upgrades and development of systems and software support of In-Service aircraft carrier modernization initiatives.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                 |                                                                       |
| <b>Title:</b> Classified Effort                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | 0.000                                                                           | 0.000                                                                 |
| <b>Articles:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                 | 3.000<br>0                                                            |
| <b>FY 2014 Plans:</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                 |                                                                       |
| <b>Accomplishments/Planned Programs Subtotals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | 1.686                                                                           | 1.737                                                                 |
| <b>C. Other Program Funding Summary (\$ in Millions)</b><br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                 |                                                                       |
| <b>Remarks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                 |                                                                       |
| <b>D. Acquisition Strategy</b><br>Investigate, demonstrate, and implement available technologies to deliver a robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment to reduce workload, manpower requirements, and Total Ownership Costs (TOC).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                 |                                                                       |
| <b>E. Performance Metrics</b><br>Successfully complete Ship Control System Governor Software Development, AC Plant Model Capacity Optimization, Uninterruptible Power Supply (UPS) Replacements, Advanced Damage Control System (ADCS) Software Improvements, Automatic Fire Sensing and Suppression System/Flooding and Casualty Control Software (AFSSS/FCCS) Software Development Test, Input/Output Controller (IOC) replacement demonstration, Tank Preservation models, Weapons Elevator Laser Positioning demonstration, Legacy Steering Interface Upgrades, CVN Integrated Topside Design (ITD) location option evaluation tool development, Antenna to Antenna coupling analysis tool development, Universal Portable Command and Control Unit (PCCU) development, Ship Control System (SCS) Trainer, Integrated Bridge Control Data Logger, Weapons Elevator Control Accumulator Replacement, and C4I Network Performance Requirements Modeling and Analysis. |  |                                                                                 |                                                                       |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy                                                                                             |                        |                                |                 |         |            |                                                                   |            |              |            |                                                         |            | DATE: April 2013 |                  |            |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------|-----------------|---------|------------|-------------------------------------------------------------------|------------|--------------|------------|---------------------------------------------------------|------------|------------------|------------------|------------|--------------------------|
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                        |                                |                 |         |            | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |            |              |            | PROJECT<br>4005: In-Service Carrier Systems Development |            |                  |                  |            |                          |
| Product Development (\$ in Millions)                                                                                                               |                        |                                |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO                                             |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                                                    | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Ship Integration                                                                                                                                   | WR                     | NAVSEA:Phil                    | 1.112           | 0.115   | Nov 2011   | 0.187                                                             | Nov 2012   | 0.245        | Nov 2013   | -                                                       |            | 0.245            | 0.000            | 1.659      |                          |
| Ship Integration                                                                                                                                   | WR                     | NAVSEA:Dahlgren                | 0.060           | 0.090   | Nov 2011   | 0.031                                                             | Nov 2012   | 0.000        |            | -                                                       |            | 0.000            | 0.000            | 0.181      |                          |
| Classified effort                                                                                                                                  | WR                     | Classified:Classified          | 0.000           | 0.000   |            | 0.000                                                             |            | 1.500        | Nov 2013   | -                                                       |            | 1.500            | 0.000            | 1.500      |                          |
| Subtotal                                                                                                                                           |                        |                                | 1.172           | 0.205   |            | 0.218                                                             |            | 1.745        |            | 0.000                                                   |            | 1.745            | 0.000            | 3.340      |                          |
| Support (\$ in Millions)                                                                                                                           |                        |                                |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO                                             |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                                                    | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Software Development                                                                                                                               | WR                     | NAVSEA:Phil                    | 6.616           | 0.240   | Nov 2011   | 0.341                                                             | Nov 2012   | 0.413        | Nov 2013   | -                                                       |            | 0.413            | 0.000            | 7.610      |                          |
| Program Management Support                                                                                                                         | WR                     | NAVSEA:Phil                    | 2.218           | 0.188   | Nov 2011   | 0.221                                                             | Nov 2012   | 0.225        | Nov 2013   | -                                                       |            | 0.225            | 0.000            | 2.852      |                          |
| Training Development                                                                                                                               | WR                     | NAVSEA:Phil                    | 0.652           | 0.093   | Nov 2011   | 0.166                                                             | Nov 2012   | 0.174        | Nov 2013   | -                                                       |            | 0.174            | 0.000            | 1.085      |                          |
