

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2003

BUDGET ACTIVITY

5 - System Development and Demonstration

PE NUMBER AND TITLE

0604223A - COMANCHE

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	754381	874018	1079257	1181563	1089860	879726	588278	431492	Continuing	Continuing
2LT COMANCHE OPER TEST	161	138	1244	9145	9118	10777	13739	45111	Continuing	Continuing
327 COMANCHE	718436	826067	1035661	1128915	951063	732929	499215	342904	Continuing	Continuing
C72 T-800 ENGINE ED (LH)	35784	47813	42352	43503	31637	22364	16446	14056	Continuing	Continuing
C79 COMANCHE COMPANION UAV	0	0	0	0	98042	113656	58878	29421	Continuing	Continuing

A. Mission Description and Budget Item Justification: The RAH-66 Comanche will be the Army's next generation Armed Reconnaissance aircraft system. Comanche will be the first fielded capability of the Future Combat System in the Objective Force. It will provide the Army with Network Centric capability both from a Joint and Combined Arms perspective. Comanche's technology will provide the Army with a system capable of operating in adverse weather conditions across a wide spectrum of threat environments. Comanche's innovative design will provide the Army with much lower operating costs through the use of integrated diagnostics and component functional partitioning, eliminating the requirement for Aviation Intermediate Maintenance (AVIM). Comanche advanced airframe design incorporates composite airframe structures, bearingless main rotor system, and reduced signatures. The Comanche Mission Equipment Package (MEP) will feature an open systems architecture integrating 2nd generation target acquisition and night vision sensors. Pilot workload from targeting to navigation is significantly reduced due to introduction of cognitive decision aiding and fully integrated weapon systems. Project C72 provides for continued development and qualification of the T802 engine and air vehicle support for integration into the Comanche aircraft. Project 2LT includes funding for the operational testing of Comanche to include modeling and simulation accreditation for Early User Test, Limited User Test and Initial Operational Test and Evaluation. Project 327 provides for development of the airframe, mission equipment package, integration and qualification of the complete system to include logistic support, training, and training devices. Project C79 provides for the integration and surrogate testing for Comanche Companion Unmanned Aerial Vehicles (UAVs). Includes purchasing UAVs for Force Development Test and Experimentation (FDTE) and Initial Operational Test and Evaluation (IOT&E) for the Comanche helicopter. The Comanche system supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2003****BUDGET ACTIVITY****5 - System Development and Demonstration****PE NUMBER AND TITLE****0604223A - COMANCHE**

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	781307	910160	1003591	943682
Current Budget (FY 2004/2005 PB)	754381	874018	1079257	1181563
Total Adjustments	-26926	-36142	75666	237881
Congressional program reductions				
Congressional rescissions	-4691	-10917		
Congressional increases				
Reprogrammings	-690	-5019		
SBIR/STTR Transfer	-21545	-24978		
Adjustments to Budget Years		4772	75666	237881

FY 04/05 increases provided to fund Cost Analysis Improvement Group (CAIG) revised cost estimate.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							February 2003				
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604223A - COMANCHE				PROJECT 2LT			
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
2LT	COMANCHE OPER TEST	161	138	1244	9145	9118	10777	13739	45111	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: This project provides for progressive test requirements in support of the test and fielding of the RAH-66 Comanche helicopter. Requisite activities include Force Development Test and Experimentation (FDTE) I, II, III and IV dedicated to tactics, techniques and procedures, and Limited User Test (LUT) that provide operational input early in the system's life cycle and support the LRIP decision; the Army Training Evaluation Program (ARTEP) and Initial Operational Test and Evaluation (IOT&E) in support of a Milestone III production decision.</p>											
Accomplishments/Planned Program							FY 2002	FY 2003	FY 2004	FY 2005	
Conduct independent evaluation at contractor test facility in support of LUT							81	28	539	5231	
Instrumentation and targets to support FDTE III/LUT and FDTE IV/ARTEP							80	41	92	1016	
Validate crew station simulators (Comanche Portable Cockpits) in support of FDTE I/II; conduct FDTE II.							0	57	156	2898	
Prepare and Conduct Electro-optical Sensor System User Survey							0	12	457	0	
Totals							161	138	1244	9145	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								February 2003		
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT 2LT	
B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
	A08300 Comanche	0	0	0	0	289750	965880	1528061	2025104	Continuing
B00306 Companion UAV	0	0	0	0	48850	117167	116919	115932	Continuing	Continuing
C. Acquisition Strategy: This project is for test and evaluation effort to support Comanche acquisition.										

