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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army **Date:** March 2019

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604760A / Distributive Interactive Simulations (DIS) - Eng Dev
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	10.890	9.134	7.801	-	7.801	7.900	7.897	8.040	8.027	0.000	59.689
C74: Devel Simulation Tech	-	1.373	1.492	1.000	-	1.000	1.000	1.000	1.000	1.000	0.000	7.865
C77: Army Geospatial Data Master Plan	-	0.573	0.785	0.767	-	0.767	0.730	0.577	0.585	0.591	0.000	4.608
C78: One Semi-Automated Forces	-	8.944	6.857	6.034	-	6.034	6.170	6.320	6.455	6.436	0.000	47.216

A. Mission Description and Budget Item Justification

The program element "Distributive Interactive Simulations - Engineering Development" applies to the Army's Advanced Simulation Program, which enables operational readiness and the development of concepts and systems for the Future Force through the application of new simulation technology and techniques. The development and application of simulation technology will provide the means to link electronically a range of various simulation tools in a manner that is transparent to the user. The amalgam of simulations and tools is linked together to enable execution of an event; to verify the scenarios, tactics/techniques and procedures; to train testers on new hardware/software; and to conduct trial test runs before costly live field tests. The tools developed are available for reuse by developers and users of simulations throughout the Army.

Project C74 funds the HQDA-chartered mission of the Simulation-to-Mission Command Interoperability (SIMCI) Overarching Integrated Product Team (OIPT) in support of Army Training and Readiness. The SIMCI OIPT mission is to provide policy recommendations to Army senior leadership to improve organizations by allowing Soldiers to fight in the same manner in which they train. This is accomplished by interoperability between Mission Command (MC) systems and the Modeling and Simulation (M&S) systems the Army uses to stimulate MC systems for training Soldiers and their Leaders. SIMCI also invests in targeted solutions to critical problem areas that exist between MC and Simulations. The SIMCI OIPT, led by Program Executive Office (PEO) Simulation, Training, and Instrumentation (STRI) and PEO Command Control Communications-Tactical (C3T), uses focused collaborative processes among its 30+ Army organizations to identify key/critical interoperability shortfalls and the required materiel solutions.

Project C77, Army Geospatial Data Master Plan, focuses on activities that start with data acquisition from multiple sources and culminate in (1) accurate, robust and timely geospatial data and data management and (2) integration and conversion tools that support multiple battle command, training and mission-rehearsal applications. Project C77 continues development efforts associated with the Ground-Warfighter Geospatial Data Model (GGDM) and Geospatial Data Standards.

One Semi-Automated Forces (OneSAF) Project C78 develops and delivers a software application that represents activities of units and forces in simulation to support Army Training and Readiness. The application is used by Army agencies to support the concept evaluation, experimentation, materiel acquisition and training throughout the communities. The focus of this project is systems/software engineering and design for development and evolution of the architecture and software tools for a universal system of Army computer-generated forces -- OneSAF. OneSAF is a high fidelity brigade-and-below SAF that represents a full range of operations, systems and control processes in support of stand-alone and embedded training and Research, Development and Acquisition (RDA) simulation applications. OneSAF is fully

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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>
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interoperable with the Army's emerging virtual, live, and division-and-above constructive simulations and provides next-generation simulation products. OneSAF replaces a variety of legacy simulations used within the Army to support analytic and training simulation activities.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	11.270	9.145	13.869	-	13.869
Current President's Budget	10.890	9.134	7.801	-	7.801
Total Adjustments	-0.380	-0.011	-6.068	-	-6.068
• Congressional General Reductions	-0.007	-0.011			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.373	-			
• Adjustments to Budget Years	-	-	-6.068	-	-6.068

Change Summary Explanation

Program decreased to support Army Modernization Priorities

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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>				Project (Number/Name) C74 / <i>Devel Simulation Tech</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>C74: Devel Simulation Tech</i>	-	1.373	1.492	1.000	-	1.000	1.000	1.000	1.000	1.000	0.000	7.865
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project C74 funds the HQDA-chartered mission of the Simulation-to-Mission Command Interoperability (SIMCI) Overarching Integrated Product Team (OIPT) in support of Army Training and Readiness. The SIMCI OIPT mission is to provide policy recommendations to Army senior leadership to improve organizations by allowing Soldiers to fight in the same manner in which they train. This is accomplished by interoperability between Mission Command (MC) systems and the Modeling and Simulation (M&S) systems the Army uses to stimulate MC systems for training Soldiers and their Leaders. SIMCI also invests in targeted solutions to critical problem areas that exist between MC and Simulations. The SIMCI OIPT, led by Program Executive Office (PEO) Simulation, Training, and Instrumentation (STRI) and PEO Command Control Communications-Tactical (C3T), uses focused collaborative processes among its 30+ Army organizations to identify key/critical interoperability shortfalls and the required materiel solutions.

