Exhibit R-2, RDT&E Budget Item Justification	**DATE:** February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07	**R-1 ITEM NOMENCLATURE** Long Haul Communications PE 0303126K

COST (in millions)	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Total Program Element	1.373	10.789	1.470	1.502	1.535	1.576	1.636	1.695
DISN Systems Engineering Support/T82	1.373	1.380	1.470	1.502	1.535	1.576	1.636	1.695
Presidential and National Voice Conferencing/PC01	0	9.409	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: This Program Element (PE) funds system engineering for the Defense Information Systems Network (DISN) and the Global Information Grid (GIG) which provides defense-wide communications for the day-to-day operations of the DoD and serves as the core of DoD wartime communications for the President, the Secretary of Defense, the Joint Chiefs of Staff (JCS), the Combatant Commanders, and other critical users. PE 0303126K provides for the engineering to consolidate the operational communications networks into DISN, supports the transition of Service and DoD Agency connections into the GIG, and supports the evolution engineering of the GIG. This PE funds the critical and essential engineering required to use commercial equipment and service offerings, to implement rapidly advancing communications technology, to update the network design tools so as to continue providing cost savings, and to continue offering valuable new cost effective information technology capabilities and services to customers. It provides for the cost-effective development of needed information technology capabilities by targeting RDT&E efforts to DoD mission needs. This PE supports the military requirements identified by Joint Mission Needs Statement (JMNS) and Joint Capstone Requirements Document (JCRD). This PE is under Budget Activity 07 because it involves efforts supporting operational systems development.

B.

Program Change Summary:	FY04	FY05	FY06	FY07
Previous President's Budget	1.380	11.401	1.455	1.485
Current Submission	1.373	10.789	1.470	1.502
Total Adjustments	-.007	-.612	.015	.017

Change Summary Explanation:

FY 2004 change is due to below threshold reprogramming.

FY 2005 change is due to undistributed Congressional adjustment to Defense-Wide RDT&E appropriation.

FY 2006 and FY 2007 changes are due to revised fiscal guidance.

Exhibit R-2a, RDT&E Project Justification				Date: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07				**R-1 ITEM NOMENCLATURE** Long Haul Communications/PE 0303126K				
COST (in millions)	FY04	FY 05	FY 06	FY07	FY08	FY09	FY10	FY11
DISN Systems Engineering Support/T82	1.373	1.380	1.470	1.502	1.535	1.576	1.636	1.695

A. Mission Description and Budget Item Justification: This Program Element (PE) funds system engineering for the Defense Information Systems Network (DISN) and the Global Information Grid (GIG) which provides defense-wide communications for the day-to-day operations of the DoD and serves as the core of DoD wartime communications for the President and Secretary of Defense, the Joint Chiefs of Staff (JCS), the Combatant Commanders, and other critical users. PE 0303126K provides the engineering to consolidate operational communications networks into DISN, supports the transition of Service and DoD Agency connections into the GIG, supports the convergence of Service and Agency network services (i.e. telephony, video, etc) into the GIG, and supports the evolution engineering of the GIG. This PE funds the critical and essential engineering required to use commercial equipment and service offerings, to implement rapidly advancing communications technology, to update network design tools so as to continue providing cost savings, and to continue offering valuable new cost effective information technology capabilities and services to customers. It provides for the development of needed information technology capabilities by targeting RDT&E efforts to DoD mission needs.

B. Accomplishments/Planned Program:

	FY 04	FY 05	FY 06	FY 07
Subtotal Cost	.714	.684	.718	.736

Systems Engineering - Provide ongoing systems engineering to reduce the risks and delays of inserting new communications technologies into the DISN/GIG by performing assessments and proof of concept implementations. Engineer the insertion of technology into the DISN/GIG (e.g., Wave Division Multiplexing (WDM), intelligent optical networking, gigabit/terabit routers, Virtual Private Networks (VPNs), converged network/integrated services, Voice over Internet Protocol (VoIP), IP Class of Service/Quality of Service (CoS/QoS), cell encryption, broadcast quality video, and wireless/mobility services). Continue support of DISN/Global Broadcast System (GBS) risk reduction trials. Continue engineering support for on-going Network Engineering Assessment Facility (NEAF) testbed assessments, prototyping, and mission support. Provide technical leadership in implementing recommended solutions involving DISN/GIG services. New efforts involve supporting the transition from the DISN to the GIG, supporting integration of Services/Agencies networks into the GIG, developing overarching design for next generation routing/QoS/CoS, and IP enabled Services such as Telephony, IPv6 and Enterprise Applications.

