Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Army											Date: February 2015	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604115A / *TECHNOLOGY MATURATION INITIATIVES*							
COST ($ in Millions)	**Prior Years**	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	-	10.741	44.214	40.917	-	40.917	47.819	39.140	40.475	48.694	Continuing	Continuing
DS3: *TECHNOLOGY MATURATION INITIATIVES*	-	10.741	44.214	40.917	-	40.917	47.819	39.140	40.475	48.694	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element (PE) funds prototyping and demonstration of selected technology enabled capabilities to support advanced ground and aviation systems, precision weapons, and Soldier equipment. Funding facilitates maturation and demonstration of advanced technologies and systems in relevant environments and tactical/operational scenarios, taking technologies to a goal of Technology Readiness Level (TRL) 7 and reducing risk for acquisition programs of record. Efforts include competitive prototyping earlier in development to facilitate transition of new capabilities into acquisition programs. Efforts are directed by an Army Senior Executive Steering Group to ensure that demonstrations have high potential for filling capability gaps and transition. This PE provides the Army an improved mechanism for fulfilling the goals of the Weapon Systems Acquisition Reform Act (WSARA) of 2009 by enabling greater competition in the latter stages of technology maturation and establishes a closer alignment between Science and Technology (S&T) programs and acquisition programs.

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering science and technology priority focus areas and the Army Modernization Strategy.

Work in this PE is performed by the Research, Development and Engineering Command (RDECOM), Engineering Research Development Center (ERDC), and Space and Missile Defense Command (SMDC).

B. Program Change Summary ($ in Millions)	**FY 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**
Previous President's Budget	11.110	74.740	42.652	-	42.652
Current President's Budget	10.741	44.214	40.917	-	40.917
Total Adjustments	-0.369	-30.526	-1.735	-	-1.735
• Congressional General Reductions	-	-0.016			
• Congressional Directed Reductions	-	-30.510			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.369	-			
• Adjustments to Budget Years	-	-	-1.735	-	-1.735

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army			Date: February 2015
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604115A / *TECHNOLOGY MATURATION INITIATIVES*	Project (Number/Name) DS3 / *TECHNOLOGY MATURATION INITIATIVES*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
DS3: *TECHNOLOGY MATURATION INITIATIVES*	-	10.741	44.214	40.917	-	40.917	47.819	39.140	40.475	48.694	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

This Project funds the prototyping and demonstration of selected technology enabled capabilities to support advanced Soldier, ground, aviation, and command, control, communication & reconnaissance systems and equipment. Demonstration of these advanced technologies and systems are conducted in relevant environments and performing tactical/operational scenarios, taking technologies to a goal of Technology Readiness Level (TRL) 7 and reducing risk for acquisition programs. Efforts are typically 1-3 years in duration, and may include early competitive prototyping to facilitate transition of new capabilities into acquisition programs of record. Efforts are directed by an Army Senior Executive Steering Group (ESG) based on program priority and opportunity, to ensure that demonstrations have high potential for filling capability gaps and transitioning. This Project provides the Army an improved mechanism for fulfilling the goals of the Weapon Systems Acquisition Reform Act (WSARA) of 2009 by enabling greater competition in the latter stages of technology maturation and establishing a closer alignment between Science and Technology (S&T) and acquisition programs.

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering science and technology priority focus areas and the Army Modernization Strategy.