The SIMCI OIPT provides the following: (1) Advisor to Army Leadership--improve MC and M&S interoperability programs, policies, directives, resourcing, and procedures; (2) Technical Investment--sponsor/support initiatives that seek common solutions to critical interoperability issues surrounding MC and M&S systems; (3) Outreach--conduct & participate in interoperability outreach activities. SIMCI investments consist primarily of cost-sharing initiatives, leveraging initial system solutions of acquisition programs to enhance the interoperability of multiple systems in the Joint Operational Environment. SIMCI investments accelerate implementation within MC and M&S systems, of common data models and information exchanges that are used by other Services and coalition nations, thus enhancing the inherent ability of Army systems to interoperate seamlessly in a Joint, Interagency, Intergovernmental, and Multinational (JIIM) environment.

FY2020 funding continues progress with embedding simulation into Mission Command Systems via the Ozone Widget Framework, continues management of the SIMCI OIPT's Army-wide collaborative, interoperability enhancement activities, including architecture alignment, data model alignment, common standards, components, and products. It is focused first on reducing costs and improving capabilities in the areas of automating Operational Plans, Orders, and Reports in support of Army, Joint, and Coalition operations. Objectives are: identify and articulate to HQDA senior leadership specific standards that require Army-wide implementation; co-develop data standards, architecture standards, implementation specifications and Joint/Coalition products; continue transition of SIMCI knowledge and proof-of-principle products to Army and Joint acquisition programs.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Program Management for the SIMCI Overarching Integrated Product Team (OIPT) Projects.	1.373	1.252	1.000
Description: Program Management of the SIMCI OIPT's Army-wide collaborative, interoperability enhancement activities, including architecture alignment, data model alignment, common standards, components, and products. The OIPT consists of a Product Director, engineers, and finance personnel.			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>	Project (Number/Name) C74 / <i>Devel Simulation Tech</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
<p>FY 2019 Plans: Will continue management and support of the SIMCI OIPT'S Army-wide collaborative, interoperability enhancement activities, including architecture alignment, data model alignment, common standards, components, and products. Will continue focus on gap-analysis of the current model and simulation programs and capabilities in the areas of Live, Virtual, and Constructive (LVC) simulations. This will support the Vice Chief of Staff of the Army's request to find redundancy within the Modeling and Simulation (M&S) community and reduce it. Objectives are to compare the current M&S capabilities with what will be required in the upcoming LVC-Information Assurance (LVC-IA) and Integrated Training Environment (ITE) environments, which will eventually become the Simulated Training Environment (STE) in 2021. This will be Army-wide, as well as, Joint combined interagency products. Focus on ITE with the creation of the blueprint for STE, which is slated to be implemented in 2021.</p> <p>FY 2020 Plans: Will continue management and support of the SIMCI OIPT'S Army-wide collaborative, interoperability enhancement activities, including architecture alignment, data model alignment, common standards, components, and products. Will continue focus on gap-analysis of the current model and simulation programs and capabilities in the areas of Live, Virtual, and Constructive (LVC) simulations. This will support the Vice Chief of Staff of the Army's request to find redundancy within the Modeling and Simulation (M&S) community and reduce it. Objectives are to compare the current M&S capabilities with what will be required in the upcoming LVC-Information Assurance (LVC-IA) and Integrated Training Environment (ITE) environments, which will eventually become the Simulated Training Environment (STE) in 2021. This will be Army-wide, as well as, Joint combined interagency products. Focus on ITE with the creation of the blueprint for STE, which is slated to be implemented in 2021.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Decreases were a result of repurposing of funds towards modernization efforts.</p>				
<p>Title: FY19 SBIR/STTR Transfer</p> <p>Description: Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR)</p> <p>FY 2019 Plans: Accounting for full funding amount.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Accounting for full funding amount.</p>		-	0.240	-
Accomplishments/Planned Programs Subtotals		1.373	1.492	1.000
C. Other Program Funding Summary (\$ in Millions)				
N/A				