Exhibit R-2a, RDT&E Project Justification				Date: February 2005				
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07				**R-1 ITEM NOMENCLATURE** Long Haul Communications/PE 0303126K				
COST (in millions)	FY04	FY 05	FY 06	FY07	FY08	FY09	FY10	FY11
DISN Systems Engineering Support/T82	1.373	1.380	1.470	1.502	1.535	1.576	1.636	1.695

	FY 04	FY 05	FY 06	FY07
Subtotal Cost	.659	.696	.752	.766

Network Design - Provide ongoing development of the network topology design algorithms, heuristics, and software based on a DoD prioritized list which includes delivery of an IP Quality of Service modeling and simulation study relevant to future DoD converged services over Multi-Protocol Label Switching (MPLS) IP infrastructure. This initiative supports DoD transformational goals, global net-centricity, and the development of future Global Information Grid (GIG)/Defense Information System Network (DISN) programs. Conduct modeling and simulation analyses of existing, emerging and future technologies and services. Focus efforts on assured service, MPLS, information assurance architecture impacts on network performance, and enterprise service management architecture impacts on network performance. Also, efforts focus on converged voice, video, and data services coexisting in a converged IP network that provides assured service in support of global net-centricity.

C. Other Program Funding Summary: N/A

D. Acquisition Strategy: Continue with the same acquisitions that include a Small Disadvantaged contractor under the DISN Global Services (DGS) contract and a sole-source contract. Procure test hardware and tools from a variety of Commercial Off-the-Shelf vendors.

E. Performance Metrics:

1. Planned versus actual schedule (difference in days) for major milestones/deliverables.
2. Number of planned versus actual funds spent.
3. Adherence of contractor deliverables to SOW specifications.
4. Compliance with Performance Surveillance Plans contained in contracted efforts.

Exhibit R-3 Cost Analysis		**DATE:** February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07	**PROGRAM ELEMENT** Long Haul Communications / PE 0303126K	**PROJECT NAME AND NUMBER** DISN Systems Engineering Support / T82

Cost Category	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY05 Cost	FY05 Award Date	FY06 Cost	FY06 Award Date	FY07 Cost	FY07 Award Date	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	FFP	SETA, McLean, VA	.714	.684	06/05	.718	06/06	.736	06/07	Contg	Contg	2.852
	CPFF	OPNET, Bethesda, MD	.659	.696	04/05	.752	04/06	.766	05/07	Contg	Contg	2.873
			1.373	1.380		1.470		1.502				

Exhibit R-4 Schedule Profile		Date: February 2005
Appropriation/Budget Activity **RDT&E, Defense-Wide/07**	**Program Element Number and Name** **Long Haul Communications/PE 0303126K**	**Project Number and Name** **DISN Systems Engineering Support/T82**

