FY 2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2006
Exhibit R-2

BUDGET ACTIVITY: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT

COST: (Dollars in Thousands)

Project Number & Title	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total PE	25,204	35,224	43,909	51,445	57,930	68,441	68,756
0798 OTH TARGETING	1,691	1,596	2,006	2,095	2,138	2,195	2,240
2144 SPACE AND ELECTRONIC WARFARE ENGINEERING	10,943	10,146	11,041	11,475	11,718	11,931	12,168
2357 MARITIME BATTLE CENTER	12,570	23,482	30,862	37,875	44,074	54,315	54,348

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This Program Element (PE) contains three projects: Maritime Battle Center (MBC), Over-the-Horizon Targeting (OTH-T), and Space and Electronic Warfare (SEW) Engineering. The projects are systems engineering non-acquisition programs with the objectives of developing, testing, and validating Naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures to support naval missions in Joint and Coalition Theater. The mission of this PE is carried out by multiple tasks that are used to ensure Naval C4ISR Command and Control Warfare (C2W) components of SEW are effectively integrated into service-oriented architecture delivering net centric warfare capability. Additionally, the program ensures that (1) the composite operational capabilities of SEW systems (not the individual component systems) conform to the Naval C4ISR architecture and enhance warfighting capability as related to the objectives of National Defense Strategy and evolving joint visions and direction, such as Joint Vision 2020 (JV 2020), "Sea Power 21" and "Net-Centric Capability" and are guided by warfighter requirements; and (2) that SEW systems and systems integration efforts involve leading-edge technology transfer of information processing technologies primarily through integration of government and commercial off-the-shelf (GOTS/COTS) products to enhance the Navy’s operational capability, interoperability, warfighter effectiveness, flexible reconfiguration, as well as reduce costs; and (3) that SEW systems integration efforts promote the delivery of FORCEnet and the Navy’s contribution to the Global Information Grid (GIG). The MBC is

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a distributed organization focusing on experimentation concept development and analysis tasks are coordinated by the Navy Warfare Development Command (NWDC). The MBC will also act as the Navy representative to the Joint Battle Center and the Battle Labs of other services.

B. PROGRAM CHANGE SUMMARY:

	FY 2005	FY 2006	FY 2007
FY 2006 President's Budget Submission	25,602	44,469	49,412
Congressional Undistributed Reductions/Rescissions	-19	-726	0
Execution Adjustments	-277	0	0
Functional Realignment for OPNAV Program Support Costs	0	0	-263
FY 2005 SBIR	-107	0	0
Program Adjustments	5	-8,519	-5,422
Rate Adjustments	0	0	182
FY 2007 President's Budget Submission	25,204	35,224	43,909

PROGRAM CHANGE SUMMARY EXPLANATION:
Technical: Not applicable.

Schedule: Not applicable.

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable.

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E. PERFORMANCE METRICS:

OTH Targeting and Propulsion Technology Demonstration:

- Earned Value Management (EVM) is used for metrics reporting and risk management.

Maritime Battle Center:

- Refines concepts and identifies key performance levels necessary for implementation.
- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended DOTMLPF changes.
- Develop fleet warfighting requirements for submission to the OPNAV Navy Capabilities Development Process (NCDP) to inform Navy acquisition decisions.
- Integrate emergent concepts and technologies, leading to rapid introduction of needed warfighting capabilities in the fleet.
- Rapidly mature Sea Shield, Sea Strike, Sea Basing, and FORCEnet concepts, technologies, and doctrine.
- Focus on near, mid and long term warfighting challenges to realize increased warfighting effectiveness.