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C. Other Program Funding Summary (\$ in Millions)

Remarks

SIMCI uses other contract vehicles (internal/external) and awards money to work on specific technical projects. This provides the opportunity to leverage technical expertise from different agencies. SIMCI chooses projects that enhance current capabilities, closes the gaps of existing capabilities, and makes the determination for future projects that affect both the Mission Command and Live, Virtual, Constructive simulations environment. SIMCI only chooses those projects that meet specific requirements and criteria as stated above. It is one of SIMCI's missions to locate, utilize, or upgrade those projects or specific products that do just that.

D. Acquisition Strategy

SIMCI Overarching Integrated Product Team (OIPT) resources are allocated to multiple organizations in both the Mission Command (MC) and Modeling and Simulation (M&S) Communities. The funds are contracted to execute approved functions and to projects that advance the efforts of SIMCI and components-based architecture alignment. Products developed transition to the lead or sponsor's program which then maintains the product for the cost savings of itself and other programs in both Communities. The primary focus for these projects are the following: Embedded simulations with current Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems, gap-analysis for current simulations, and the proper implementation of Next-Generation modeling and simulation capabilities in regards to the Synthetic Training Environment (STE).

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604760A / Distributive Interactive Simulations (DIS) - Eng Dev				Project (Number/Name) C74 / Devel Simulation Tech							
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various	PEO STRI : Orlando, FL	10.123	0.150	Jan 2018	0.150	Jan 2019	0.150	Jan 2020	-		0.150	Continuing	Continuing	Continuing
SBIR/STTR	TBD	PEO STRI : Orlando, FL	0.086	-		0.240	Oct 2018	-		-		-	0.000	0.326	-
Subtotal			10.209	0.150		0.390		0.150		-		0.150	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Transition of simulation initialization capability	Various	TBD : TBD	3.134	-		-		-		-		-	Continuing	Continuing	Continuing
Geospatial Initiative	Various	TBD : TBD	1.388	-		-		-		-		-	Continuing	Continuing	Continuing
Data Model applications and reference implementations	Various	TBD : TBD	2.363	-		-		-		-		-	Continuing	Continuing	Continuing
Implementation of Initialization Products	Various	TBD : TBD	2.255	-		-		-		-		-	Continuing	Continuing	Continuing
Initialization Study Implementation	Various	TBD : TBD	1.038	-		-		-		-		-	Continuing	Continuing	Continuing
Mission Comand systems data mediation/web services	Various	TBD : TBD	2.910	-		-		-		-		-	Continuing	Continuing	Continuing
Expanding MTOE System Architecture (SA) Data	Various	TBD : TBD	1.821	-		-		-		-		-	Continuing	Continuing	Continuing
C2 Adapter Web Services and Tools	Various	TBD : TBD	2.660	-		-		-		-		-	Continuing	Continuing	Continuing
Subtotal			17.569	-		-		-		-		-	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 5				PE 0604760A / Distributive Interactive Simulations (DIS) - Eng Dev				C74 / Devel Simulation Tech							
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SIMCI Program/OIPT Support	Various	Various : Various	4.903	1.198	Jan 2018	1.077	Jan 2019	0.825	Jan 2020	-		0.825	Continuing	Continuing	Continuing
Army Initialization Program and Technical Work Groups (TWG)	Various	Various : Various	0.681	0.025	Jan 2018	0.025	Jan 2019	0.025	Jan 2020	-		0.025	Continuing	Continuing	Continuing
Subtotal			5.584	1.223		1.102		0.850		-		0.850	Continuing	Continuing	N/A
Project Cost Totals			33.362	1.373		1.492		1.000		-		1.000	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>	Project (Number/Name) C74 / <i>Devel Simulation Tech</i>

