

CLASSIFICATION:

UNCLASSIFIED

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: FEBRUARY 2002			
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY BA-4					R-1 ITEM NOMENCLATURE 0603879N SINGLE INTEGRATED AIR PICTURE (SIAP) SYS ENG					
COST (\$ in Millions)		FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2006	Cost to Complete	Total Cost
Total PE Cost		3.496	42.727	73.966	TBD	TBD	TBD	TBD	TBD	TBD
<p>A. (U) Mission Description and Budget Item Justification</p> <p>A Single Integrated Air Picture (SIAP) is the product of fused, near-real-time and real-time data from multiple sensors to allow development of common, continuous, and unambiguous tracks of all airborne objects in the surveillance area. All airborne objects must be detected, tracked, and reported. Each object must have one and only one track identifier and associated characteristics to be incorporated into a single combat identification process. Current systems do not provide this capability. The SIAP System Engineering (SE) Task Force was approved by the Joint Requirements Oversight Council (JROC) in March 2000, and chartered in Oct 2000 by the Under Secretary of Defense to perform "the system engineering needed to fix problems in the existing Joint Data Network (JDN) and to guide development toward a future SIAP capability." This PE is funded by all the services and controlled by SIAP Acquisition Executive.</p> <p>The SIAP Task Force will develop the tools and processes and perform the system engineering that will identify cost effective fixes to Tactical data link systems. The resulting prioritized list of fixes will be addressed in incremental blocks designed to improve the SIAP. Each Block will identify specific changes to be implemented in specific systems to improve the Joint Theater Air and Missile Defense Family of Systems SIAP capability. These changes will identify the engineering specifications, supporting rationale (test results and analysis), and acquisition estimate expected to implement the changes. Once approved by the JROC, implementation of these recommended changes is the responsibility of the affected Service programs.</p> <ul style="list-style-type: none"> • Block 0 addressed four joint warfighting shortfalls selected for their impact on the JDN, their applicability across the Services, and the engineering maturity reflected by interface change proposals already on-record with the Joint Interoperability for Tactical Command and Control system process. The change proposals that will be addressed were: improved correlation/decorrelation, formation tracking/correlation, identification taxonomy and symbology, and an ID conflict resolution matrix. • Block 1 is addressing a set of JDN deficiencies approved by United States Joint Forces Command to provide the greatest operational benefit to the warfighter which can be implemented in the near- to mid-term. The issues being addressed are: further reduction of dual tracks, improved combat ID capability, improved data sharing (network capacity), and improved contribution of the air picture to theater ballistic missile defense performance. 										

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A. (u) Mission Description and Budget item justification (cont.)

SIAP RDT&E Budget (\$M)

	FY01	FY02	FY 03
Block 0			
Reqs Analysis	\$0.481	\$0.280	
Functional Analysis	\$0.540	\$0.460	
Acquisition Assessment	\$0.210	\$0.110	
SIAP Architecture	\$0.350	\$0.120	
Program Mgt	\$0.639	\$0.100	
Engineering Controls	\$0.566	\$0.450	
Total	\$2.786	\$1.520	
Block 1			
Reqs Analysis	\$0.250	\$3.730	
Functional Analysis	\$0.120	\$15.692	
Acquisition Assessment	\$0.000	\$3.225	
SIAP Architecture	\$0.050	\$6.960	
Program Mgt	\$0.210	\$8.750	
Engineering Controls	\$0.080	\$2.850	
Total	\$0.710	\$41.207	
Block 0			\$ 1.300
Block 1			\$ 37.366
Block 2			\$ 10.300
Architecture			\$ 8.300
Tools & Analysis			\$ 4.800
Validation and Certification			\$ 7.000
Program Mgt			\$ 4.900
Total	\$ 3.496	\$ 42.727	\$ 73.966

PROGRAM ACCOMPLISHMENTS AND PLANS:

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- Delivered Block 0 recommendations to improve single integrated air picture performance, JROC approved the recommendations, and funding to implement the recommendations was approved
- Developed method to measure SIAP performance against requirements (measures of performance, measures of effectiveness)
- Developed first operational context (reference scenario) to measure SIAP performance against
- Initial framework of SIAP architecture developed
- Develop initial set of recommended solutions to address Block 1 issues and present to JROC
- Incorporate capabilities of warfighting systems into architecture

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B. (U) Program Change Summary: (\$ in Millions)

	FY 2001	FY 2002	FY 2003
(U) FY 2002 President's Budget:	20.000	43.140	
(U) Appropriated Value:	3.496	43.140	
(U) Adjustments to FY 2001/2002 Appropriated Value/FY 2002 President's Budget:	-16.504	-0.413	
(U) FY 2003 Pres Budget Submit:	3.496	42.727	73.966

(U) Change Summary Explanation: FY 01: Reduction of (-.451) is a program adjustment. and Above Threshold Reprogramming not approved. (-\$16.053).
FY02: (-0.381M) due to Section 8123 Management Reform Initiative. (-0.032) is a minor pricing adjustment.

(U) Schedule: N/A

(U) Technical: N/A

C. (U) Other Program Funding Summary: N/A

(U) Related RDT&E,N: N/A

D. (U) Acquisition Strategy: N/A

E. (U) Schedule Profile: N/A

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1. (U) FY2001 Accomplishments:

This effort recommended Joint Data Network fixes to improve the JTAMD Fos SIAP performance and laid the groundwork for engineering concepts needed to support the 2010 Integrated Architecture.

-\$2.786M) Developed the Block 0 Improvement Plan and delivered it to the JROC ahead of schedule in Aug. This plan identified specific changes to be implemented in specific systems to improve the JTAMD FoS SIAP capability. This plan was approved by the JROC and DoD approved funding to implement the recommendations beginning in FY03.

- Developed a set of initial operational, technical and performance Measures of Effectiveness/Measures of Performance that objectively assess SIAP capacity and capability.
- Developed the framework of the SIAP Architecture including the SIAP Normative Baseline, Block 0 SIAP Acquisition Roadmap.

-\$0.710M) Block 1 Improvement Plan: Development of the Block 1 Improvement Plan began in FY 01. The warfighting issues to be addressed were approved in CY Dec 2001, Delivery to the JROC is scheduled for Dec 02. This plan will identify the specific changes to be implemented in specific systems to improve the JTAMD FoS SIAP capability. This will include supporting rationale, and acquisition cost/schedule estimates.

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<p>1. (U) FY2002 PLAN:</p> <p>This effort will recommend Joint Data Network enhancements to improve the JTAMD FoS SIAP performance and lay the groundwork for engineering concepts needed to support the 2010 Integrated Architecture. Specific products will include a prioritized list of fixes that will provide the most "bang for the buck"; a set of metrics to define the completeness, continuity, and accuracy of target tracks; and a description of the systems used by the services and the capabilities and limitations of those systems in providing a Single Integrated Air Picture.</p> <ul style="list-style-type: none">-(\$1.520M) Block 0 Follow-up, includes coordination with Services on Block 0 implementation plans and completing deferred work on Formation Tracking.-(\$27.038M) Develop Block 1 Improvement Plan, with focus on JDN enhancements to improve the JTAMD FoS SIAP performance, with a scheduled delivery to the JROC in Dec 02. This plan will identify the specific changes to be implemented in specific systems to improve the JTAMD FoS SIAP capability. This will include supporting rationale, and acquisition estimates/costs. Due to FY 01 ATR not being approved, portions of Block 1 engineering specification development, previously scheduled to begin in FY 01 for delivery Dec 02 will be deferred to FY 03.-\$0.200M) Develop Capability and Limitations Document, May 02. This gives the Theater Commander a description of the capabilities and limitations of the Joint Theater Air and Missile Defense Family of Systems (JTAMD FoS).-\$0.103M) Develop System Engineering Management Plan, Mar 02. The SEMP provides a uniform framework for controlling all SIAP products.-\$6.960M) SIAP Architecture/Normative Baseline: Development continues in FY 02, with a scheduled delivery of Dec 02. The Normative Baseline will comprise the set of SIAP requirements, specifications, interface definitions, and metrics the define the expected SIAP capability of current contributing systems. This will be the yardstick against which current SIAP deficiencies and future objective capabilities will be measured.-\$3.681M) SIAP Component of the Theater Air Missile Defense 2010 Integrated Architecture: Development continues in FY 02 with a scheduled delivery in Dec 02. The SIAP component of the TAMD architecture defines the Joint interfaces and connectivity, Joint performance requirements, and the associated information exchange requirements data models. It will represent key elements of a normative baseline for some future/objective SIAP (in comparison to the Normative Baseline's focus on existing systems).-\$3.225M) SIAP Roadmap: Development continues in FY 02 with a scheduled delivery of Dec 02. The SIAP Roadmap defines block upgrades to satisfy operational requirements leading to the objective SIAP capability.		