Work in the Project is performed by the Research, Development and Engineering Command (RDECOM), Engineering Research Development Center (ERDC), the Space and Missile Defense Command (SMDC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Title: Prototype, Evaluate, and Demonstrate	1.172	-	-
Description: This effort selects technologies in advanced ground systems, aviation systems, precision navigation and weapons, and/or Soldier equipment that show high promise for advancing capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk.			
FY 2014 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0604115A / *TECHNOLOGY MATURATION INITIATIVES*	**Project (Number/Name)** DS3 / *TECHNOLOGY MATURATION INITIATIVES*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
Completed the Integrated Soldier Power and Data System-Enhanced technology maturation effort initiated in FY12; developed test parameters and assessment criteria and transitioned effort to the Soldier Power program of record.			
Title: Maturation and Prototyping for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Systems	7.569	28.204	22.682
Description: This effort selects technologies that show high promise for advancing command, control, communication and reconnaissance capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk. ***FY 2014 Accomplishments:*** Demonstrated and validated critical technologies – Pseudolites – that provide a ground-based alternative for Positioning, Navigation and Timing (PNT) in a Global Positioning System (GPS) challenged or denied environment; prototyped Pseudolite systems and developed a second source to enable competitive testing prior to the Assured PNT program's Milestone B; demonstrated Pseudolite software for six legacy GPS receiver variants that are widely used by the Army. This investment accelerates and reduces risk for the Assured PNT program. ***FY 2015 Plans:*** Complete demonstration, validation and testing of Pseudolite prototypes and legacy receiver software, and transition to Assured PNT program of record; mature and prototype Assured PNT devices for mounted and dismounted applications, reducing size, weight and power for protection in all environments; accelerate integration and testing of dismounted capability with Nett Warrior end-user device and military GPS; develop and validate Anti-Jam GPS Antenna performance specifications and A-Kit to enable off-the-shelf, Assured PNT for mounted applications. Demonstrate mature critical optical elements, coating, and assembly technologies for prototype integration, addressing performance requirements of the Improved Forward-Looking Infrared (I-FLIR) at reduced cost and risk prior to program Engineering and Manufacturing Development (EMD) phase. Demonstrate a next generation Command Post data foundation interoperable with the Mounted and Mobile Handheld Computing Environments and the tactical cloud to critically inform the implementation of the Army Common Operation Environment V3. Mature and demonstrate spectrum assignment and frequency reuse software for incorporation into Joint Enterprise Network Manager to alleviate Software Radio Waveform spectrum congestion. ***FY 2016 Plans:*** Will continue to mature and prototype Assured PNT devices for mounted and dismounted applications; accelerate the integration and testing of mounted capability with ground vehicle platforms and military GPS; continue the development and validation of Anti-Jam GPS Antenna performance specifications and A-Kit to enable off-the-shelf, Assured PNT for mounted applications. Will integrate, validate and transition mature Improved Forward-Looking Infrared (I-FLIR) prototype solution, addressing program			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
performance requirements at reduced cost and risk prior to Engineering and Manufacturing Development (EMD) phase. Will validate and transition improved spectrum assignment and frequency reuse software for incorporation into Joint Enterprise Network Manager to alleviate spectrum congestion on the Software Radio Waveform.			
Title: Maturation and Prototyping for Ground Systems	1.600	3.400	14.485
Description: This effort selects ground maneuver technologies in areas such as mobility, survivability, vehicle architecture, lethality and systems integration, that show high promise for advancing capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk. ***FY 2014 Accomplishments:*** Mature VICTORY ground vehicle architecture and develop an open-source VICTORY Adapter component for integration and demonstration in a realistic operational environment, to reduce the technology risk, non-recurring engineering, and production costs that hinder the transition of the VICTORY standards into ground vehicle platforms. ***FY 2015 Plans:*** Finalize and demonstrate VICTORY ground vehicle architecture and performance specifications in a realistic operational environment, reducing technology risk, non-recurring engineering, and production costs that hinder the transition of the VICTORY standards into ground vehicle platforms; mature and productize open-source VICTORY Adapter component for integration and evaluation in major vehicle systems. ***FY 2016 Plans:*** Will begin multi-year effort to fabricate, integrate, and evaluate critical subsystem prototypes in support of the Combat Vehicle Prototyping (CVP) program, reducing the risk of transitioning next-generation and leap-ahead technologies to the Army's Future Fighting Vehicle. Will build mature, CVP sub-system prototypes for vehicle blast mitigation, including seat, restraint, hull and floor components; fabricate test fixtures and evaluate component prototypes' ability to reduce dynamic deformation, blast loading, and occupant injury against increased blast threats; complete foundational seat and restraint specifications and build final products for testing, integrated system demonstration, and risk reduction activities. Will begin CVP advanced engine and transmission component prototype builds for performance evaluation. Will begin multi-year effort to mature, demonstrate, and test modular Active Protection System (APS) common architecture, components, and controller that will provide future fighting vehicles with increased protection against current and emerging advanced threats, while maintaining or reducing vehicle weight. Will verify APS common architecture performance and flexibility in soft-kill configurations by integrating and testing interchangeable soft-kill sensors and countermeasures; conduct maturation testing of these components for performance in realistic and operational			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
environments and to ensure their ability to operate across all relevant scenarios; evaluate APS subsystem interoperability with other ground vehicle subsystems.			
Title: Maturation and Prototyping for Soldier Systems ***Description:*** This effort selects technologies that show high promise for advancing required soldier system capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk. ***FY 2015 Plans:*** Accelerate, integrate and demonstrate targeting software for the Mobile Handheld Fires Application, providing a timely, advanced Government Purpose Rights software solution for the Pocket-sized Forward Entry Device (PFED) Inc 2 program. Prototype and demonstrate a competitive materiel solution to meet Improved Military Combat Eye Protection objective requirements; transition specifications for improved transparent, ballistic fragmentation-resistant materials and coating to material vendors. Mature, prototype, and demonstrate advanced counter-defilade grenade to inform and expedite requirements for Increased Range Anti-Personnel (Low Velocity) and reduce future acquisition risks. ***FY 2016 Plans:*** Will complete the maturation, demonstration and validation of targeting software for the Mobile Handheld Fires Application; will integrate Government Purpose Rights software into full prototype solution and transition to the Pocket-sized Forward Entry Device (PFED) Inc 2 program of record.	-	7.960	2.500
Title: Maturation and Prototyping for Logistics and Sustainment Systems ***Description:*** This effort selects logistics and/or sustainment technologies that show high promise for advancing mobility capabilities required under acquisition programs; prototypes, evaluates, and demonstrates integrated technologies within a high fidelity and realistic operating environment, and transitions them to a formal program of record at reduced cost and/or risk. ***FY 2014 Accomplishments:*** Initiate component qualification for a common Army Vehicle Fire Extinguisher, which will reduce procurement and life-cycle costs due to low-volume manufacturing of 50-plus unique configurations. ***FY 2015 Plans:*** Advance government-owned Transparent Armor 3a design to meet Rock Strike requirements; integrate and test on Joint Light Tactical Vehicle (JLTV) and transition to materiel vendors for increased competition. Complete component qualification and	0.400	4.650	1.250