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Implementation of Initialization Products	[Redacted]																											
Transition of simulation initialization capability	[Redacted]																											
Data Model applications and reference implementations	[Redacted]																											
C2 Adapter Web Services and Tools	[Redacted]																											
Quarterly SIMCI OIPT Meeting	[Redacted]																											
Annual Project Call	[Redacted]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>	Project (Number/Name) C74 / <i>Devel Simulation Tech</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Geospatial Initiative	1	2011	4	2014
Implementation of Initialization Products	1	2010	4	2024
Transition of simulation initialization capability	1	2010	4	2024
Initialization Study Implementation	1	2010	4	2017
Data Model applications and reference implementations	1	2010	4	2024
C2 Adapter Web Services and Tools	1	2010	4	2024
Expanding MTOE System Architecture (SA) Data	1	2010	4	2012
Quarterly SIMCI OIPT Meeting	1	2010	4	2024
Annual Project Call	1	2010	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>				Project (Number/Name) C77 / <i>Army Geospatial Data Master Plan</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>C77: Army Geospatial Data Master Plan</i>	-	0.573	0.785	0.767	-	0.767	0.730	0.577	0.585	0.591	0.000	4.608
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project C77 addresses the implementation and acceleration of objectives focused on geospatial standards that were identified in the Army Geospatial Data Integrated Master Plan (AGDIMP), approved by the Chief of Staff, Army in April 2005 and newer guidance and directives including the Army's Geospatial Information Office (GIO) GIO Charter, Army Regulation for Geospatial Information and Services updated in 2014 (AR 115-11), and Army COE (Common Operating Environment Implementation Plan's Geospatial Annex). The AGDIMP and the GIO charter, Geospatial Annex to COE IP, and AR 115-11 require the establishment of an enterprise architecture framed around geospatial standards that address geospatial/GEOINT data, services, and applications to enable the Army Geospatial Enterprise (AGE). This Army Geospatial Enterprise serves the Army's Programs/Systems, Organizations (most importantly our soldiers) to provide the geospatial foundation of accurate, robust, and timely geospatial data, robust tools and services that support mission command, intelligence, training, mission-rehearsal and other mission-applications. Project C77 addresses a geospatial/GeoINT standard-base framework that supports the ground-warfighter. This geospatial standard framework must also fit within the broader National System for Geospatial-Intelligence (NSG) and Allies Systems for GeoINT (ASG) architecture and standards. The establishment of a ground-warfighter, standards-based framework support the management, dissemination, and update of geospatial data and services from National systems and organization to tactical systems and ground-warfighter in an enterprise fashion that will minimal translation into unique and often proprietary data formats and internal application databases.

FY 2019 funding continues development efforts associated with the Ground-Warfighter Geospatial Data Model (GGDM) and integration of Geospatial Data Standards into the U.S. Army Geospatial Enterprise (AGE) and the Army M&S Enterprise.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Ground-Warfighter Geospatial Data Model (GGDM)	0.151	0.245	0.145
Description: The GGDM incorporates common data elements that conform to standards mandated by the Department of Defense Information Technology Standards Registry (DISR) for the National System for Geospatial Intelligence (NSG). Incorporating common geospatial data standards into the GGDM makes the Programs of Record (POR) consistent with new DISR-mandated geospatial intelligence standards for the NSG. The implementation of GGDM across the army increases system-interoperability at the geospatial data level.			
FY 2019 Plans: Initiate development of the next version of GGDM based upon new information and revisions to the National System for Geospatial-Intelligence (NSG) Application Schema (NAS) as well as new requires from the US Army, USMC, and ABCANZ Allies.			