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PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

COST: (Dollars in Thousands)

Project Number & Title	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
0798 OTH TARGETING	1,691	1,596	2,006	2,095	2,138	2,195	2,240

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The OTH-T/Allied Interoperability program provides a virtual, global systems integration and test facility for C4ISR technology that supports the collection, transmission, correlation, and display of track data into Common Operational and Tactical Pictures (COTP) in support of warfighting requirements. The common view of the battle space applies across the spectrum of warfare missions. However, technology and doctrine has changed radically. The first objective of the OTH-T/Allied Interoperability program is to transition the Joint/Navy architectures and systems to state-of-the-art COTS and GOTS products that support Network Centric Warfare. The second objective is to support development, integration, and joint interoperability of all National Security System (NSS), IT, and C4I systems into warfighting capabilities. This support includes providing technical expertise afloat and ashore via a cadre of highly trained Fleet Systems Engineers in order to integrate, validate, and evaluate new OTH-T/Allied Interoperability capabilities during major Fleet exercises and demonstrations. The OTH-T/Allied Interoperability program integration and testing in support of warfighting capabilities includes joint and coalition interoperability testing for C4ISR equipment. Coalition and joint interoperability is an important issue for future naval operations, especially with the Navy initiative to expand Internet Protocol (IP) networking throughout the Fleet (NMC/BLII) with the GIG. Currently, specific solutions do not exist to solve the IP connectivity issue with Coalition forces. Funding allows for development of solutions for emerging Coalition and joint interoperability requirements. Data throughput needs to be increased for the exchange of large size files within the limitations of high frequency (HF) medium in support of, for example, Collaboration at Sea (CAS). Funding allows for further development of potential solutions for merging improved transmission control protocol/internet protocol (TCP/IP) capability with advance digital network systems (ADNS) and existing international standards (e.g. STANAG 5066). Funding will also allow for development of Subnet Relay protocols and automatic link establishment standards, which provides for a significant improvement within, and between, battle groups.

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B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2005	FY 2006	FY 2007
ADVANCED RELAY/WIRELESS/ANTENNA TECHNOLOGIES	206	392	736

FY 2005 Accomplishments:

In support of Allied Interoperability, Secure 802.11 and related wireless networking technologies were evaluated in FY 05 for operational use in the maritime environment. Advanced directional and phased-array antennas, including beam orientation, steering and control, were also evaluated.

FY 2006 Plans:

Engineering development models will be evaluated in Trident Warrior 06 and in other venues of opportunity.

FY 2007 Plans:

Engineering development models will be evaluated in Trident Warrior 07 and in other venues of opportunity.

	FY 2005	FY 2006	FY 2007
SUBNET RELAY	517	353	196

FY 2005 Accomplishments:

In support of Allied Interoperability, engineering development models of subnet relay communications were evaluated during Trident Warrior 05 for FORCEnet integration in a maritime coalition environment.

FY 2006 Plans:

A multi-bearer architecture that integrates advanced engineering development models of subnet relay and STANAG 5066 Edition 2 (HF IP) will be evaluated in Trident Warrior 06.

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FY 2007 Plans:

Venues of opportunity will be exploited to validate and evaluate developed portions of subnet relay configurations through testing, trials, and demonstrations. Transition to Program of Record by 2007.

	FY 2005	FY 2006	FY 2007
SYSTEMS INTEGRATION & INTEROPERABILITY TESTING	452	400	495

FY 2005 Accomplishments:

Conducted/participated in four overall Joint/Navy integration and interoperability tests; facilitated two planning reviews for Joint Test and Evaluations; participated in Joint Users Interoperability Communications Exercise (JUICE) and other joint test events.

FY 2006 Plans:

Conduct/participate in three overall Joint/Navy integration and interoperability tests as available; facilitate one planning review for Joint Test and Evaluations as available; participation in JUICE and other joint test events.

FY 2007 Plans:

Conduct/participate in five overall Joint/Navy integration and interoperability tests as available; facilitate two planning reviews for Joint Test and Evaluations as available; participate in JUICE and other joint test events.

	FY 2005	FY 2006	FY 2007
INTEROPERABILITY VALIDATION	154	135	173

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FY 2005 Accomplishments:

Used The Reconfigurable Land Based Test Sites (RLBTS) and Over the Horizon Targeting (OTH-T) resources to validate Global Information Grid (GIG) technologies prior to shipboard installation, supported eight NR-KPP Migration Plan Developments and two joint interoperability C4ISR certifications to ensure interoperability requirements between sensors, weapon systems and information systems are met.

