

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS
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COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	6,678	7,333	16,408	19,481	15,949	15,842	18,348	18,412	Continuing	Continuing
3880 CMU	378	110	0	0	0	0	0	0	0	1,291,802
4806 N/UWSS	0	0	11,884	15,308	12,249	12,132	14,561	14,545	Continuing	Continuing
3881 Integrated TW/AA	4,929	6,270	4,524	4,173	3,700	3,710	3,787	3,867	Continuing	Continuing
4409 Legacy Interfaces	1,371	953	0	0	0	0	0	0	0	47,485
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

This program element funds the replacement systems for the Cheyenne Mountain Complex (CMC) which provides the Command, Control, Communications and Computers (C4) in support of the Integrated Tactical Warning/Attack Assessment (Integrated TW/AA) "system of systems". This program incrementally upgrades and replaces, in an evolutionary manner, the current operational systems without loss of attack warning capability during the phased transition. The CMC supports the Commander-in-Chief (CINC) North American Aerospace Defense Command (NORAD)/CINC US Space Command (USSPACECOM) in providing the National Command Authorities, US Strategic Command (USSTRATCOM), the warfighting Commanders in Chief (CINCs), and other forward users with early warning (missile, air, and space) and assessment of attack on North America or its allies.

This program element has four related projects: The first project, Cheyenne Mountain Upgrade (CMU), was completed in early FY99 with Full Operational Capability (FOC) declaration on 29 Oct 98, well ahead of the Acquisition Program Baseline (APB) schedule. The second project, the NORAD/USSPACECOM Warfighting Support System (N/UWSS), is a new start in FY2000 and provides the means by which the Integrated TW/AA "system of systems" will evolve to meet CINC/NORAD/USCINCSpace's evolving mission requirements and achieve Defense Information Infrastructure Common Operating Environment (DII COE) compliance. This project is consistent with the Air Force Long Range Plan, Joint Vision 2010, and the Defense Planning Guidance. The Joint Requirements Oversight Council (JROC) approved the N/UWSS Mission Needs Statement (MNS) on 18 May 1998. The third project, Integrated TW/AA System Engineering, is the primary source for modernization planning, integration and architecture development of modifications, upgrades and new acquisitions into the ITW/AA network. It also provides interface analysis and disconnect resolution among the Integrated TW/AA systems and future program upgrades (e.g., SBIRS integration, National Missile Defense, and other Force Enhancements and Space Control programs). The fourth project, Legacy Interfaces, provides software development upgrades to post-IOC CMU subsystems and direct mission software support to meet operational needs (adapting development systems to accommodate evolving older systems) and will be complete in FY99.

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(U) B. Budget Activity Justification:

This program element is in Budget Activity 7, Operational System Development, because the projects in this program element support development acquisition programs or upgrades.

(U) C. Program Change Summary (\$ in Thousands)

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total</u>
(U) Previous President's Budget (FY1999 PB)	6,726	7,878	4,607	4,252	Continuing
(U) Appropriated Value	7,362	7,878			
(U) Adjustments to Appropriated Value					
a. Cong Gen Reductions	-480	-545			
b. SBIR	-158				
c. Omnibus or Other Above Threshold Reprogram	-46				
d. Below Threshold Reprogramming					
(U) Adjustments to Budget Years Since FY1999 PB			11,801	15,229	
(U) Current Budget Submit/FY2000 PB	6,678	7,333	16,408	19,481	Continuing

(U) Significant Program Changes:

FY99: \$227 identified as a source for SBIR.

FY00 and FY01 increases fund the N/UWSS project.