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2. (U) FY2003 PLAN:

This effort will continue recommending Joint Data Network enhancements to improve the JTAMD FoS SIAP performance and continue to develop engineering concepts needed to support the 2010 Integrated Architecture. Specific products will include a prioritized list of fixes that will provide the most "bang for the buck"; refine the set of metrics needed to define the completeness, continuity, and accuracy of target tracks; and a description of the systems used by the services and the capabilities and limitations of those systems in providing a Single Integrated Air Picture.

(\$1.3M) BLOCK 0: Monitor implementation of Block 0 fixes in Service systems. Conduct technical design reviews with affected weapon systems.

(\$37.366M) BLOCK 1: Complete engineering of Block 1 SIAP improvements. Establish technical configuration management of JFCOM approved solutions for Joint and NATO application. Conduct technical design reviews with affected weapon systems.

(\$10.3M) BLOCK 2 Initiate definition of Block 2. Translate JROC validated requirements into equipment and computer programs with the Services and JFCOM. Coordinate design and solution development with the Services and Agencies. Develop program objectives and management plan in accordance with the SIAP system engineering process.

(\$8.3M) ARCHITECTURE: Continue development of the SIAP component of the JTAMD Architecture. Coordinate the matching of Block 1 and Block 2 solutions to the Joint requirements as defined in the CRDs and Integrated Architecture. Establish maintenance functions to ensure that the Integrated Architecture functions as a Joint requirements engineering structure and decision making tool.

(\$4.8M) Systems Engineering Tools and Analysis: Develop and utilize analysis tools to evaluate the technical and warfighting benefits of the SIAP Block Improvements. Such analysis tools consist of modeling and simulation capabilities, hardware in the loop laboratories and data reduction of open-air live exercises. Coordinate with Joint Tactical Data Link Certification Agency for SIAP Block performance compliance with appropriate levels of approval. Collect, analyze and synchronize implementation opportunities with respect to individual Services and weapon systems. Plot predicted and fielded Joint Tactical Data Link performance capabilities timelines. Contribute to the Service POM input and Joint requirements justifications processes to coordinate Joint warfighting requirements in accordance with the CRDs and Integrated Architecture.

(\$7.0M) Validation and Certification of SIAP Block 0/1 improvements: Funds will be used to identify and provide SIAP-specific fidelity improvements in national testing and certification facilities. These enhancements to the current land-based infrastructure are necessary to support accurate validation and certification of the implementation of SIAP Block improvements. SIAP Block Improvements will be tested and certified for operational use and the land based testing infrastructure will be used to validate achievement of SIAP's Measures of Effectiveness (MOEs) and Measures of Performance (MOPs).

(\$4.9M) Program Management: Continues to support SIAP TF infrastructure requirements such as rent, LAN (local area network), telephone, computers, VTC(video teleconferences) center, conference rooms, office equipment, facilities management and SCIF construction.