FY 2006 Plans:

Using The RLBTS and OTH-T resources to validate GIG technologies prior to shipboard installation, support eight NR-KPP Migration Plan Developments and two joint interoperability C4ISR certifications to ensure interoperability requirements between sensors, weapon systems and information systems are met.

FY 2007 Plans:

Use The Reconfigurable Land Based Test Sites (RLBTS) and OTH-T resources to validate Global Information Grid (GIG) technologies prior to shipboard installation, support ten NR-KPP Migration Plan Developments and four joint interoperability C4ISR certifications to ensure interoperability requirements between sensors, weapon systems and information systems are met.

	FY 2005	FY 2006	FY 2007
TESTING OTH-T SYSTEMS	362	316	406

FY 2005 Accomplishments:

Conducted five developmental, integration, and certification tests, in accordance with OPNAVINST 9410.5, of Over-The-Horizon Targeting and Combat systems. Conducted three developmental and integration test events for GCCS-M4x/COE/COE-M/CAS/ATWCS/TTWCS. Testing also addressed issues of Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems.

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FY 2006 Plans:

Conduct five developmental, integration, and certification tests, in accordance with OPNAVINST 9410.5, of Over-The-Horizon Targeting and Combat systems with tactical data exchanged over Common Operational Picture (COP) Synchronization Tools (CST) networks and other networks; two integration test events for GCCS-M and collaboration technologies within the GIG. Testing will also address issues of Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems.

FY 2007 Plans:

Conduct five developmental, integration, and certification tests, in accordance with OPNAVINST 9410.5, of Over-The-Horizon Targeting and combat systems with tactical data exchanged over Common Operational Picture (COP) Synchronization Tools (CST) networks and other networks; three integration test events for Joint Command and Control, Combat Decision Systems, and Collaboration technologies within the GIG. Testing to also address issues of Fleet essential capabilities and emerging mission essential needs both for new, legacy, and technology refreshed systems.

C. OTHER PROGRAM FUNDING SUMMARY:
SEW Architecture/Engineering Support program element is related to all Naval C41 related efforts.

D. ACQUISITION STRATEGY:
Not applicable.

FY 2006/2007 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2006
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PROJECT NUMBER: 0798 PROJECT TITLE: OTH TARGETING

Exhibit R-3 Cost Analysis						Date: Feb 2006						
APPROPRIATION/BUDGET ACTIVITY RDT&E,N/BA 04						PROJECT NAME AND NUMBER: OTH Targeting 0798						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-05 Cost	FY-05 Award Date	FY-06 Cost	FY-06 Award Date	FY-07 Cost	FY-07 Award Date	CostToComp	Total Cost	Target Value of Contract
System Test and Evaluation	Various	Various	3648	206	Various	398	Various	736	Various	CONT	CONT	
Interoperability Requirements	Various	Various	3266								3266	
T & E Tools Development	Various	Various	429								429	
Systems Int. & Interop. Testing (LBTN)	Various	Various	1724	452	Various	400	Various	495	Various	CONT	CONT	
Interoperability Validation	Various	Various	2004	154	Various	135	Various	173	Various	CONT	CONT	
Joint Interoperability	Various	Various	1174								1174	
Testing OTH-T Systems	Various	Various	1340	362	Various	316	Various	406	Various	CONT	CONT	
Subtotal T&E			13585	1174		1243		1810		0	CONT	
Remarks												
Contractor Engineering Support											0	
Government Engineering Support	Various	Various	3443	517	Various	353	Various	196	Various	CONT	CONT	
Program Management Support	Various	Various	1468								1468	
Travel											0	
Transportation											0	
Subtotal Management			4911	517		353		196		0	5982	
Remarks												
Total Cost			18496	1691		1596		2006		0	CONT	

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PROJECT NUMBER: 2144 PROJECT TITLE: SPACE AND ELECTRONIC WARFARE (SEW) ENGINEERING

Project Number & Title	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
2144 SPACE AND ELECTRONIC WARFARE ENGINEERING	10,943	10,146	11,041	11,475	11,718	11,931	12,168