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT 2LT		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
			0	0		0		0		0	0	0
Subtotal:												
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Government Agency	MIPR	Army Evaluation Command, Alexandria, VA	227	138	1-3Q	1244	1-3Q	9145	1-3Q	Continue	Continue	Continue
Subtotal:			227	138		1244		9145		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT 2LT		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0
Project Total Cost:			227	138		1244		9145		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)							February 2003	
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604223A - COMANCHE				PROJECT 2LT
<u>Schedule Detail</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Conduct independent evaluation at contractor test facility supporting LUT	1-4Q	1-4Q	1-4Q	1Q				
Prepare for LUT		4Q	1-4Q	1-4Q	1-3Q			
Prepare for FDTE I	1-2Q							
Conduct FDTE I	2-3Q							
Prepare for FDTE II		4Q	1-4Q	1-2Q				
Prepare for EOSS User Survey		4Q	1-3Q					
Conduct EOSS User Survey			4Q					
Conduct FDTE II				3Q				
Prepare for FDTE III		4Q	1-4Q	1-4Q	1-2Q			
Conduct FDTE III					3-4Q			
Conduct LUT					4Q			
Prepare for FDTE IV and ARTEP				4Q	1-4Q	1-4Q	1-4Q	
Conduct FDTE IV and ARTEP								1Q
Prepare for IOTE Block I					2-4Q	1-4Q	1-4Q	1Q
Conduct IOTE Block I								2-3Q
Prepare For IOTE Block II					2-4Q	1-4Q	1-4Q	1-2Q
Conduct IOTE Block II								3Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								February 2003		
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604223A - COMANCHE				PROJECT 327		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
327 COMANCHE	718436	826067	1035661	1128915	951063	732929	499215	342904	Continuing	Continuing
<p><u>A. Mission Description and Budget Item Justification:</u> The Comanche helicopter is a highly sustainable and operationally flexible armed reconnaissance light helicopter, incorporating significant reductions in personnel and support equipment, capturing the latest combat technologies and capable of accepting upgrades to meet ever-changing threats. It will dominate the battlefield in the close, deep and rear operations and provide a decisive air cavalry capability in day, night, and adverse weather. It will be operationally tailorable to regional conflicts and provide the battle commander with timely, detailed reconnaissance information and an unprecedented level of lethality.</p>										
<u>Accomplishments/Planned Program</u>						<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	
Continue Mission Equipment Package (MEP) development						217017	278845	290149	372257	
Continue Engineering, Manufacturing, and Development (EMD)						434248	370675	463978	451967	
Continue component development testing and prototype flight test program						32393	112479	173734	196013	
Continue material procurement/manufacture of 9 EMD aircraft (test articles), 4 development test, 4 Initial Training Capability (ITC) aircraft, 1 Training/Live Fire Test & Evaluation (LFTE) aircraft						34778	64068	107800	108678	
Totals						718436	826067	1035661	1128915	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT 327		
B. Other Program Funding Summary		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Compl</u>	<u>Total Cost</u>
A08300 Comanche		0	0	0	0	289750	965880	1528061	2025104	Continuing	Continuing
B00306 Companion UAV		0	0	0	0	48850	117167	116919	115932	Continuing	Continuing
<p>C. Acquisition Strategy:Continue work with current contractor leading to production.</p>											

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT 327		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DAAJ23-00-C-A001	C/PAF	Boeing Sikorsky, PA	1346935	767402	1-2Q	975028	1-2Q	1064591	1-2Q	Continue	Continue	Continue
b . DAAJ09-91-C-A004	C/CPIF	Boeing Sikorsky, PA	2927066	0		0		0		0	2927066	2930631
c . DAAJ09-87-D-A022	C/FFP	Veridian, VA	75041	7693	1-2Q	8308	1-2Q	8973	1-2Q	Continue	Continue	Continue
d . Other Contracts	C/FFP	Multiple	12683	6503	1-3Q	5927	1-3Q	5061	1-3Q	Continue	Continue	Continue
e . Completed Contracts			370288	0		0		0		0	370288	370288
f . Gov't Agencies	MIPR	Multiple	4491	445	1-4Q	481	1-4Q	519	1-4Q	Continue	Continue	Continue
Subtotal:			4736504	782043		989744		1079144		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT 327		
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Contracts	C/FFP	Multiple	55771	7544	1-3Q	8148	1-3Q	8799	1-3Q	Continue	Continue	Continue
b . Completed Contracts	C/FFP		15556	0		0		0		0	15556	15556
c . Gov't Agencies	MIPR	Multiple	143580	14499	1-4Q	15659	1-4Q	16912	1-4Q	Continue	Continue	Continue
Subtotal:			214907	22043		23807		25711		Continue	Continue	Continue
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Government Agencies	MIPR	Multiple	31504	7446	1-4Q	5412	1-4Q	5956	1-4Q	Continue	Continue	Continue
Subtotal:			31504	7446		5412		5956		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT 327		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Other Contracts	C/FFP	Multiple	10358	1409	1-3Q	1522	1-3Q	1643	1-3Q	Continue	Continue	Continue
b . PMO/Gov't Agencies	MIPR	Multiple	34305	13126	1-4Q	15176	1-4Q	16461	1-4Q	Continue	Continue	Continue
Subtotal:			44663	14535		16698		18104		Continue	Continue	Continue
Project Total Cost:			5027578	826067		1035661		1128915		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)							February 2003	
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604223A - COMANCHE			PROJECT 327	
<u>Schedule Detail</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Continue MEP development	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Continue EMD Program engineering development	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Continue development testing and prototype flight test program	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Begin/Continue material procurement/manufacture of EMD aircraft	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q			
Delivery of EMD aircraft				2-4Q	1-4Q			
Conduct development testing and flight test of acft #3 thru 6				3-4Q	1-4Q	1-4Q	1-4Q	1-4Q
Conduct flight test/training of aircraft #7 thru 11					1-4Q	1-4Q	1-4Q	1-4Q