| Integrated Logistics Support                                                                                                                       | WR                     | NAVSEA:Phil                    | 1.160           | 0.068   | Nov 2011   | 0.102                                                             | Nov 2012   | 0.109        | Nov 2013   | -                                                       |            | 0.109            | 0.000            | 1.439      |                          |
| Software Development                                                                                                                               | WR                     | NAVSEA:Dahlgren                | 0.115           | 0.140   | Nov 2011   | 0.068                                                             | Nov 2012   | 0.000        |            | -                                                       |            | 0.000            | 0.000            | 0.323      |                          |
| Program Management Support                                                                                                                         | WR                     | NAVSEA:Dahlgren                | 0.150           | 0.120   | Nov 2011   | 0.047                                                             | Nov 2012   | 0.000        |            | -                                                       |            | 0.000            | 0.000            | 0.317      |                          |
| Subtotal                                                                                                                                           |                        |                                | 10.911          | 0.849   |            | 0.945                                                             |            | 0.921        |            | 0.000                                                   |            | 0.921            | 0.000            | 13.626     |                          |
| Test and Evaluation (\$ in Millions)                                                                                                               |                        |                                |                 | FY 2012 |            | FY 2013                                                           |            | FY 2014 Base |            | FY 2014 OCO                                             |            | FY 2014 Total    |                  |            |                          |
| Cost Category Item                                                                                                                                 | Contract Method & Type | Performing Activity & Location | All Prior Years | Cost    | Award Date | Cost                                                              | Award Date | Cost         | Award Date | Cost                                                    | Award Date | Cost             | Cost To Complete | Total Cost | Target Value of Contract |
| Developmental Test & Evaluation                                                                                                                    | WR                     | SPAWAR:Atlantic                | 0.000           | 0.214   | Dec 2011   | 0.200                                                             | Nov 2012   | 0.061        | Nov 2013   | -                                                       |            | 0.061            | 0.000            | 0.475      |                          |
| Classified effort                                                                                                                                  | WR                     | Classified:Classified          | 0.000           | 0.000   |            | 0.000                                                             |            | 1.500        | Nov 2013   | -                                                       |            | 1.500            | 0.000            | 1.500      |                          |
| Developmental Test & Evaluation                                                                                                                    | WR                     | NAVSEA:Phil                    | 3.692           | 0.268   | Nov 2011   | 0.343                                                             | Nov 2012   | 0.488        | Nov 2013   | -                                                       |            | 0.488            | Continuing       | Continuing | Continuing               |
|                                                                                                                                                    |                        |                                |                 |         |            |                                                                   |            |              |            |                                                         |            |                  |                  |            |                          |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2014 Navy</b>                                                                                         |                                   |                                           |                        |                |                   |                                                                          |                   |                     |                   |                    |                   | <b>DATE:</b> April 2013                                        |                         |                   |                                 |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |                                   |                                           |                        |                |                   | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: Carrier Systems Development |                   |                     |                   |                    |                   | <b>PROJECT</b><br>4005: In-Service Carrier Systems Development |                         |                   |                                 |
| <b>Test and Evaluation (\$ in Millions)</b>                                                                                                               |                                   |                                           |                        | FY 2012        |                   | FY 2013                                                                  |                   | FY 2014 Base        |                   | FY 2014 OCO        |                   | FY 2014 Total                                                  |                         |                   |                                 |
| <b>Cost Category Item</b>                                                                                                                                 | <b>Contract Method &amp; Type</b> | <b>Performing Activity &amp; Location</b> | <b>All Prior Years</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>                                                              | <b>Award Date</b> | <b>Cost</b>         | <b>Award Date</b> | <b>Cost</b>        | <b>Award Date</b> | <b>Cost</b>                                                    | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| Developmental Test & Evaluation                                                                                                                           | WR                                | NAVSEA:Dahlgren                           | 0.050                  | 0.150          | Nov 2011          | 0.031                                                                    | Nov 2012          | 0.000               |                   | -                  |                   | 0.000                                                          | 0.000                   | 0.231             |                                 |
| <b>Subtotal</b>                                                                                                                                           |                                   |                                           | 3.742                  | 0.632          |                   | 0.574                                                                    |                   | 2.049               |                   | 0.000              |                   | 2.049                                                          |                         |                   |                                 |
