Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army											Date: February 2016	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0607139A *I Improved Turbine Engine Program*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	-	49.328	51.164	126.105	-	126.105	186.264	238.331	309.312	315.190	Continuing	Continuing
ES6: *Improved Turbine Engine Program*	-	49.328	51.164	126.105	-	126.105	186.264	238.331	309.312	315.190	Continuing	Continuing

Note

For Fiscal Year (FY) 2014 and prior, all funding for the Improved Turbine Engine Program (ITEP) was contained in Program Element (PE) 0203744A – Aircraft Modifications/Product Improvement Programs, Project 504. FY 2015 funding has moved from PE 0203744A, Project EB1 to PE 0607139A, Project ES6. This is not a New Start.

A. Mission Description and Budget Item Justification

ITEP develops, tests, qualifies, and integrates the next generation turboshaft engine on the Black Hawk and Apache aircraft. The Improved Turbine Engine (ITE) replaces the existing T700 engine design originated in the 1970's and meets the operational requirement of 6000 feet pressure altitude and 95 degrees (6K/95). The ITE will fit inside the existing engine bays of the Black Hawk and Apache Helicopters and provides a significant power enhancement of up to fifty percent (total of 3,000 shaft horsepower) with increased fuel efficiency. Additional benefits include improved design life, enhanced reliability, lower maintenance cost and restored capability lost due to aircraft weight growth, without increasing the logistics footprint. The program consists of systems engineering and program management, detailed design engineering, design assurance, hardware manufacturing and testing, component and module level development and testing, system level testing and qualification, as well as integration into the airframe.

FY 2016 funding provides for dual vendor competitive Preliminary Design Review (PDR) contract awards, initial engine design effort, and continues platform/engine integration trade studies. FY 2017 continues engine design effort and completes platform/engine integration trade studies. FY 2018 funds the remaining PDR engine design effort, the Engineering and Manufacturing Development (EMD) Source Selection and Evaluation Board (SSEB) for entry into Milestone B (MS B), EMD contract award, and begins platform Original Engine Manufacturer (OEM) integration design engineering. FY 2019 continues both the EMD effort and platform/engine integration design engineering. FY 2020 continues both the EMD effort and platform/engine integration A-kit development, resulting in a Critical Design Review (CDR) in FY 2020. FY 2021 continues the EMD effort, provides for First Engine To Test (FETT), and begins physical airframe integration.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Army					Date: February 2016
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0607139A *I Improved Turbine Engine Program*		
B. Program Change Summary ($ in Millions)	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Previous President's Budget	49.328	51.164	99.728	-	99.728
Current President's Budget	49.328	51.164	126.105	-	126.105
Total Adjustments	0.000	0.000	26.377	-	26.377
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments 1	-	-	26.377	-	26.377

Change Summary Explanation

For FY 2014 and prior, all funding for ITEP was contained in PE 0203744A – Aircraft Modifications/Product Improvement Programs, Project 504. FY 2015 funding has moved from PE 0203744A, Project EB1 to PE 0607139A, Project ES6. Additional Army funding in FY 2017 provided to fully fund initial PDR contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607139A / *Improved Turbine Engine Program*	Project (Number/Name) ES6 / *Improved Turbine Engine Program*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
ES6: *Improved Turbine Engine Program*	-	49.328	51.164	126.105	-	126.105	186.264	238.331	309.312	315.190	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

For Fiscal Year (FY) 2014 and prior, all funding for the Improved Turbine Engine Program (ITEP) was contained in Program Element (PE) 0203744A – Aircraft Modifications/Product Improvement Programs, Project 504. FY 2015 funding has moved from PE 0203744A, Project EB1 to PE 0607139A, Project ES6. This is not a New Start.

A. Mission Description and Budget Item Justification

ITEP develops, tests, qualifies, and integrates the next generation turboshaft engine on the Black Hawk and Apache aircraft. The Improved Turbine Engine (ITE) replaces the existing T700 engine design originated in the 1970's and meets the operational requirement of 6000 feet pressure altitude and 95 degrees (6K/95). The ITE will fit inside the existing engine bays of the Black Hawk and Apache Helicopters and provides a significant power enhancement of up to fifty percent (total of 3,000 shaft horsepower) with increased fuel efficiency. Additional benefits include improved design life, enhanced reliability, lower maintenance cost and restored capability lost due to aircraft weight growth, without increasing the logistics footprint. The program consists of systems engineering and program management, detailed design engineering, design assurance, hardware manufacturing and testing, component and module level development and testing, system level testing and qualification, as well as integration into the airframe.

