

UNCLASSIFIED

**Department of Defense  
Fiscal Year (FY) 2021 Budget Estimates**

February 2020



**The Joint Staff**

*Defense-Wide Justification Book Volume 5 of 5*

***Research, Development, Test & Evaluation, Defense-Wide***

UNCLASSIFIED

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

The Joint Staff • Budget Estimates FY 2021 • RDT&E Program

**Table of Volumes**

Defense Advanced Research Projects Agency.....	Volume 1
Missile Defense Agency.....	Volume 2
Office of the Secretary Of Defense.....	Volume 3
Chemical and Biological Defense Program.....	Volume 4
Defense Contract Audit Agency.....	Volume 5
Defense Contract Management Agency.....	Volume 5
Defense Counterintelligence and Security Agency.....	Volume 5
Defense Information Systems Agency.....	Volume 5
Defense Logistics Agency.....	Volume 5
Defense Security Cooperation Agency.....	Volume 5
Defense Technical Information Center.....	Volume 5
Defense Threat Reduction Agency.....	Volume 5
DoD Human Resources Activity.....	Volume 5
Operational Test and Evaluation, Defense.....	Volume 5
Space Development Agency.....	Volume 5
The Joint Staff.....	Volume 5

**UNCLASSIFIED**

**UNCLASSIFIED**

The Joint Staff • Budget Estimates FY 2021 • RDT&E Program

**United States Special Operations Command.....Volume 5**

**Washington Headquarters Services.....Volume 5**

**UNCLASSIFIED**

The Joint Staff • Budget Estimates FY 2021 • RDT&E Program

**Volume 5 Table of Contents**

**Comptroller Exhibit R-1..... Volume 5 - v**

**Program Element Table of Contents (by Budget Activity then Line Item Number).....Volume 5 - xvii**

**Program Element Table of Contents (Alphabetically by Program Element Title).....Volume 5 - xix**

**Exhibit R-2s..... Volume 5 - 1**

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

UNCLASSIFIED

Department of Defense  
FY 2021 President's Budget  
Exhibit R-1 FY 2021 President's Budget  
Total Obligational Authority  
(Dollars in Thousands)

23 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Research, Development, Test & Eval, DW	134,265	150,246			150,246
Total Research, Development, Test & Evaluation	134,265	150,246			150,246

## UNCLASSIFIED

Department of Defense  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

Appropriation -----	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
-----	-----	-----	-----	-----	-----
Research, Development, Test & Eval, DW	118,451				118,451
Total Research, Development, Test & Evaluation	118,451				118,451



## UNCLASSIFIED

Department of Defense  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
<u>Summary Recap of Budget Activities</u>					
Advanced Component Development & Prototypes	21,904	20,062			20,062
Management Support	109,324	125,647			125,647
Operational Systems Development	3,037	4,537			4,537
Total Research, Development, Test & Evaluation	134,265	150,246			150,246
<u>Summary Recap of FYDP Programs</u>					
General Purpose Forces	19,805	13,753			13,753
Intelligence and Communications	859	553			553
Research and Development	70,001	95,867			95,867
Training Medical and Other	43,600	40,073			40,073
Total Research, Development, Test & Evaluation	134,265	150,246			150,246

## UNCLASSIFIED

Department of Defense  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities					
Advanced Component Development & Prototypes	19,190				19,190
Management Support	96,222				96,222
Operational Systems Development	3,039				3,039
Total Research, Development, Test & Evaluation	118,451				118,451
Summary Recap of FYDP Programs					
General Purpose Forces	6,097				6,097
Intelligence and Communications	545				545
Research and Development	80,684				80,684
Training Medical and Other	31,125				31,125
Total Research, Development, Test & Evaluation	118,451				118,451

UNCLASSIFIED

Defense-Wide  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
Summary Recap of Budget Activities -----					
Advanced Component Development & Prototypes	21,904	20,062			20,062
Management Support	109,324	125,647			125,647
Operational Systems Development	3,037	4,537			4,537
Total Research, Development, Test & Evaluation	134,265	150,246			150,246
Summary Recap of FYDP Programs -----					
General Purpose Forces	19,805	13,753			13,753
Intelligence and Communications	859	553			553
Research and Development	70,001	95,867			95,867
Training Medical and Other	43,600	40,073			40,073
Total Research, Development, Test & Evaluation	134,265	150,246			150,246

UNCLASSIFIED

Defense-Wide  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
Summary Recap of Budget Activities					
Advanced Component Development & Prototypes	19,190				19,190
Management Support	96,222				96,222
Operational Systems Development	3,039				3,039
Total Research, Development, Test & Evaluation	118,451				118,451
Summary Recap of FYDP Programs					
General Purpose Forces	6,097				6,097
Intelligence and Communications	545				545
Research and Development	80,684				80,684
Training Medical and Other	31,125				31,125
Total Research, Development, Test & Evaluation	118,451				118,451