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RDT&E, N/BA-							0603879N			S3031 - SINGLE INTEGRATED AIR PICTURE SYS ENG TASK FORCE			
Cost Categories (Tailor to WBS, or System/Item Req't)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract	
Block 0	MIPR	Army PEO/AMD, Huntsville AL	0.293	0.277	VAR	0.211	VAR	0.041	VAR	CONT	CONT		
	MIPR	Navy CHENG, Arlington VA	0.331	0.474		0.223		0.043		CONT	CONT		
	MIPR	Air Force ESC, Boston MA	0.425	0.561		0.239		0.046		CONT	CONT		
	MIPR	Marine MARCOR, Quantico VA	0.207	0.232		0.104		0.020		CONT	CONT		
	VAR	Contract Supt, Various	2.483	1.042		0.743		1.150		CONT	CONT		
Subtotal Block 0			3.739	2.586		1.520		1.300					
Block 1	MIPR	Army PEO/AMD, Huntsville AL	0	0.146	VAR	8.503	VAR	6.633		CONT	CONT		
	MIPR	Navy CHENG, Arlington VA	0	0.155		8.967		6.905		CONT	CONT		
	MIPR	AF ESC/DI, Boston MA	0	0.194		9.613		7.248		CONT	CONT		
	MIPR	Marine MARCOR, Quantico VA	0	0.040		4.158		2.789		CONT	CONT		
	VAR	Contract Supt, Various	0	0.110		9.326		13.791		CONT	CONT		
Subtotal Block 1				0.645		40.567		37.366					
Block 2	MIPR	Army PEO/AMD, Huntsville AL	0	0		0		2.060		CONT	CONT		
	MIPR	Navy CHENG, Arlington VA	0	0		0		2.266		CONT	CONT		
	MIPR	AF ESC/DI, Boston MA	0	0		0		2.369		CONT	CONT		
	MIPR	Marine MARCOR, Quantico VA	0	0		0		1.030		CONT	CONT		
	VAR	Contract Supt, Various	0	0		0		2.575		CONT	CONT		
Subtotal Block 2								10.300					
Architecture	MIPR	Army PEO/AMD, Huntsville AL	0	0		0		1.536		CONT	CONT		
	MIPR	Navy CHENG, Arlington VA	0	0		0		1.625		CONT	CONT		
	MIPR	AF ESC/DI, Boston MA	0	0		0		1.684		CONT	CONT		
	MIPR	Marine MARCOR, Quantico VA	0	0		0		0.786		CONT	CONT		
	VAR	Contract Supt, Various	0	0		0		2.669		CONT	CONT		
Subtotal Architecture								8.300					
System Engineering	MIPR	Army PEO/AMD, Huntsville AL	0	0		0		0.988	VAR	CONT	CONT		
Tools & Analysis	MIPR	Navy CHENG, Arlington VA	0	0		0		0.876		CONT	CONT		
	MIPR	AF ESC/DI, Boston MA	0	0		0		1.206		CONT	CONT		
	MIPR	Marine MARCOR, Quantico VA	0	0		0		0.520		CONT	CONT		
	VAR	Contract Supt, Various	-SHOPPING LIST - Item No. 90			0		1.210		CONT	CONT		
Subtotal SE Tools & Analysis								4.800					
Validation and Certification	WR	Navy DEP/JDEP, NSWV-DD, Dahlgren VA	0	0		0		7.000					
TOTAL			3.739	3.231		42.087		69.066					
Remarks:													
Development Support Equipment											0.000		
Software Development											0.000		
Training Development											0.000		
Integrated Logistics Support											0.000		
Configuration Management											0.000		
Technical Data											0.000		
GFE											0.000		
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000		
Exhibit R-3 Cost Analysis (page 1)							DATE: December 2001						
Remarks:													

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Exhibit R-3, Project Cost Analysis

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Exhibit R-3 Cost Analysis (page 2)										DATE: FEBRUARY 2002		
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Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 01 Cost	FY 01 Award Date	FY 02 Cost	FY 02 Award Date	FY 03 Cost	FY 03 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Tooling											0.000	
GFE											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support			0.210	0.225		0.540		1.900	CONT	CONT		
Travel			0.040	0.040		0.100		0.100	CONT	CONT		
Labor (Research Personnel)												
Overhead								2.900				
Subtotal Management			0.250	0.265		0.640		4.900	CONT	CONT		
Remarks:												
Total Cost			3.989	3.496		42.727		73.966				
Remarks:												

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