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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS				PROJECT 3880		
<i>COST (\$ In Thousands)</i>	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
3880 CMU	378	110	0	0	0	0	0	0	0	1,291,802
<p>(U) A. <u>Mission Description</u> The CMU program must meet Joint Chiefs of Staff requirements to provide the National Command Authorities with timely, reliable, and unambiguous Integrated TW/AA data for force survival or retaliatory decisions in the face of air, space, or ballistic missile threats. The program will provide: 1) survivable communications access for missile attack warning; 2) integrated warning of ballistic missile, atmospheric, and space threats; 3) standard user displays and warning processing systems at selected command centers; 4) an austere alternate facility capable of early/trans-attack warning and peacetime backup to the Missile Warning Center at Cheyenne Mountain. The CMU program implements an acquisition strategy that tests and delivers four phases of user capability. Phase 1 implemented the missile warning capability in Sept 1995. Phases 2 and 3 were completed in August 1996 and July 1997, respectively. The Integrated Mission testing was completed on 5 August 1998. Full Operational Capability (FOC) was declared on 29 Oct 98.</p> <p>(U) <u>FY 1998 (\$ in thousands)</u> - (U) \$ 378 Completed Integrated Mission Testing - (U) \$ 378 Total</p> <p>(U) <u>FY 1999 (\$ in thousands)</u> - (U) \$ 106 Completed CMU - (U) \$ 4 Identified as a source for SBIR - (U) \$ 110 Total</p> <p>(U) <u>FY 2000 (\$ in Thousands):</u> - (U) \$ 0 Not applicable</p> <p>(U) <u>FY 2001 (\$ in Thousands):</u> - (U) \$ 0 Not applicable</p> <p>(U) B. <u>Project Change Summary - Description of Significant Changes:</u> No change.</p>										
Project 3880			Page 3 of 20 Pages				Exhibit R-2A (PE 0305906F)			

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS	PROJECT 3880
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(U) C. Other Program Funding Summary (\$ in Thousands)

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Compl</u>	<u>Total Cost</u>
Other Procurement (Electronics and tele-communications equipment/BA04/PE0305906F)*	8,758	12,694	14,713	17,656	18,334	18,687	19,623	18,632	Cont	Cont
(U) Operations & Maintenance (PE0305906F)	94,920	88,305	86,892	89,735	99,650	107,264	109,451	86,468	Cont	Cont

* Includes CMU, N/UWSS, and the Mobile Consolidated Command Centers (MCCCs).

(U) D. Acquisition Strategy:

All major contracts within this program element were awarded after full and open competition.

(U) E. Schedule Profile

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) CMU Integrated Mission Testing Completed				*												
(U) CMU FOC								*								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS	PROJECT 3880
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(U) A. Project Cost Breakdown (\$ in Thousands)

	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) SPO Support				
(U) MITRE	55	0	0	0
(U) TEMS/SDAS/WSI/SAIC/NSR	151	66	0	0
(U) Program Support	172	40	0	0
(U) Identified as a source for SBIR	0	4	0	0
(U) Total	378	110	N/A	N/A

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS					PROJECT 3880	
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Identified as a source for SBIR	N/A	N/A	N/A	N/A	0	0	4	0	0	0	4
<u>Product Development Organizations</u>											
Lockheed-Martin CO Springs CO	C/CPIF/AF	Oct 91	271,814	271,814	271,814	0	0	0	0	0	271,814
E-Systems St Petersburg FL	C/FPI/AF	Aug 86	103,240	103,240	103,240	0	0	0	0	0	103,240
TRW, Inc Carson CA	C/FPI/AF	Jun 87	213,761	213,761	213,761	0	0	0	0	0	213,761
GTE Needham Hgts MA	C/CPIF/AF	Jan 92	238,415	238,415	238,415	0	0	0	0	0	238,415
Lockheed-Martin CO Springs CO	SS/CPIF/AF	Mar 93	120,018	120,018	120,018	0	0	0	0	0	120,018
DISA (Govt) Reston VA	PO	Oct 93	9,152	9,152	9,152	0	0	0	0	0	9,152
KAMAN Sciences CO Springs CO	C/CPAF	Aug 95	3,176	3,176	3,176	0	0	0	0	0	3,176
Misc	Various	Various	820	820	820	0	0	0	0	0	820
<u>Support and Management Organizations</u>											
MITRE	SS/PR	Oct 95	N/A	N/A	168,560	55	0	0	0	0	168,615
TEMS	C/PR	Oct 95	N/A	N/A	72,815	151	66	0	0	0	73,032
Program Support	Various	Nov 95	N/A	N/A	89,543	172	40	0	0	0	89,755
Project 3880					Page 6 of 20 Pages			Exhibit R-3 (PE 0305906F)			

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BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS					PROJECT 3880	
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
<u>Test and Evaluation Organizations</u>											
N/A											
(U) B. Budget Acquisition History and Planning Information Continued (\$ in Thousands)											
Government Furnished Property: Not Applicable.											
Identified as a source for SBIR					0	0	4	0	0	0	4
Subtotal Product Development					960,396	0	0	0	0	0	960,396
Subtotal Support and Management					330,918	378	106	0	0	0	331,402
Subtotal Test and Evaluation					0	0	0	0	0	0	0
Total Project					1,291,314	378	110	0	0	0	1,291,802

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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS	PROJECT 4806
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COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
4806 N/UWSS	0	0	11,884	15,308	12,249	12,132	14,561	14,545	Continuing	Continuing