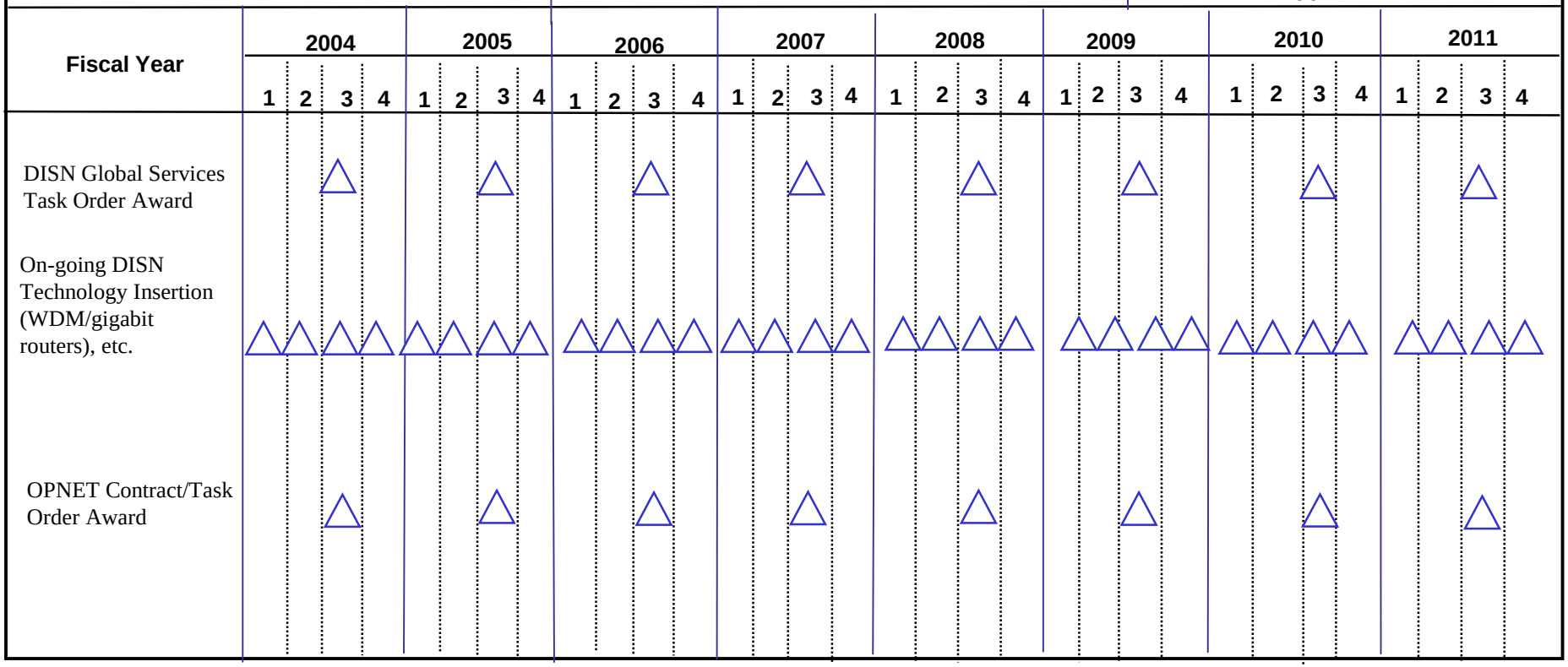


Exhibit R-4a Schedule Detail		**DATE:** February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07	**PROGRAM ELEMENT** Long Haul Communications/ PE 0303126K	**PROJECT NAME AND NUMBER** DISN Systems Engineering Support/ T82

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
DISN Global Services Task Order Award	3Q	3Q	3Q	3Q	3Q	3Q	3Q	3Q
On-going DISN Tech Insertion (Wave Division Multiplexing (WDM)/gigabit routers) Convergence Network/ Integrated Service Assessments & Pilots, etc.	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
OPNET Task Order Award	3Q	3Q	3Q	3Q	3Q	3Q	3Q	3Q
On-going Development and Application of Network Design, Analysis, Modeling & Simulation Tools	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification			DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07	PROGRAM ELEMENT Long Haul Communications / PE 0303126K		PROJECT NAME AND NUMBER Presidential and National Voice Conferencing/PC01

Cost (in millions)	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Presidential and National Voice Conferencing/PC01	0	9.409	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: As the Presidential and National Voice Conferencing (PNVC) program lead and system engineer, this project funds system engineering, planning, development, integration, installation, and testing of new baseband (cryptographic and voice encoder/vocoder) equipment needed to provide survivable, near toll-quality voice conferencing capability for the President and other national/military leaders. This project funds the critical and essential engineering required to develop a new voice processing algorithm, as well as the development of new vocoder and cryptographic equipment by taking advantage of ongoing RDT&E efforts by another Defense component. These baseband devices will implement new technology capabilities such as multi-stream cryptography/vocoding and information technology capabilities such as baseband Ethernet interfaces supporting baseband Internet Protocol (IP) addressing. This project supports the Joint Staff's requirement to fully implement the recommended Advance Extreme High Frequency (AEHF) PNVC improvements no later than FY 2010 for all PNVC participants.