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604223A - COMANCHE				PROJECT C72		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
C72 T-800 ENGINE ED (LH)	35784	47813	42352	43503	31637	22364	16446	14056	Continuing	Continuing
<p><u>A. Mission Description and Budget Item Justification:</u> This project includes tasks to develop, design, fabricate, test, and qualify a turbo shaft engine of the latest technology. The engine is to be furnished as Government Furnished Equipment by the US Army to the Comanche weapon's system integrator. This engine is the only propulsion source being considered for the Comanche program. The requested budget provides for the continued development, testing, qualification and support of the T800 engine variants being used or planned for in the Comanche program. The engine's shaft horsepower has been increased by first 70 and then to 100, over that which was provided by the T800-LHT-801 or "Growth" variant. T800-LHT-802 engine with engine block upgrades (T800-LHT-802A) is scheduled for Aircraft Block II EMD integration activities and all subsequent Comanche production aircraft.</p>										
<u>Accomplishments/Planned Program</u>							<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Continue engine contractor development/qualification testing and air vehicle support.							33953	35581	29047	35703
Continue EMD program engine manufacturing. Up to thirty-five engines (test articles) to be delivered in FY 04 thru FY 06 for Comanche EMD aircraft.							1831	12232	13305	7800
Totals							35784	47813	42352	43503

February 2003

PROJECT

0604223A - COMANCHE

C72

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
A08300 Comanche	0	0	0	0	289750	965880	1528061	2025104	Continuing	Continuing
B00306 Companion UAV	0	0	0	0	48850	117167	116919	115932	Continuing	Continuing

C. Acquisition Strategy: Continue work with current contractor leading to FAA certification, military qualification and production.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT C72		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . DAAJ09-92-C-0453	C/CPFF	LHTEC, Indiana	349422	0		0		0		0	349422	349353
b . DAAH23-02-C-0122	C/CPFF	LHTEC, Indiana	35284	46788	1-2Q	41489	1-2Q	42949	1-2Q	Continue	Continue	Continue
c . DAAJ09-85-C-B017	C/CPFF	LHTEC, Indiana	276821	0		0		0		0	276821	276821
d . DAAJ09-93-C-0518	C/CPFF	LHTEC, Indiana	460	0		0		0		0	460	460
e . DAAJ09-85-C-B019	C/FFP	AVCO/PW, Connecticut	128526	0		0		0		0	128526	128526
f . Gov't Agencies	MIPR	Multiple	14365	200		216		233		Continue	Continue	Continue
Subtotal:			804878	46988		41705		43182		Continue	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT C72		
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . PATS contracts	C/FFP		96	0		0		0		0	96	96
b . Rail	C/FFP		2806	0		0		0		0	2806	2806
c . Other Contracts	C/FFP	Multiple	608	150	1-2Q	350	1-2Q	0		0	1108	400
Subtotal:			3510	150		350		0		0	4010	3302
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Government Agencies	MIPR	Multiple	26603	675	1-3Q	297	1-3Q	321	1-3Q	0	Continue	Continue
b . Contracts	C/CPFF		2	0		0		0		0	2	0
Subtotal:			26605	675		297		321		0	Continue	Continue

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 5 - System Development and Demonstration					PE NUMBER AND TITLE 0604223A - COMANCHE					PROJECT C72		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0
Remarks: None												
Project Total Cost:			834993	47813		42352		43503		Continue	Continue	Continue

Schedule Profile Detail (R-4a Exhibit)							February 2003	
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604223A - COMANCHE				PROJECT C72
<u>Schedule Detail</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Continue development/qualification of the T800-LHT-802 engine	1-4Q	1-4Q	1Q					
Begin development/qualification of the T800-LHT-802A engine		1-4Q	1-4Q	1-4Q	1-3Q			
Continue air vehicle support	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q	1-4Q
EMD/ITC engine deliveries			2-4Q	1-4Q	1-4Q			