| <b>Management Services (\$ in Millions)</b>                                                                                                               |                                   |                                           |                        | FY 2012        |                   | FY 2013                                                                  |                   | FY 2014 Base        |                   | FY 2014 OCO        |                   | FY 2014 Total                                                  |                         |                   |                                 |
| <b>Cost Category Item</b>                                                                                                                                 | <b>Contract Method &amp; Type</b> | <b>Performing Activity &amp; Location</b> | <b>All Prior Years</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>                                                              | <b>Award Date</b> | <b>Cost</b>         | <b>Award Date</b> | <b>Cost</b>        | <b>Award Date</b> | <b>Cost</b>                                                    | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| DAWF                                                                                                                                                      | Various                           | Various:Various                           | 0.008                  | 0.000          |                   | 0.000                                                                    |                   | 0.000               |                   | -                  |                   | 0.000                                                          | 0.000                   | 0.008             |                                 |
| <b>Subtotal</b>                                                                                                                                           |                                   |                                           | 0.008                  | 0.000          |                   | 0.000                                                                    |                   | 0.000               |                   | 0.000              |                   | 0.000                                                          | 0.000                   | 0.008             |                                 |
|                                                                                                                                                           |                                   |                                           | <b>All Prior Years</b> | <b>FY 2012</b> |                   | <b>FY 2013</b>                                                           |                   | <b>FY 2014 Base</b> |                   | <b>FY 2014 OCO</b> |                   | <b>FY 2014 Total</b>                                           | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| <b>Project Cost Totals</b>                                                                                                                                |                                   |                                           | 15.833                 | 1.686          |                   | 1.737                                                                    |                   | 4.715               |                   | 0.000              |                   | 4.715                                                          |                         |                   |                                 |
| <b>Remarks</b>                                                                                                                                            |                                   |                                           |                        |                |                   |                                                                          |                   |                     |                   |                    |                   |                                                                |                         |                   |                                 |

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| <b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2014 Navy | <b>DATE:</b> April 2013 |
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|                                                                                                                                                                                     |                                                                                 |                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> | <b>PROJECT</b><br>4005: <i>In-Service Carrier Systems Development</i> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------|

|                                                                                                                                | FY 2012 |   |   |   | FY 2013 |   |   |   | FY 2014 |   |   |   | FY 2015 |   |   |   | FY 2016 |   |   |   | FY 2017 |   |   |   | FY 2018 |   |   |   |
|--------------------------------------------------------------------------------------------------------------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
|                                                                                                                                | 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 |
| <b>Proj 4005</b>                                                                                                               |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| IOC Replacement: IOC Replacement                                                                                               |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Tank Preservation: Tank Preservation                                                                                           |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| UPS Replacements: UPS Replacements                                                                                             |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Legacy Steering Interface Upgrade: Legacy Steering Interface Upgrade                                                           |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| CVN Integrated Topsides Design location option evaluation tool: CVN Integrated Topsides Design location option evaluation tool |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Antenna to Antenna coupling analysis tool: Antenna to Antenna coupling analysis tool                                           |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Integrated Bridge Control Data Logger: Integrated Bridge Control Data Logger                                                   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Weapons Elevator control accumulator replacement: Weapons Elevator control accumulator replacement                             |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| C4I Networks performance requirements modeling and analysis: C4I Networks performance requirements modeling and analysis       |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| NCDS Packet Filtering Device: NCDS Packet Filtering Device                                                                     |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Network Data Logger Device: Network Data Logger Device                                                                         |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| PCS proof of concept: PCS proof of concept                                                                                     |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Universal PCCU: Universal PCCU                                                                                                 |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |

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|----------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|-------------------------------------------------------------------|---|---|---|---------|---|---|---|---------|---|---------------------------------------------------------|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy                                                                                                  |  |  |  |  |  |  |  |  |  |                                                                   |   |   |   |         |   |   |   |         |   | DATE: April 2013                                        |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |  |  |  |  |  |  |  |  |  | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |   |   |   |         |   |   |   |         |   | PROJECT<br>4005: In-Service Carrier Systems Development |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