(U) A. Mission Description

The NORAD/USSPACECOM Warfighting Support System (N/UWSS) is the future architecture for a NORAD/USSPACECOM Battle Management/C4I “system of systems” that complies with the Defense Information Infrastructure Common Operating Environment (DII COE), Joint Technical Architecture (JTA) standards and provides for DoD/Joint C2 interoperability. N/UWSS scope addresses all Commander-in-Chief (CINC) North American Aerospace Defense Command (NORAD)/CINC US Space Command (USSPACECOM) functions including the Integrated Tactical Warning/Attack Assessment (ITW/AA) and Space Battle Management mission applications. N/UWSS objectives are to provide NORAD/USSPACECOM a C2 system that is flexible in responding to evolving mission needs (Space Based Infrared System (SBIRS), National Missile Defense (NMD), Space Control, and Information Operations); is interoperable within the NORAD/USSPACECOM warfighting functions and supporting/supported CINCs; and achieves reductions in total cost of ownership.

The initial scope of N/UWSS will be to evolve existing fixed and enduring C2 nodes to DII COE compliance: the Cheyenne Mountain Complex (CMC); Mobile Command and Control Centers (MCCCs); Alternate Missile Warning Center; Canada’s National Defense Headquarters (NDHQ) Processing Display Subsystem (PDS); National Military Command Center (NMCC) PDS; and the back-up NMCC (Site-R) PDS; and the Alternate Space Control Center PDS.

(U) FY 1998 (\$ in Thousands):

- (U) \$ 0 Not applicable

(U) FY 1999 (\$ in Thousands):

- (U) \$ 0 Not applicable

(U) FY 2000 (\$ in Thousands):

- (U) \$ 872 Missile Warning Enterprise database development
- (U) \$ 181 Fused battlespace picture situation monitor and assessment
- (U) \$ 3,471 Command and control (C2) of space forces/threat warning
- (U) \$ 4,793 C2 of space forces/space battle manager
- (U) \$ 2,567 C2 of space forces/space operations planning
- (U) \$ 11,884 Total

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<p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> - (U) \$ 1,319 Missile Warning Enterprise database development - (U) \$ 1,766 Fused battlespace picture situation monitor and assessment - (U) \$ 577 C2 of space forces/threat warning - (U) \$ 8,936 C2 of space forces/space battle manager - (U) \$ 2,710 C2 of space forces/space operations planning - (U) \$ 15,308 Total <p>(U) B. <u>Project Change Summary - Description of Significant Changes:</u> This project is a new start in FY00.</p> <p>(U) C. <u>Other Program Funding Summary (\$ in Thousands)</u> (U) Shown in the CMU, Project 3880</p> <p>(U) D. <u>Acquisition Strategy:</u> N/UWSS will employ an evolutionary spiral development acquisition strategy which enables rapid development and fielding of an initial capability in response to a validated requirement. Using a spiral development acquisition strategy is important in a hardware/software intensive C2 system where 18-24 month technology cycles are common.</p> <p>N/UWSS will utilize a performance-oriented contracting strategy with industry, evolving toward Total System Performance Responsibility (TSPR). All major contracts related to this project will be awarded after full and open competition.</p> <p>(U) E. <u>Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">N/UWSS</th> <th colspan="4" style="text-align: center;"><u>FY 1998</u></th> <th colspan="4" style="text-align: center;"><u>FY 1999</u></th> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> </tr> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) Integrated Space C2 (ISC2) Contract Award</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">X</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Enterprise database incremental delivery</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">X</td><td></td><td style="text-align: center;">X</td> </tr> <tr> <td>(U) Fused Battlespace Picture Incremental Delivery</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">X</td><td></td> </tr> <tr> <td>(U) C2 of Space Forces Incremental Delivery</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td style="text-align: center;">X</td><td></td><td></td><td></td><td style="text-align: center;">X</td> </tr> <tr> <td>Project 4806</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>													N/UWSS	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	(U) Integrated Space C2 (ISC2) Contract Award									X								(U) Enterprise database incremental delivery														X		X	(U) Fused Battlespace Picture Incremental Delivery															X		(U) C2 of Space Forces Incremental Delivery												X				X	Project 4806																
N/UWSS	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>																																																																																																																						
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BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS					PROJECT 4806	
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U) Major Contract Incremental Funding					0	0	8,347	10,767			
(U) Award/Performance Fee					0	0	1,473	1,900			
(U) MITRE					0	0	1,240	1,580			
(U) TEMS					0	0	703	905			
(U) Program Support					0	0	121	156			
(U) Total					0	0	11,884	15,308			
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
ISC2 Contractor (TBD)	CP/AF	Jan 00	N/A	N/A	0	0	0	9,820	12,667	Cont	Cont
<u>Support and Management Organizations</u>											
MITRE	CPFF	Jan 00	N/A	N/A	0	0	0	1,240	1,580	Cont	Cont
TEMS	CPFF	Jan 00	N/A	N/A	0	0	0	703	905	Cont	Cont
Program Support	N/A	Jan 00	N/A	N/A	0	0	0	121	156	Cont	Cont
<u>Test and Evaluation Organizations</u>											
Not applicable											
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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS				PROJECT 4806		
Government Furnished Property:										
<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>	<u>Total Prior to FY 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>										
Not applicable										
<u>Support and Management Property</u>										
Not applicable										
<u>Test and Evaluation Property</u>										
Not applicable										
Subtotal Product Development							9,820	12,667	Cont	Cont
Subtotal Support and Management							2,064	2,641		
Subtotal Test and Evaluation										
Total Project							11,884	15,308	Cont	Cont