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: OPNAVINST 3050.23 defines the policy to fuse validated/approved C4ISR architectures and interoperability requirements with Joint requirements, milestones and program decisions. C4ISR integrated architectures/requirements are the underpinnings for all C4ISR mission areas and capabilities and, as such, requirements and acquisition processes have been reengineered to use these Integrated Architecture for decisional purposes and strategic planning. Furthermore, Office of the Secretary of Defense (OSD) has defined key programs/efforts (GIG Baseline Extension (BE)), Transformational Satellite (TSAT), Joint Tactical Radio System (JTRS), Network Centric Enterprise Services (NCES), and Information Assurance (IA) that will drive and change the Navy's C4ISR integrated architectures and associated business processes for requirements, budgets and acquisition. To that end, the SEW provides two main functions: 1) Development of C4ISR Integrated Architecture Products and 2) Supporting C4ISR Systems Engineering processes. The integrated architecture products are used to support the Navy's C4ISR budget process by providing the critical core architecture and enabling capabilities to the Warfighter. The C4ISR systems engineering processes provide the construct for assessments to identify capability shortfalls/gaps and for systems engineering to compare/test alternatives in a joint end-to-end environment while identifying associated Navy wide C4ISR implications. This includes Human Systems Integration (HSI) that provides a mission-centered orientation to ensure effective operational employment of fielded capability. As joint concepts and OSD driving efforts/programs are matured/defined the Navy's C4ISR integrated architectures are refined and the supporting C4ISR Systems Engineering processes work to engineer and enact C4ISR implementations Navy wide across all C4ISR mission areas.

Products provided:

1) C4ISR Integrated Architectures
-Integrated Architectures and Standards - Architecture Views (Operational Views, Service Views, Technical Views, System Views etc.)
-Migration Roadmaps to the target Architectures.
-Architecture technical studies, interpretation assistance, and white papers.

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2) Supporting C4ISR Systems Engineering processes
-C4ISR Requirements Assessments – Gaps Analysis, Overlap Analysis, System Priority Lists, C4ISR Metrics and Models, Analysis of Alternatives, Requirements Database, Assessment Repository, Resource Implications Studies, Baseline Performance Models, Mission Task Analysis, Human Systems Integration (HSI) assessments.
-End-to-End Systems Engineering and Integrated Design – Operational feasibility studies, technical feasibility studies, technical roadmap engineering validations, Architectures and Assessment traceability matrices.
-Joint and Coalition interoperability trials – Joint end-to-end prototyping trials, and Joint/Coalition interoperability demonstrations, Interoperability assessments and metrics, Interoperability studies via the Coalition Warrior Interoperability Demonstration (CWID) and the Joint Rapid Architecture Experimentation (JRAE) Process.

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2005	FY 2006	FY 2007
COALITION WARRIOR INTEROPERABILITY DEMONSTRATION (CWID)	1,914	2,341	2,763

FY 2005 Accomplishments:

JWID was renamed CWID, changing “Joint” to “Coalition.” Commander, Joint Forces Command (JFCOM) has assumed management oversight of CWID. NORTHCOM continued as host COCOM and desired to increase the Home Land Security/Defense (HLS/D) and Defense Service to Civil Authorities (DSCA) emphasis inviting even more non-DoD participants. As the sole San Diego site, SPAWAR assumed responsibility for running critical port/border protection scenarios and trial series. SPAWAR chose 28 technologies for its site. Funds in excess of the $1.7 million passed to the Joint Management Office (JMO), paid for general/program expenses, which included coalition interoperability trials and US and national domestic agency interoperability trials. Additional funds were required to run the SPAWAR site. All trials are based on published Federal Business Opportunity issues, delineated in the JMO letter Ser. No. CWID2005 dated 05 MAY 2004.