|                                                                                                                                                    |  |  |  |  |  |  |  |  |  | FY 2012                                                           |   |   |   | FY 2013 |   |   |   | FY 2014 |   |                                                         |   | FY 2015 |   |   |   | FY 2016 |   |   |   | FY 2017 |   |   |   | FY 2018 |   |   |   |
|                                                                                                                                                    |  |  |  |  |  |  |  |  |  | 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 |
| SCS Onboard trainer: SCS Onboard trainer                                                                                                           |  |  |  |  |  |  |  |  |  |                                                                   |   |   |   |         |   |   |   |         |   |                                                         |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Integrated Condition Assessment System SE Improvements: Integrated Condition Assessment System SE Improvements                                     |  |  |  |  |  |  |  |  |  |                                                                   |   |   |   |         |   |   |   |         |   |                                                         |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Classified Item: Classified Item                                                                                                                   |  |  |  |  |  |  |  |  |  |                                                                   |   |   |   |         |   |   |   |         |   |                                                         |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Chlorinator/Dechlorinator Reliability Improvements: Chlorinator/Dechlorinator Reliability Improvements                                             |  |  |  |  |  |  |  |  |  |                                                                   |   |   |   |         |   |   |   |         |   |                                                         |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |
| Portable Navigation/Ship Control Data Analyzer: Portable Navigation/Ship Control Data Analyzer                                                     |  |  |  |  |  |  |  |  |  |                                                                   |   |   |   |         |   |   |   |         |   |                                                         |   |         |   |   |   |         |   |   |   |         |   |   |   |         |   |   |   |

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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2014 Navy                                                                                                                       |                                                                                 |                                                                       | <b>DATE:</b> April 2013 |
| <b>APPROPRIATION/BUDGET ACTIVITY</b><br>1319: <i>Research, Development, Test &amp; Evaluation, Navy</i><br>BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 ITEM NOMENCLATURE</b><br>PE 0603512N: <i>Carrier Systems Development</i> | <b>PROJECT</b><br>4005: <i>In-Service Carrier Systems Development</i> |                         |

**Schedule Details**

| Events by Sub Project                                                                                                        | Start   |      | End     |      |
|------------------------------------------------------------------------------------------------------------------------------|---------|------|---------|------|
|                                                                                                                              | Quarter | Year | Quarter | Year |
| <b>Proj 4005</b>                                                                                                             |         |      |         |      |
| IOC Replacement: IOC Replacement                                                                                             | 1       | 2012 | 4       | 2013 |
| Tank Preservation: Tank Preservation                                                                                         | 1       | 2012 | 2       | 2013 |
| UPS Replacements: UPS Replacements                                                                                           | 1       | 2012 | 1       | 2012 |
| Legacy Steering Interface Upgrade: Legacy Steering Interface Upgrade                                                         | 1       | 2012 | 2       | 2015 |
| CVN Integrated Topside Design location option evaluation tool: CVN Integrated Topside Design location option evaluation tool | 1       | 2012 | 4       | 2013 |
| Antenna to Antenna coupling analysis tool: Antenna to Antenna coupling analysis tool                                         | 1       | 2012 | 4       | 2013 |
| Integrated Bridge Control Data Logger: Integrated Bridge Control Data Logger                                                 | 2       | 2012 | 3       | 2014 |
| Weapons Elevator control accumulator replacement: Weapons Elevator control accumulator replacement                           | 1       | 2012 | 2       | 2013 |
| C4I Networks performance requirements modeling and analysis: C4I Networks performance requirements modeling and analysis     | 1       | 2012 | 4       | 2014 |
| NCDS Packet Filtering Device: NCDS Packet Filtering Device                                                                   | 2       | 2013 | 3       | 2015 |
| Network Data Logger Device: Network Data Logger Device                                                                       | 2       | 2013 | 3       | 2015 |
| PCS proof of concept: PCS proof of concept                                                                                   | 2       | 2013 | 4       | 2015 |
| Universal PCCU: Universal PCCU                                                                                               | 1       | 2012 | 4       | 2014 |
| SCS Onboard trainer: SCS Onboard trainer                                                                                     | 1       | 2012 | 4       | 2014 |
| Integrated Condition Assessment System SE Improvements: Integrated Condition Assessment System SE Improvements               | 3       | 2014 | 2       | 2017 |
| Classified Item: Classified Item                                                                                             | 1       | 2014 | 4       | 2017 |
| Chlorinator/Dechlorinator Reliability Improvements: Chlorinator/Dechlorinator Reliability Improvements                       | 1       | 2016 | 2       | 2018 |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy                                                                                                 |  |                                                                   | DATE: April 2013 |                                                         |
| APPROPRIATION/BUDGET ACTIVITY<br>1319: Research, Development, Test & Evaluation, Navy<br>BA 4: Advanced Component Development & Prototypes (ACD&P) |  | R-1 ITEM NOMENCLATURE<br>PE 0603512N: Carrier Systems Development |                  | PROJECT<br>4005: In-Service Carrier Systems Development |
|                                                                                                                                                    |  | Start                                                             |                  | End                                                     |
| Events by Sub Project                                                                                                                              |  | Quarter                                                           | Year             | Quarter<br>Year                                         |
| Portable Navigation/Ship Control Data Analyzer: Portable Navigation/Ship Control Data Analyzer                                                     |  | 2                                                                 | 2016             | 4<br>2018                                               |