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BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS				PROJECT 3881	
<i>COST (\$ In Thousands)</i>	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
3881 Integrated TW/AA	4,929	6,270	4,524	4,173	3,700	3,710	3,787	3,867	Continuing	Continuing
<p>(U) A. <u>Mission Description</u></p> <p>This project was established to integrate new acquisitions such as the CMU program into the Integrated TW/AA network when it became apparent that such efforts could only be achieved through rigorous system-of-systems design and engineering analysis of all interfaces and relationships among the twenty-six systems of the network. The project provides interface analysis and disconnect resolution among the Integrated TW/AA systems and future program upgrades (e.g., SBIRS integration, National Missile Defense, and other Force Enhancement and Space Control programs). This project supports the high priority task of integrating modifications, upgrades and new acquisitions for the USCINCSpace fixed site Command and Control nodes (e.g., Cheyenne Mountain Operations Center, CINC Mission Operations Center, Space Operations Center), component C2 nodes (AFSPC's Space Operations Center, 20th AF Missile Operations Center) and the mobile C2 node. As USCINCSpace moves toward common infrastructures and open system platforms, this project will integrate those systems into the ITW/AA network through pre-planned vertical release upgrades. This project is the primary source for modernization planning, integration, and architecture development of modifications, upgrades and new acquisitions into the ITW/AA network.</p> <p>(U) <u>FY 1998</u></p> <ul style="list-style-type: none"> - (U) \$ 2,218 SEIT: Provided operation integration of CMU Phase 4 installation, check-out, test and assessment; maintained program schedule; identified, tracked and resolved disconnects within the ITW/AA system. - (U) \$ 2,711 Future Plans: Managed planned incremental capability modifications to NCMC-TW/AA systems. - (U) \$ 4,929 Total <p>(U) <u>FY 1999</u></p> <ul style="list-style-type: none"> - (U) \$ 3,543 SEIT and Future Plans merged into Integrated Systems Engineering (ISE), tasks include: transition space surveillance common user message traffic off AUTODIN onto new communications architecture; initial integration on new Clear Radar sensor into the missile warning and space surveillance C2 nodes; initial upgrade of missile warning C2 nodes from SBIRS Increment I Ground Station consolidation; planning and integration activities supporting NMD's BMC3 CINC node in the ITW/AA network; and software vertical release planning - (U) \$ 2,533 AF long range planning "jump start" funding for Space Battle Manager command and control prototyping, supports Expeditionary Force Experiment '99 (EFX '99) - (U) \$ 194 Identified as a source for SBIR - (U) \$ 6,270 Total 										
Project 3881			<i>Page 12 of 20 Pages</i>				Exhibit R-2A (PE 0305906F)			

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational System Development	0305906F NCMC-TW/AA SYSTEMS	3881
<p>(U) <u>FY 2000 (\$ in Thousands):</u></p> <ul style="list-style-type: none">- (U) \$ 4,524 Integrated Systems Engineering (ISE): Planning, integration and architecture development of new and upgraded fixed and mobile C2 sensor nodes into the ITW/AA network; complete AUTODIN transition; Clear Radar Upgrade IOC; SBIRS Increment 2; BMC3-ITW/AA planning, integration and test; CINC mission operations center planning and architecture development; and software vertical release planning- (U) \$ 4,524 Total <p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none">- (U) \$ 4,173 ISE: planning, integration and architecture development of new and upgraded fixed and mobile C2 centers and sensor nodes into the ITW/AA network; pre-planned vertical release upgrades; BMC3 ITW/AA planning and integration; CINC mission operations center planning and architecture development- (U) \$ 4,173 Total <p>(U) B. <u>Project Change Summary - Description of Significant Changes:</u> No significant changes.</p>		
Project 3881	Page 13 of 20 Pages	Exhibit R-2A (PE 0305906F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS	PROJECT 3881
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(U) C. Other Program Funding Summary (\$ in Thousands)

(U) Shown in the CMU, Project 3880.