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Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>	Project (Number/Name) C77 / <i>Army Geospatial Data Master Plan</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
<p>Provide GGDM training classes to Army and USMC personnel. Ensure major Army PORs are implementing the GGDM (I.E. DCGS-A and SECORE).</p> <p>FY 2020 Plans: Initiate development of the next version of GGDM based upon new information and revisions to the National System for Geospatial-Intelligence (NSG) Application Schema (NAS) as well as new requires from the US Army, USMC, and ABCANZ Allies. Provide GGDM training classes to Army and USMC personnel. Ensure major Army PORs are implementing the GGDM (I.E. DCGS-A and SECORE).</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Requirements change.</p>				
<p>Title: Geospatial Data Standards</p> <p>Description: Army Geospatial Standards including data standards and standards for services to manage, process and disseminate and utilize geospatial data. Alignment of industry and Open geospatial standards from organizations such as the Open Geospatial Consortium (OGC) and others into the Army Geospatial Enterprise (AGE).</p> <p>FY 2019 Plans: Will initiate work in collaboration with industry and other agencies to develop new geospatial data and services standards, DOD Profiles of these standards, and technology implementations of these standards. Focus on standards to support 2D raster tiled maps, 3D globe standards, and initial assessment about vector tile maps. Additionally, cont. to develop modifications/updates elevation data formats and services. Maintain Geospatial Standards compliance matrix, Std-V1, in alignment with quarterly updated NSG standards and DoD Information Technology Standards and Profile Registry (DISR) cycle updates of GeoINT standards and coordinate results with Army CIO/G6 and ASA(ALT) Programs. Will continue to provide SME support on geospatial data and technology standards to Army PORs.</p> <p>FY 2020 Plans: Will initiate work in collaboration with industry and other agencies to develop new geospatial data and services standards, DOD Profiles of these standards, and technology implementations of these standards. Focus on standards to support 2D raster tiled maps, 3D globe standards, and initial assessment about vector tile maps. Additionally, cont. to develop modifications/updates elevation data formats and services. Maintain Geospatial Standards compliance matrix, Std-V1, in alignment with quarterly updated NSG standards and DoD Information Technology Standards and Profile Registry (DISR) cycle updates of GeoINT standards and coordinate results with Army CIO/G6 and ASA(ALT) Programs. Will continue to provide SME support on geospatial data and technology standards to Army PORs.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement:</p>		0.422	0.540	0.622

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020
Increase due to economic adjustments			
Accomplishments/Planned Programs Subtotals	0.573	0.785	0.767

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Resources are allocated to several critical geospatial projects in support of the Army Geospatial Data Integrated Master Plan (AGDIMP) and the Army Geospatial Enterprise (AGE).

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>	Project (Number/Name) C77 / <i>Army Geospatial Data Master Plan</i>

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Ground Warfighter Geospatial Data Model																												
Geospatial Data Standards																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>	Project (Number/Name) C77 / <i>Army Geospatial Data Master Plan</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Ground Warfighter Geospatial Data Model	1	2010	4	2023
Geospatial Data Standards	1	2010	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>				Project (Number/Name) C78 / <i>One Semi-Automated Forces</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
<i>C78: One Semi-Automated Forces</i>	-	8.944	6.857	6.034	-	6.034	6.170	6.320	6.455	6.436	0.000	47.216
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

One Semi-Automated Forces (OneSAF) develops and delivers a software application that represents activities of units and forces in simulation to support Army Training and Readiness. The application is used by Army agencies to support the concept evaluation, experimentation, materiel acquisition and training throughout the communities. The focus of this project is systems/software engineering and design for development and evolution of the architecture and software tools for a universal system of Army computer-generated forces -- OneSAF. OneSAF is a high fidelity brigade-and-below SAF that represents a full range of operations, systems and control processes in support of stand-alone and embedded training and Research, Development and Acquisition (RDA) simulation applications. OneSAF is fully interoperable with the Army's emerging virtual, live, and division-and-above constructive simulations and provides next-generation simulation products. OneSAF replaces a variety of legacy simulations used within the Army to support Acquisition, Analysis, Experimentation, Intelligence, Test & Evaluation, and Training simulation activities.