FY 2016 funding provides for dual vendor competitive Preliminary Design Review (PDR) contract awards, initial engine design effort, and continues platform/engine integration trade studies. FY 2017 continues engine design effort and concluded the platform/engine integration trade studies. FY 2018 funds the remaining PDR engine design effort, the Engineering and Manufacturing Development (EMD) SSEB for entry into Milestone B (MS B), EMD contract award, and begins platform Original Engine Manufacturer (OEM) integration design engineering. FY 2019 continues both the EMD effort and platform/engine integration design engineering. FY 2020 continues both the EMD effort and platform/engine integration A-kit development, resulting in a Critical Design Review (CDR) in FY 2020. FY 2021 continues the EMD effort, provides for First Engine To Test (FETT), and begins physical airframe integration.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: ITEP	49.328	51.164	126.105
Description: ITEP - a multi-platform turbine engine devlopment required across existing Army aircraft to fill the capability gaps for Army Aviation Operations			
FY 2015 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607139A / *Improved Turbine Engine Program*	**Project (Number/Name)** ES6 / *Improved Turbine Engine Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Systems Engineering/Program Management requirements. Drafted and formally released Request for Proposals (RFP) for up to two vendors to execute PDR effort. Funded OEM aircraft platform/engine integration trade studies. ***FY 2016 Plans:*** Systems Engineering/Program Management requirements, dual vendor competitive PDR contract awards, initial engine design effort, and continues aircraft platform/engine integration trade studies. ***FY 2017 Plans:*** Systems Engineering/Program Management requirements, provide for incremental funding of dual vendor competitive PDR contract awarded in FY16, initial engine design effort, and continues aircraft platform/engine integration trade studies.			
Accomplishments/Planned Programs Subtotals	49.328	51.164	126.105

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

FY 2014 and prior, all funding for ITEP was contained in PE 0203744A – Aircraft Modifications/Product Improvement Programs, Project 504. FY 2015 funding has moved from PE 0203744A, Project EB1 to PE 0607139A, Project ES6. This is not a New Start.

D. Acquisition Strategy

Full and Open Competition is planned for the ITEP PDR contracts. Award Fixed Price Incentive (Firm Target) contracts in FY 2016 to no more than two vendors for PDR. Following a successful Milestone B decision, currently planned for fourth quarter FY 2018, there will be a down select to one vendor to be awarded on a cost-pus-incentive-fee contract.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607139A / *Improved Turbine Engine Program*	**Project (Number/Name)** ES6 / *Improved Turbine Engine Program*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ITEP SEPM - Organic	TBD	Program Management Office (PMO) Improved Turbine Engine/ Future Vertical Lift (ITE/FVL), Various : Redstone Arsenal, AL	0.000	7.241	Oct 2014	6.614	Oct 2015	6.568	Oct 2016	-		6.568	0	20.423	0
ITEP SEPM - Contractor	TBD	PMO Huntsville, AL Various : PMO Huntsville, AL Various	0.000	2.178	Oct 2014	1.700	Oct 2015	1.246	Oct 2016	-		1.246	0	5.124	0
ITEP SEPM - OGA	TBD	PMO Huntsville, AL Various : PMO Huntsville, AL Various	0.000	5.211	Oct 2014	1.080	Oct 2015	-		-		-	0	6.291	0
		Subtotal	0.000	14.630		9.394		7.814		-		7.814	0.000	31.838	0.000

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ITEP Preliminary Design Review (PDR) Contracts	C/FPIF	TBD : TBD	0.000	-		29.518	Aug 2016	104.478	Dec 2016	-		104.478	0	133.996	0
Boeing - ITEP Vehicle Platform Integration Trade Studies Contract	SS/IDIQ	Program Management Office (PMO) Improved Turbine Engine/ Future Vertical Lift (ITEP/FVL), Various : Redstone Arsenal, AL	0.000	34.698	Feb 2015	-		2.905	Dec 2016	-		2.905	0	37.603	0
Sikorsky Aircraft - ITEP Vehicle Platform	SS/FPIF	Program Management Office	0.000	-		6.602	Dec 2015	4.468	Dec 2016	-		4.468	0	11.070	0

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607139A / *Improved Turbine Engine Program*	Project (Number/Name) ES6 / *Improved Turbine Engine Program*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration Trade Studies Contract		(PMO) Improved Turbine Engine/ Future Vertical Lift (ITEP/FVL), Various : Redstone Arsenal, AL													
		Subtotal	0.000	34.698		36.120		111.851		-		111.851	0.000	182.669	0.000

Remarks

Integration Contract value in FY15 was split between Boeing (15.798)and Sikorsky (18.900). FY16 contract value was solely Sikorsky. FY15 and FY16 values could not be moved to the appropriate line because those fields are locked.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ITEP Engineering Support - Organic	TBD	Program Management Office (PMO) Improved Turbine Engine/ Future Vertical Lift (ITEP/FVL), Various : Redstone Arsenal, AL	0.000	-		1.200	Oct 2015	1.143	Oct 2016	-		1.143	0	2.343	0
ITEP Engineering Support - Contractor	TBD	Program Management Office (PMO) Improved Turbine Engine/ Future Vertical Lift (ITEP/FVL), Various : Redstone Arsenal, AL	0.000	-		1.500	Oct 2015	1.662	Oct 2016	-		1.662	0	3.162	0
ITEP Engineering Support - OGA	TBD	Program Management Office (PMO) Improved	0.000	-		2.950	Oct 2015	3.635	Oct 2016	-		3.635	0	6.585	0