Exhibit R-2A, RDT&E Project Justification: PB 2016 Army		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2014	FY 2015	FY 2016
develop competitive procurement specification for a common Army Vehicle Fire Extinguisher, reducing procurement and life-cycle costs due to low-volume manufacturing of 50-plus unique configurations. ***FY 2016 Plans:*** Will complete the demonstration and validation the advanced Transparent Armor 3a design against Rock Strike requirements; will complete integration and testing of the government-own design on Joint Light Tactical Vehicle (JLTV) and transition to materiel vendors for future competition.			
Accomplishments/Planned Programs Subtotals	10.741	44.214	40.917

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• RDT&E,A: *RDT&E,A PE 0604120A*	7.500	9.925	30.058	-	30.058	27.957	33.918	30.574	30.598	-	170.530

Remarks

PE Title: Assured Positioning, Navigation and Timing (A-PNT)

D. Acquisition Strategy

Multiple competitive contracts will be awarded based on selection of efforts from the Senior ESG. The various developmental programs in this project will continue to exercise competitively awarded contracts using best value source selection procedures.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Army		Date: February 2015
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Soldier Power and Data System	C/CPFF	Ultra Electronics AMI : Ann Arbor, MI	1.521	1.172	Oct 2013	-		-		-		-	-	2.693	-
Maturation and Prototyping for C4ISR Systems	C/TBD	Various : Various	0.000	7.569	Dec 2014	28.204		22.682		-		22.682	-	58.455	-
Maturation and Prototyping for Ground Systems	C/TBD	Various : Various	0.000	1.600		3.400		14.485		-		14.485	-	19.485	-
Maturation and Prototyping for Soldier Systems	C/TBD	Various : Various	0.000	-		7.960		2.500		-		2.500	-	10.460	-
Maturation and Prototyping for Logistics and Sustainment Systems	C/TBD	Various : Various	0.000	0.400		4.650		1.250		-		1.250	-	6.300	-
		Subtotal	1.521	10.741		44.214		40.917		-		40.917	-	97.393	-