FY2020 funding allows for continued development of the software product line by addressing OneSAF Pre-Planned Product Improvements (P3Is) as prioritized and approved by the Training and Doctrine Command (TRADOC). This funding also provides for the management of the infrastructure, equipment, laboratories, and processes needed to develop, test, and release the required product baseline.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: Engineering and Manufacturing Development (EMD) phase contract activities for the One Semi-Automated Forces program.	6.300	4.971	4.584
Description: Continue EMD phase contract activities for the OneSAF program.			
FY 2019 Plans: Will continue the development of software capabilities based on OneSAF P3Is as prioritized and approved by TRADOC. Will continue the software development of functionality that enhances architectural services, components, synthetic environment and infrastructure of the OneSAF Product Line and will provide for software integration, test and release of required software refreshes and Version 9.0			
FY 2020 Plans: Will continue the development of software capabilities based on OneSAF P3Is as prioritized and approved by TRADOC. Will continue the software development of functionality that enhances architectural services, components, synthetic environment and infrastructure of the OneSAF Product Line and will provide for software integration, test and release of required software refreshes and Version 10.0.			
FY 2019 to FY 2020 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019		
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>	Project (Number/Name) C78 / <i>One Semi-Automated Forces</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Decrease due to economic adjustments.				
<p>Title: Government System Test and Evaluation for the One Semi-Automated Forces (OneSAF) program.</p> <p>Description: Government System Test and Evaluation for the OneSAF program.</p> <p>FY 2019 Plans: Will provide for the conducting of software, test, integration and release for Version 9.0. Will provide support to the user community in conducting experiments, analyses, and validation events for integration into the Home Station Training Federation, Network Integration Events (NIE), Battle Lab Collaborative Simulation Environment (BLCSE), Multi Resolution Federation- Brigade (MRF-B) Enhanced, and other LVC applications.</p> <p>FY 2020 Plans: Will provide for the conducting of software, test, integration and release for Version 10.0. Will provide support to the user community in conducting experiments, analyses, and validation events for integration into the Home Station Training Federation, Network Integration Events (NIE), Battle Lab Collaborative Simulation Environment (BLCSE), Entity Simulation Service (ESS) in support of Joint Land Component Constructive Training Capability (JLCCTC), and other LVC applications.</p>		1.100	1.100	1.100
<p>Title: Government Program Management for the One Semi-Automated Forces (OneSAF) program.</p> <p>Description: Government Program Management for the One Semi-Automated Forces (OneSAF) program.</p> <p>FY 2019 Plans: Will provide a portion of program management, engineering and technical oversight, contract support, and travel for support of site surveys and Subject Matter Experts for the development of OneSAF.</p> <p>FY 2020 Plans: Will provide a portion of program management, engineering and technical oversight, contract support, and travel for support of site surveys and Subject Matter Experts for the development of OneSAF.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Minor change to annual program management costs.</p>		1.544	0.326	0.350
<p>Title: FY19 SBIR/STTR Transfer</p> <p>Description: Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR)</p> <p>FY 2019 Plans:</p>		-	0.460	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019		
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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Accounting for full funding amount.				
FY 2019 to FY 2020 Increase/Decrease Statement:				
Accounting for full funding amount.				
Accomplishments/Planned Programs Subtotals		8.944	6.857	6.034
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
OneSAF continues to manage two Delivery Orders for the Development, Integration, Interoperability, and Support (I2S) of capabilities products, data, and documentation that fully serves the current and evolving needs of the user community.				
The enhancements will be executed within the development line as modifications to the released baseline via Engineering Change Proposals (ECPs); Change Requests (CRs): Pre-Planned Product Improvements (P3I); and correction of deficiencies identified as Problem Test Reports (PTRs) and Deficiency Reports (DRs) by the user community.				
In FY2020, the program will continue with yearly releases of the OneSAF Software versions containing performance enhancements resulting from the development and integration of Pre-Planned Product Improvements (P3I), concurrency enhancements, user feedback, corrections of deficiencies identified as Problem Test Reports (PTR) and Deficiency Reports (DR) and Co-Developers handovers. The OneSAF program will continue to manage the single award contract for the continuing development and maintenance of the software baseline as well as continue to manage the Integrated Development Environment (IDE).				