(U) D. Acquisition Strategy:

All major contracts within this program element were awarded after full and open competition.

(U) E. Schedule Profile

Integrated TW/AA	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) AUTODIN Transition							X									
(U) SBIRS - ITW/AA Increment 1					*											
(U) SBIRS - ITW/AA Increment 2																
(U) ITW/AA Processing Display System - Migration (PDS-M)																X
(U) Clear Radar Upgrade Integration					*											
(U) ITW/AA MPDS-R Legacy Comm Transition																X
(U) ITW/AA Space Defense Operations Center Re-Engineering																
(U) NMD - BMC3 ITW/AA Integration																
(U) ITW/AA Air Initiatives																
(U) Pre-Planned ITW/AA Software Vertical Release Upgrades																
(U) HAVE STARE (FPS-129) Radar Integration*																

* The HAVE STARE (FPS-129) Radar will not be a fully integrated element of the Missile Warning Space Surveillance System. The radar will only be integrated with the Space Control Center and the Alternate Space Control Center.

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS					PROJECT 3881	
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U) Major Contract Incremental Funding						2,021					
(U) Award/Performance Fee						108					
(U) SPO Support											
(U) MITRE					4,048	3,071	3,207	3,052			
(U) TEMS/WSI					817	744	1,317	1,121			
(U) Program Support					64	132	0	0			
(U) Identified as a source for SBIR					0	194	0	0			
(U) Total					4,929	6,270	4,524	4,173			
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
Contractor or Government	Contract Method/Type	Award or Obligation	Performing Activity	Project Office	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Identified as a source for SBIR	N/A	N/A	N/A	N/A	0	0	194	0	0	0	194
<u>Product Development Organizations</u>											
DISA	MIPR	Apr 96	1,328	1,328	1,328	0	0	0	0	0	1,328
Lockheed Martin Co Springs, CO	C/CPIF/AF	Jun 95	6,390	6,390	6,390	0	0	0	0	0	6,390
Lockheed Martin Sunnyvale, CA	CPIF/AF	Nov 98	1,546	1,546	0	0	1,546	0	0	0	1,546
SPAWAR/Navy	MIPR	Nov 98	583	583	0	0	583	0	0	0	583

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS					PROJECT 3881	
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Support and Management Organizations</u>											
MITRE	CPFF	Oct 95	N/A	N/A	48,977	4,048	3,071	3,207	3,052	Cont	Cont
TEMS	CPFF	Oct 95	N/A	N/A	31,404	817	744	1,317	1,121	Cont	Cont
Program Support	N/A	Nov 95	N/A	N/A	7,064	64	132	0	0	Cont	Cont
Prime Contractors	(Various)				812	0	0	0	0	TBD	TBD
<u>Test and Evaluation Organizations</u>											
N/A											
Government Furnished Property:											
Not Applicable.											
					<u>Total</u>						
					<u>Prior to FY 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Identified as a source for SBIR					0	0	194	0	0	0	194
Subtotal Product Development					7,718	0	2,129	0	0	Cont	Cont
Subtotal Support and Management					88,257	4,929	3,947	4,524	4,173	Cont	Cont
Subtotal Test and Evaluation					0	0	0	0	0	0	0
Total Project					95,975	4,929	6,270	4,524	4,173	Cont	Cont