B. Accomplishments/Planned Program:

	FY 04	FY 05	FY 06	FY 07
Subtotal Cost	0	9.409	0	0

The primary effort in FY 2005 will be the development of the PNVC system design description, engineering and technical analysis and associated engineering developmental model prototypes to develop the crypto/vocoder definition and production and technical specifications to meet the goal of beginning production at the start of FY 2007. PNVC product integration, installation, and testing is scheduled to start in FY 2008 and complete in FY 2010. Initial Operational Capability (IOC) has been tentatively scheduled for the end of FY 2009 and is defined to be the deployment of the first CONUS AEHF satellite and the PNVC initiative implemented at the principal conferees' locations.

C. Other Program Funding Summary: None

D. Acquisition Strategy: The PNVC program involves the development of new baseband equipment (vocoder and crypto) requiring the services of NSA for the design development and certification. Engineering support services for the PNVC

Exhibit R-2a, RDT&E Project Justification			DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07	PROGRAM ELEMENT Long Haul Communications / PE 0303126K		PROJECT NAME AND NUMBER Presidential and National Voice Conferencing/PC01

Cost (in millions)	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
Presidential and National Voice Conferencing/PC01	0	9.409	0	0	0	0	0	0

will be provided by contract and FFRDC support. Although some limited in-house government capability exists, the expertise necessary to fulfill the mission and responsibilities of the PNVC does not exist. Full and open competition will be used for the acquisition of support through existing DISA contracts.

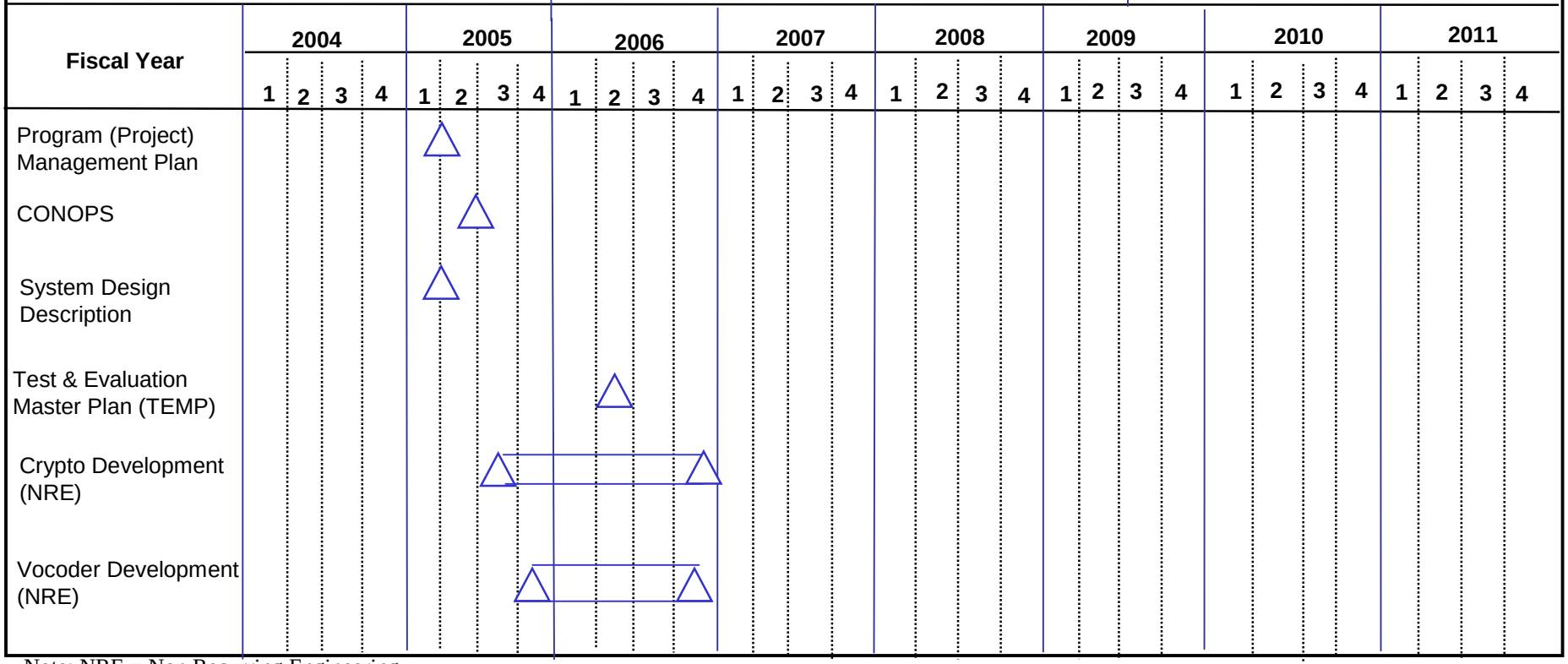
E. Performance Metrics: Since this is the initiation of the PNVC Program, initial metrics will track the development of various documents: Program Management Plan (PMP), Concept of Operations (CONOPS), Test and Evaluation Master Plan (TEMP), and other specifications needed to manage the program. Milestone metrics (schedule (actual vs. planned)) will be used for the Non-Recurring Engineering (NRE) and certification effort to deliver to DISA the vocoder and crypto design specification documents, PMP, CONOPS, and TEMP. The Program will also use the funding obligation rate (planned vs. actual) and financial reporting requirements as metrics throughout the life cycle of the program.