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.521	10.741		44.214		40.917		-		40.917	-	97.393	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Army		Date: February 2015
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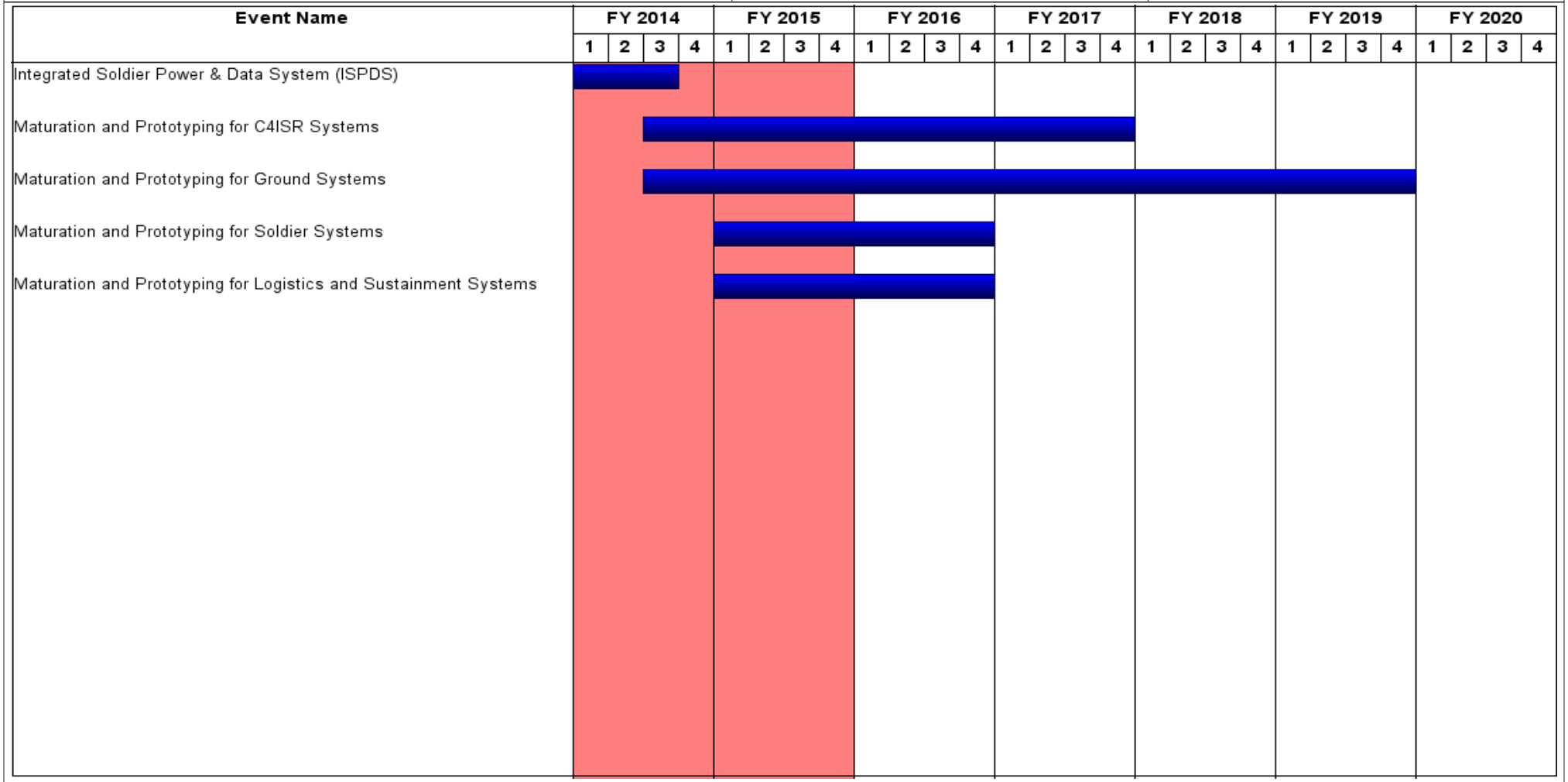

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Army		Date: February 2015
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Integrated Soldier Power & Data System (ISPDS)	2	2012	3	2014
Maturation and Prototyping for C4ISR Systems	3	2014	4	2017
Maturation and Prototyping for Ground Systems	3	2014	4	2019
Maturation and Prototyping for Soldier Systems	1	2015	4	2016
Maturation and Prototyping for Logistics and Sustainment Systems	1	2015	4	2016