FY 2006 Plans:

Commander, European Command (EUCOM) has been selected as the host COCOM for CWID 06. The emphasis will be on advanced Coalition interoperability, with CWID continuing to focus on DSCA and HLD/HLS as well. Again, $1.7 million exercise “buy-in” is required for CWID participation. In addition, $548K will support the US Navy site

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in San Diego, which will fund coalition and US trials based on the annually published Federal Business Opportunity letter POSTED ON 03 May 2005. CWID trials will provide the Fleet with three separate evaluations: 1) evaluation will be provided by the National Security Agency (NSA) for proper security procedures; 2) evaluation will be provided by Joint Integrated Test Command (JITC) for technical issues; and 3) evaluation will be provided by the warfighter to verify usability. These evaluations will then be used to determine whether these projects become program of records.

FY 2007 Plans:

Commander, European Command (EUCOM) will continue as the host COCOM for CWID 07, investigating Coalition interoperability. $1.7 million exercise “buy-in” is required for CWID participation. $565K supports the US Navy site in San Diego, which will fund coalition and US trials based on the CWID Federal Business Opportunity letter that will be published in/around May 2006. Remaining funding allows for additional US trials. CWID trials provide the Fleet with three separate evaluations: 1) evaluation provided by NSA for proper security procedures; 2) evaluation will be provided by JITC for technical issues; and 3) evaluation will be provided by warfighter to verify usability. These evaluations will then be used to determine whether these projects become program of records.

	FY 2005	FY 2006	FY 2007
JRAE	4,076	1,000	4,242

FY 2005 Accomplishments:

The Joint RAPTOR efforts were driven by JFCOM interoperability risk areas at the horizontal (tactical) level as identified by the Joint Architecture efforts under the JFCOM JBMC2 effort. The JRAE process (via the Joint RAPTOR events) was used to prototype the joint integrated architectures, and collaboratively tested with the Army and the Air Force promoting joint interoperability between the services next generation tactical C4ISR architectures. Completed two Major Joint RAPTOR interoperability events which examined interoperable Service Oriented Architectures and Service transition to the GIG environment. Completed the Joint RAPTOR Interoperability Trial Plans, Data Collection and Metrics. The Joint RAPTOR Final Report will be written mid-summer of FY05, with the Joint Military Utility Assessment being conducted in late FY05.

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FY 2006 Plans:

Leverage the Joint RAPTOR efforts which will be driven by JFCOM interoperability risk areas at the horizontal (tactical) level as identified by the Joint Architecture efforts under the JFCOM JBMC2 effort. The JRAE process (via the Joint RAPTOR events) will be used to prototype the “to be” joint integrated architectures and integrate and collaboratively test with the Army and the Air Force to promote joint interoperability between the services next generation tactical C4ISR architectures.

-Conduct 1 Major Joint RAPTOR interoperability event
-Joint RAPTOR Interoperability Trial Plans
-Joint RAPTOR Interoperability Data Collection and Analysis
-Joint RAPTOR Interoperability Metrics
-Joint RAPTOR Final Reports

FY 2007 Plans:

Leverage the Joint RAPTOR efforts, which will be driven by JFCOM interoperability risk areas at the horizontal (tactical) level as identified by the Joint Architecture efforts under the JFCOM JBMC2 effort. The JRAE process (via the Joint RAPTOR events) will be used to prototype the “to be” joint integrated architectures and integrate and collaboratively test with the Army and the Air Force to promote joint interoperability between the services next generation tactical C4ISR architectures.

-Conduct 2 Major Joint RAPTOR interoperability events
-Joint RAPTOR Interoperability Trial Plans
-Joint RAPTOR Interoperability Data Collection and Analysis
-Joint RAPTOR Interoperability Metrics
-Joint RAPTOR Final Reports

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	FY 2005	FY 2006	FY 2007
C4ISR REQUIREMENTS ASSESSMENTS	1,387	2,042	1,170

FY 2005 Accomplishments:

Used Modeling and Simulation tools to support the Naval Capabilities Development Process (NCDP). Performed requirements analysis, collected and developed model architectures for the Campaign Analysis Modeling and Simulation effort, and conducted assessments of capabilities; and associated systems. Completed analytical studies identified by OPNAV, NETWARCOM, PEO C41 and SPAWAR.