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Army			Date: February 2016
Appropriation/Budget Activity 2040 / 7	R-1 Program Element (Number/Name) PE 0607139A / *Improved Turbine Engine Program*	Project (Number/Name) ES6 / *Improved Turbine Engine Program*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Turbine Engine/ Future Vertical Lift (ITEP/FVL), Various : Redstone Arsenal, AL													
		Subtotal	0.000	-		5.650		6.440		-		6.440	0.000	12.090	0.000

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	49.328		51.164		126.105		-		126.105	0.000	226.597	0.000

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607139A / *Improved Turbine Engine Program*	**Project (Number/Name)** ES6 / *Improved Turbine Engine Program*

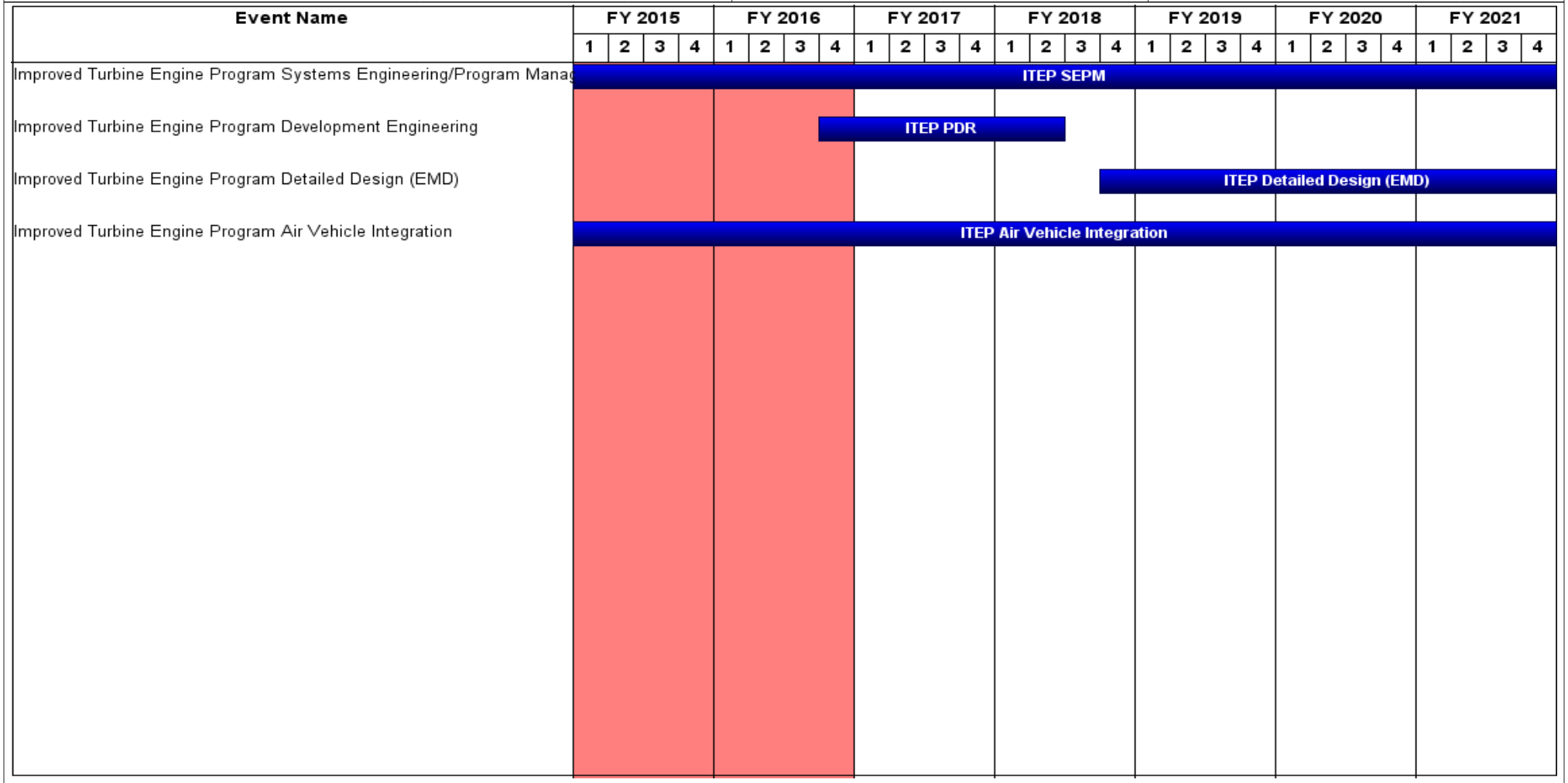

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Army		Date: February 2016
Appropriation/Budget Activity 2040 / 7	**R-1 Program Element (Number/Name)** PE 0607139A / *Improved Turbine Engine Program*	**Project (Number/Name)** ES6 / *Improved Turbine Engine Program*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Improved Turbine Engine Program Systems Engineering/Program Management	1	2015	1	2026
Improved Turbine Engine Program Development Engineering	4	2016	2	2018
Improved Turbine Engine Program Detailed Design (EMD)	4	2018	2	2024
Improved Turbine Engine Program Air Vehicle Integration	1	2015	2	2024

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