Exhibit R-3 Cost Analysis		**DATE:** February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07	**PROGRAM ELEMENT** Long Haul Communications / PE 0303126K	**PROJECT NAME AND NUMBER** Presidential and National Voice Conferencing (PNVC)/PC01

Cost Category	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY04 Cost	FY04 Award Date	FY05 Cost	FY05 Award Date	FY06 Cost	FY06 Award Date	FY07 Cost	FY07 Award Date	Cost To Complete	Total Cost	Target Value of Contract
FFRDC Engineering /Technical Spt	C/CPAF	Aerospace Fld Ofc Falls Church, VA	0			1.000	10-04	0	N/A	0	N/A	0	1.000	1.000
System Engineering & Technical Assistance (SETA) Support	C/TBD	TBD	0			0.300	10/04	0	N/A	0	N/A	0	0.300	0.300
NSA Engineering/Technical Support	C/TBD	NSA	0			8.109	10/04	0	N/A	0	N/A	0	8.109	8.109
Total			0			9.409		0		0		0	9.409	9.409

Exhibit R-4 Schedule Profile | **Date: February 2005**

Appropriation/Budget Activity	Program Element Number and Name	Project Number and Name
RDT&E, Defense-Wide/07	Long Haul Communications / PE 0303126K	Presidential and National Voice Conferencing (PNVC)/PC01



Note: NRE = Non Recurring Engineering

Exhibit R-4a Schedule Detail		DATE: February 2005
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/07	**PROGRAM ELEMENT** Long Haul Communications / PE 0303126K	**PROJECT NAME AND NUMBER** Presidential and National Voice Conferencing (PNVC)/PC01

Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
MIPR funds to NSA		1Q						
MIPR funds to SMC (Aerospace Support)		1Q						
NexGen SETA Task order Award		1Q						
MOU/MOA with NSA for crypto/vocoder development		1Q						
Crypto & Vocoder Systems Requirements Reviews (SRP)		2Q						
Crypto & Vocoder Trade Studies		3Q						
Crypto & Vocoder Critical Design Reviews (CDR)			2Q					
PNVC Test and Evaluation Master Plan (TEMP)			2Q					
Crypto & Vocoder Design Specification Delivery			3Q					