2014-2020 Model C4ISR architectures for 3 Major Combat Operations and specific assessments for 5 POM08 analytic issues in support of the Integrated Strategic Capabilities Plan (ISCP). This work was aligned/integrated with the FORCENet Implementation Process (FIP) to support the Sponsor Program Proposal (SPP).

FY 2006 Plans:

2014-2020 Model C4ISR architectures for 4 Major Combat Operations in support of force level assessments for 5 Navy analytic issues.

FY 2007 Plans:

2016-2022 Model C4ISR architectures for 3 Major Combat Operations in support of force level assessments for 5 Navy analytic issues.

	FY 2005	FY 2006	FY 2007
C4ISR ARCHITECTURE AND STANDARDS	2,427	3,334	1,978

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FY 2005 Accomplishments:

Architecture efforts developed an initial target architecture that supported a migration strategy moving Navy PORs from their current platform/stovepipe domain to a future joint net-centric domain. This resulted in collaboration efforts among Navy FORCEnet, Air Force C2 Constellation, Coast Guard Deepwater and Army Enterprise Architectures. These products provided for the net-centric C4ISR transformation of the next generation of warfare platforms and systems.

-FORCEnet Integrated Architecture governance structure fully vetted and approved architecture products and policies.
-Produced initial operational architecture products for the war-fighting domain.
-Developed techniques for describing the target FORCEnet enterprise level service-oriented architecture.
-Produced system architecture products in support of the NCDP.
-Created white papers and studies aiding in the development of architecture products.

FY 2006 Plans:

The FY06 efforts will build upon the FY05 efforts and extend the scope of the work to include the non-war fighting domain. Architecture efforts will expand a target architecture that will support a migration strategy to move Navy PORs from their current platform/stovepipe domain to a future joint network-centric domain. This will be accomplished by aligning fleet and joint requirements and establishing common engineering standards that facilitate common operational mission threads, and architecture that creates interoperational C4ISR and enterprise business systems across the US services. This will include collaboration efforts of Navy FORCEnet, Air Force C2 Constellation, Coast Guard Deepwater and the Army Enterprise Architecture. These products will provide for the C4ISR transformation of the next generation of warfare platforms and systems. .

-Refine FORCEnet Integrated Architecture governance structure to incorporate architecture products and policies from other Naval Power 21 domains.
-Produce refined operational architecture products for the non-war-fighting domain.
-Produce initial service architecture products for the war-fighting domain.
-Produce system architecture products as required in support of the NCDP.
-Produce initial Migration Roadmaps to the target architecture.
-Provide various white papers and studies as needed to develop architecture products.

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FY 2007 Plans:

The FY07 efforts will build upon the FY06 efforts and extend the scope of the work to expand the architecture in all areas. Architecture efforts will expand a target architecture that will support a migration strategy to move Navy PORs from their current platform/stovepipe domain to a future joint network-centric domain. This will be accomplished by aligning fleet and joint requirements and establishing common engineering standards that facilitate common operational mission threads, and architecture that creates interoperational C4ISR and enterprise business systems across the US services. This will include the collaboration efforts of Navy FORCEnet, Air Force C2 Constellation, Coast Guard Deepwater and the Army Enterprise Architecture. These products will provide for the Net-Centric Operational Warfare (NCOW) transformation of the next generation of warfare platforms and systems.

-Refine FORCEnet Integrated Architecture governance structure to incorporate architecture products and policies from other Naval Power 21 domains.
-Produce refined operational architecture products for the war-fighting and non-war-fighting domains.
-Produce initial service architecture products for the non-war-fighting domain.
-Produce system architecture products as required in support of programming decisions.
-Refine Migration Roadmaps to the target architecture.
-Provide various white papers and studies as needed to develop architecture products.

	FY 2005	FY 2006	FY 2007
END-TO-END SYSTEM ENGINEERING AND INTEGRATED DESIGN	1,139	1,429	888

FY 2005 Accomplishments:

Provided systems engineering support for Program Executive Officer (PEOs) to produce near-term integrated architecture and roadmaps in various warfare areas.