E. Performance Metrics				
N/A				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604760A / Distributive Interactive Simulations (DIS) - Eng Dev				Project (Number/Name) C78 / One Semi-Automated Forces							
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various	PEO STRI, Orlando, FL : Various	26.706	1.850	Oct 2017	0.326	Oct 2018	0.350	Oct 2019	-		0.350	Continuing	Continuing	Continuing
SBIR/STTR	TBD	PEO STRI : Orlando, FL	-	-		0.460	Oct 2018	-		-		-	0.000	0.460	-
Subtotal			26.706	1.850		0.786		0.350		-		0.350	Continuing	Continuing	N/A
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Architecture Dev & System Integration	C/CPFF	Science Applications International Corp : Orlando, FL	51.466	-		-		-		-		-	0.000	51.466	51.466
Model and Tools Development	C/CPFF	Science Applications International Corp : Orlando, FL	27.625	-		-		-		-		-	0.000	27.625	27.625
Environmental Runtime Component	C/CPFF	Science Applications : Orlando, FL	7.981	-		-		-		-		-	0.000	7.981	7.981
OneSAF Component Development	C/CPFF	Various : Various	9.648	-		-		-		-		-	0.000	9.648	9.648
Integrated Environment Dev	C/CPFF	Advanced Systems Technology, Inc : Orlando FL	11.702	-		-		-		-		-	0.000	11.702	11.702
OneSAF Bridge Contract	C/CPFF	Science Applications International Corp : Orlando, FL	3.797	-		-		-		-		-	0.000	3.797	3.797
Integration, Interoperability, and Support (I2S) & Logical Follow On (LFO)	C/CPFF	Cole Engineering Services, Inc. : Orlando, FL	6.290	1.000	Dec 2017	-		-		-		-	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 5				R-1 Program Element (Number/Name) PE 0604760A / Distributive Interactive Simulations (DIS) - Eng Dev						Project (Number/Name) C78 / One Semi-Automated Forces					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development & Production Logical Follow On (LFO)	C/CPFF	Leidos : Orlando, FL	18.985	1.000	Dec 2017	-		-		-		-	Continuing	Continuing	Continuing
Software Development	C/CPFF	TBD : Orlando, FL	3.601	3.534	Dec 2017	4.521	Dec 2018	4.124	Dec 2019	-		4.124	Continuing	Continuing	Continuing
Subtotal			141.095	5.534		4.521		4.124		-		4.124	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Analysis	Various	Various : Various	6.597	-		-		-		-		-	Continuing	Continuing	Continuing
Domain Analysis	Various	Various : Various	6.135	0.150	Dec 2017	0.150	Dec 2018	0.150	Dec 2019	-		0.150	Continuing	Continuing	Continuing
Integrated Development Environment	Various	Various : Various	9.936	-		-		-		-		-	Continuing	Continuing	Continuing
Architecture Engr & Tech Spt	SS/FP	MITRE FFRDC : Aberdeen Proving Ground, MD	5.449	0.310	Dec 2017	0.300	Dec 2018	0.310	Dec 2019	-		0.310	Continuing	Continuing	Continuing
Subtotal			28.117	0.460		0.450		0.460		-		0.460	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
OneSAF integration, evaluation and test	Various	Various : Various	12.829	0.900	Dec 2017	0.900	Dec 2018	0.900	Dec 2019	-		0.900	Continuing	Continuing	Continuing
OneSAF Verification, Validation & Accreditation	Various	Various : Various	7.247	0.200	Dec 2017	0.200	Dec 2018	0.200	Dec 2019	-		0.200	Continuing	Continuing	Continuing
Subtotal			20.076	1.100		1.100		1.100		-		1.100	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army								Date: March 2019					
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	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	215.994	8.944		6.857		6.034		-		6.034	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Army		Date: March 2019
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Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024																																			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																																
P3I Requirements Development	P3I																																																											
OneSAF Version Release 8.8 (Concurrency Updates)					▲ 1 V8.8																																																							
OneSAF Version Release 8.9 (Concurrency Updates)					▲ 2 V8.9																																																							
OneSAF Version Release 9.0 (Concurrency Updates)					▲ 3 V9.0																																																							
OneSAF Version Release X.1 (Concurrency Updates)					▲ 4 VX.1																																																							
OneSAF Version Release X.2 (Concurrency Updates)					▲ 5 VX.2																																																							
OneSAF Version Release X.3 (Concurrency Updates)					▲ 6 VX.3																																																							
OneSAF Version Release X.4 (Concurrency Updates)					▲ 7 VX.4																																																							
OneSAF Support					Life Cycle Software Support																																																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604760A / <i>Distributive Interactive Simulations (DIS) - Eng Dev</i>	Project (Number/Name) C78 / <i>One Semi-Automated Forces</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
P3I Requirements Development	1	2006	4	2024
OneSAF Version Release 8.8 (Concurrency Updates)	4	2018	4	2018
OneSAF Version Release 8.9 (Concurrency Updates)	3	2019	3	2019
OneSAF Version Release 9.0 (Concurrency Updates)	2	2020	2	2020
OneSAF Version Release X.1 (Concurrency Updates)	2	2021	2	2021
OneSAF Version Release X.2 (Concurrency Updates)	2	2022	2	2022
OneSAF Version Release X.3 (Concurrency Updates)	2	2023	2	2023
OneSAF Version Release X.4 (Concurrency Updates)	2	2024	2	2024
OneSAF Support	1	2006	4	2024