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS				PROJECT 4409	
COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
4409 Legacy Interfaces	1,371	953	0	0	0	0	0	0	0	47,485
<p>(U) A. <u>Mission Description</u> The FY95 Appropriations Conference Committee transferred \$41.5M from the O&M Critical Space Contract Operations Line to the RDT&E R-1 line in this program element. Congress realigned these funds from O&M to RDT&E to identify the costs associated with CMU software development upgrades to the CMU program. To clearly account for this funding, this project, Legacy Interfaces, was established. This project provides funding for software development upgrades to the CMU program and for direct mission software support to meet operational needs and completes in FY99.</p> <p style="margin-left: 40px;">(U) <u>FY 1998 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> – (U) \$ 1,371 Provided Cheyenne Mountain software engineering support/upgrades – (U) \$ 1,371 Total <p style="margin-left: 40px;">(U) <u>FY 1999 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> – (U) \$ 924 Provided Cheyenne Mountain software engineering support/upgrades – (U) \$ 29 Identified as a source for SBIR – (U) \$ 953 Total <p style="margin-left: 40px;">(U) <u>FY 2000 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> – (U) \$ 0 Not applicable <p style="margin-left: 40px;">(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none"> – (U) \$ 0 Not applicable <p>(U) B. <u>Project Change Summary - Description of Significant Changes:</u> No significant changes.</p>										
Project 4409			Page 17 of 20 Pages				Exhibit R-2A (PE 0305906F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE February 1999																																																																					
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS					PROJECT 4409																																																																					
<p>(U) C. <u>Other Program Funding Summary (\$ in Thousands)</u> (U) Shown above at program element level.</p> <p>(U) D. <u>Acquisition Strategy:</u> All major contracts within this program element were awarded after full and open competition.</p> <p>(U) E. <u>Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;"></th> <th colspan="4" style="text-align: center;"><u>FY 1998</u></th> <th colspan="4" style="text-align: center;"><u>FY 1999</u></th> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> </tr> <tr> <th></th> <th>1</th><th>2</th><th>3</th><th>4</th> <th>1</th><th>2</th><th>3</th><th>4</th> <th>1</th><th>2</th><th>3</th><th>4</th> <th>1</th><th>2</th><th>3</th><th>4</th> </tr> </thead> <tbody> <tr> <td>Legacy Interfaces</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Cheyenne Mountain test/software support upgrades</td> <td>*</td><td>*</td><td>*</td><td>*</td> <td>*</td><td>X</td><td>X</td><td>X</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> </tbody> </table>													<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	Legacy Interfaces																	(U) Cheyenne Mountain test/software support upgrades	*	*	*	*	*	X	X	X								
	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>																																																																		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																																																															
Legacy Interfaces																																																																															
(U) Cheyenne Mountain test/software support upgrades	*	*	*	*	*	X	X	X																																																																							
Project 4409				Page 18 of 20 Pages				Exhibit R-2A (PE 0305906F)																																																																							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS					PROJECT 4409	
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U) SPO support											
(U) MITRE					1,102	0	0	0			
(U) TEMS					261	731	0	0			
(U) Program Support					8	193	0	0			
(U) Identified as a source for SBIR					0	29	0	0			
(U) Total					1,371	953	0	0			
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Identified as a source for SBIR	N/A	N/A	N/A	N/A	0	0	29	0	0	0	29
<u>Product Development Organizations</u>											
Lockheed-Martin CO Springs CO	CP/AF	Oct 94	9,352	9,352	9,352	0	0	0	0	0	9,352
E-Systems	FPIF/AF	Oct 94	1,880	1,880	1,880	0	0	0	0	0	1,880
St Petersburg FL											
Kaman Sciences CO Springs CO	CP/AF	Oct 94	18,214	18,214	18,214	0	0	0	0	0	18,214
Kaman Sciences CO Springs CO	CP/AF	Oct 94	12,471	12,471	12,471	0	0	0	0	0	12,471
Navy/NISE	MIPR	Sep 95	3,244	3,244	3,244	0	0	0	0	0	3,244
Project 4409					Page 19 of 20 Pages				Exhibit R-3 (PE 0305906F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305906F NCMC-TW/AA SYSTEMS					PROJECT 4409	
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 1998</u>	<u>Budget FY 1998</u>	<u>Budget FY 1999</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Support and Management Organizations</u>											
MITRE	CPFF	N/A	N/A	N/A	0	1,102	0	0	0	0	1,102
TEMS	CPFF	N/A	N/A	N/A	0	261	731	0	0		992
Program Support	N/A	N/A	N/A	N/A	0	8	193	0	0	0	201
<u>Test and Evaluation Organizations:</u> N/A											
<u>Government Furnished Property:</u> N/A											
Identified as a source for SBIR					0	0	29	0	0	0	29
Subtotal Product Development					45,161	0	0	0	0	0	45,161
Subtotal Support and Management					0	1,371	924	0	0	0	2,295
Subtotal Test and Evaluation					0	0	0	0	0	0	0
Total Project					45,161	1,371	953	0	0	0	47,485