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FY 2006 Plans:

Provide systems engineering support for PEOs to integrate architecture and roadmap capabilities across warfare areas.

FY 2007 Plans:

Provide systems engineering support to apply end-to-end integrated architectures across the Naval Enterprise.

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable.

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Exhibit R-3 Cost Analysis												Date: Feb 2006
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N								PROJECT NAME AND NUMBER: SEW ENGINEERING 2144	
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-05 Cost	FY-05 Award Date	FY-06 Cost	FY-06 Award Date	FY-07 Cost	FY-07 Award Date	Cost To Comp.	Total Cost	Target Value of Contract
Primary Hardware Development											0	
Ancillary Hardware Development											0	
Systems Engineering											0	
Licenses											0	
Tooling											0	
GFE											0	
Award Fees											0	
Subtotal Product Development			0	0		0		0		0	0	
Remarks												
Development Support	Various	Various	4554								4554	
SEW/C4I Technology Integration	Various	Various	12985								12985	
Systems A&E and Validation	Various	Various	13188								13188	
C4ISR Requirements Assessments	Various	Various	6823	1387	Various	2042	Various	1170	Various	CONT	CONT	
C4ISR Architecture and Standards	Various	Various	5229	2427	Various	3334	Various	1978	Various	CONT	CONT	
End-to-End System Engineering and Integrated Design	Various	Various	6610	1139	Various	1429	Various	888	Various	CONT	CONT	
Info. Repository/Naval Architecture	Various	Various	4000								4000	
Navy Collaborative	Various	Various										
Subtotal Support			53389	4953		6805		4036			CONT	
Remarks												

FY 2006 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2006
Exhibit R-3

BA: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE AND ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT
PROJECT NUMBER: 2144 PROJECT TITLE: SPACE AND ELECTRONIC WARFARE (SEW) ENGINEERING

Exhibit R-3 Cost Analysis (page 2)											Date: Feb 2006	
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N								PROJECT NAME AND NUMBER: SEW ENGINEERING 2144	
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-05 Cost	FY-05 Award Date	FY-06 Cost	FY-06 Award Date	FY-07 Cost	FY-07 Award Date	Cost To Comp.	Total Cost	Target Value of Contract
SEW Eng/JWID	Various	Various	17280	1914	Various	2341	Various	2763	Various	CONT	CONT	CONT
SEW Eng/JRAE	Various	Various	8416	4076	Various	1000	Various	4242	Various	CONT	CONT	CONT
Subtotal T&E			25696	5990		3341		7005			44844	CONT
Remarks												
Contractor Engineering Support											0	
Government Engineering Support											0	
Program Management Support											0	
Travel											0	
Transportation											0	
Subtotal Management			0	0		0		0		0	0	
Remarks												
Total Cost			79085	10943		10146		11041		0	CONT	

BA: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE AND ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT
PROJECT NUMBER: 2357 PROJECT TITLE: MARITIME BATTLE CENTER

Project Number & Title	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
2357 MARITIME BATTLE CENTER	12,570	23,482	30,862	37,875	44,074	54,315	54,348

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The mission of the MBC is to execute the Naval Warfare Innovation Process. The process takes concepts developed by the Strategic Studies Group and approved by the Chief of Naval Operations into Fleet Battle Experiments (FBE); conducts preliminary sub-scale experiments and technological demonstrations focused on the advanced engineering and operational system development of systems related to all conflict levels of Littoral Battlespace. The MBC environment is a network centric environment that links the existing “core” Naval facilities to the Marine Corps Warfighting Lab (MCWL), the Joint Battle Center/Federated Battle Lab, and technologists in industry and academia. The MBC is essential to the evolution of combat capabilities since it is the engine for validating the new network centric warfare techniques in conjunction with the Sea Based Battle Laboratories (SBBL), Science & Technology (S&T) initiatives and other initiatives that originate with the operating forces. The MBC supports the early and sustained involvement of Joint Warfighters in refining the technology to meet the tactics, techniques, and procedures needed for 2010-2020 Littoral Battlespace. The MBC will have multiple roles since it is a crosscutting organization involved in several facets of concept, platform, weapons, weapon systems and Information Technologies (IT), Information System (IS) and Information Management (IM) systems development and integration. These include collaborative planning, operational experimentation planning and execution, technology transition/acquisition support, systems engineering and integration, technology assimilation and operational demonstrations.

This program historically does not meet established execution benchmarks. MBC experimentation is unique to other programs because it based on Fleet operational availability vice independently scheduled through warfighting labs. Because Fleet experimentation frequently must occur during spring/summer operational schedules, the overall RDT&E obligation/expenditure rates do not align with OSD practice.

BA: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE AND ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT
PROJECT NUMBER: 2357 PROJECT TITLE: MARITIME BATTLE CENTER

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2005	FY 2006	FY 2007
FBE ANALYSIS AND CORE SUPPORT	12,570	23,482	30,862

In POM06, the Navy funded increases to SEA TRIAL and NWDC as a commitment to SEA POWER 21 transformation. NWDC, at the direction of Commander Fleet Forces Command (CFFC), will provide the SEA TRIAL Executive Steering Group (STESG) a cross pillar consolidated experimentation plan that recommends funding specific experiments that are keyed to Fleet priorities, the Concept Development and Experimentation Plan (CD&E Plan) and the N6/N7 Mission Capability Package (MCP) gaps.

FY 2005 Accomplishments:

•Completed the Maritime Command and Control Limited Objective Experiment Series
•Completed the Anti-Submarine Warfare Limited Objective Experiment
•Completed the Digital Time Sensitive Strike Limited Objective Experiment
•Completed Rail Gun Concepts of Operations for experimentation
•Completed the Information Management Toolset Limited Objective Experiment
•Completed the Cross Domain Solution Limited Objective Experiment Series
•Completed the Agent Based Computing Limited Objective Experiment
•Completed the Unified Quest 05 War Game
•Participated in Joint Forces Command, (JFCOM) experimentation continuum
•Executed Sea Trial Experiments, War Games, and Seminars

FY 2006 Plans:

•Continue participation in JFCOM experimentation continuum
•Continue Limited Objective Experiments
•Continue CONOPS Development Experiments
•Execute Sea Trial Experiments, War Games, and Seminars

BA: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE AND ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT
PROJECT NUMBER: 2357 PROJECT TITLE: MARITIME BATTLE CENTER

FY 2007 Plans:

•Continue participation in JFCOM experimentation continuum
•Continue Limited Objective Experiments
•Continue CONOPS Development Experiments
•Execute Sea Trial Experiments, War Games, and Seminars

C. OTHER PROGRAM FUNDING SUMMARY:
Not applicable.

D. ACQUISITION STRATEGY:
Not applicable.

FY 2006 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET DATE: Feb 2006
Exhibit R-3

BA: 04
PROGRAM ELEMENT: 0604707N
PROGRAM ELEMENT TITLE: SPACE AND ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT
PROJECT NUMBER: 2357 PROJECT TITLE: MARITIME BATTLE CENTER

Exhibit R-3 Cost Analysis (page 1)									Date: Feb 2006			
APPROPRIATION/BUDGET ACTIVITY RDT&E,N			PROGRAM ELEMENT 0604707N						PROJECT NAME AND NUMBER: Maritime Battle Center 2357			
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY-05 Cost	FY-05 Award Date	FY-06 Cost	FY-06 Award Date	FY-07 Cost	FY-07 Award Date	Cost To Comp.	Total Cost	Target Value of Contract
System Test and Evaluation	Various	Various	97122	10900	Various	19020	Various	24998	Various	CONT	CONT	CONT
Subtotal T&E			97122	10900		19020		24998		CONT	CONT	CONT
Remarks												
Program Management	Various	Various	21618	1670	Various	4462	Various	5864	Various	CONT	CONT	CONT
Subtotal Management			21618	1670		4462		5864		CONT	CONT	CONT
Remarks												
Total Cost			118740	12570		23482		30862		CONT	CONT	CONT