UNCLASSIFIED

Defense-Wide  
FY 2021 President's Budget  
Exhibit R-1 FY 2021 President's Budget  
Total Obligational Authority  
(Dollars in Thousands)

23 Jan 2020

Appropriation	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted (Base+Emerg+ OCO)
The Joint Staff	134,265	150,246			150,246
Total Research, Development, Test & Evaluation	134,265	150,246			150,246

## UNCLASSIFIED

Defense-Wide  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

Appropriation -----	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)
-----	-----	-----	-----	-----	-----
The Joint Staff	118,451				118,451
Total Research, Development, Test & Evaluation	118,451				118,451

## UNCLASSIFIED

Defense-Wide  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

Appropriation: 0400D Research, Development, Test &amp; Eval, DW

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	21,904	20,062			20,062 U
		Advanced Component Development & Prototypes		21,904	20,062			20,062
145	0603829J	Joint Capability Experimentation	06		13,000			13,000 U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	48,097	62,805			62,805 U
181	0204571J	Joint Staff Analytical Support	06	16,768	9,216			9,216 U
186	0303166J	Support to Information Operations (IO) Capabilities	06	859	553			553 U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	43,600	40,073			40,073 U
		Management Support		109,324	125,647			125,647
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,037	4,537			4,537 U
		Operational Systems Development		3,037	4,537			4,537
Total Research, Development, Test & Eval, DW				134,265	150,246			150,246

R-121PB: FY 2021 President's Budget (Published Version), as of January 23, 2020 at 11:06:05

UNCLASSIFIED



## UNCLASSIFIED

Defense-Wide  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

Appropriation: 0400D Research, Development, Test &amp; Eval, DW

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	S e c
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	19,190				19,190	U
		Advanced Component Development & Prototypes		19,190				19,190	
145	0603829J	Joint Capability Experimentation	06	11,239				11,239	U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	50,255				50,255	U
181	0204571J	Joint Staff Analytical Support	06	3,058				3,058	U
186	0303166J	Support to Information Operations (IO) Capabilities	06	545				545	U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	31,125				31,125	U
		Management Support		96,222				96,222	
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,039				3,039	U
		Operational Systems Development		3,039				3,039	
Total Research, Development, Test & Eval, DW				118,451				118,451	



## UNCLASSIFIED

The Joint Staff  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

Appropriation: 0400D Research, Development, Test &amp; Eval, DW

Line No	Program Element Number	Item	Act	FY 2019 (Base + OCO)	FY 2020 Base Enacted	FY 2020 Emergency	FY 2020 OCO Enacted	FY 2020 Total Enacted S (Base+Emerg+ e OCO) c
--	-----	----	---	-----	-----	-----	-----	-----
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	21,904	20,062			20,062 U
		Advanced Component Development & Prototypes		21,904	20,062			20,062
145	0603829J	Joint Capability Experimentation	06		13,000			13,000 U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	48,097	62,805			62,805 U
181	0204571J	Joint Staff Analytical Support	06	16,768	9,216			9,216 U
186	0303166J	Support to Information Operations (IO) Capabilities	06	859	553			553 U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	43,600	40,073			40,073 U
		Management Support		109,324	125,647			125,647
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,037	4,537			4,537 U
		Operational Systems Development		3,037	4,537			4,537
Total	The Joint Staff			134,265	150,246			150,246

R-121PB: FY 2021 President's Budget (Published Version), as of January 23, 2020 at 11:06:05

UNCLASSIFIED

## UNCLASSIFIED

The Joint Staff  
 FY 2021 President's Budget  
 Exhibit R-1 FY 2021 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

23 Jan 2020

Appropriation: 0400D Research, Development, Test &amp; Eval, DW

Line No	Program Element Number	Item	Act	FY 2021 Base	FY 2021 OCO for Base Requirements	FY 2021 OCO for Direct War and Enduring Costs	FY 2021 Total OCO	FY 2021 Total (Base + OCO)	Se
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	19,190				19,190	U
		Advanced Component Development & Prototypes		19,190				19,190	
145	0603829J	Joint Capability Experimentation	06	11,239				11,239	U
153	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	50,255				50,255	U
181	0204571J	Joint Staff Analytical Support	06	3,058				3,058	U
186	0303166J	Support to Information Operations (IO) Capabilities	06	545				545	U
194	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	31,125				31,125	U
		Management Support		96,222				96,222	
207	0208043J	Planning and Decision Aid System (PDAS)	07	3,039				3,039	U
		Operational Systems Development		3,039				3,039	
Total The Joint Staff				118,451				118,451	

R-121PB: FY 2021 President's Budget (Published Version), as of January 23, 2020 at 11:06:05

UNCLASSIFIED

Page D-4A

Volume 5 - xvi

UNCLASSIFIED

The Joint Staff • Budget Estimates FY 2021 • RDT&E Program

Program Element Table of Contents (by Budget Activity then Line Item Number)

***Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide***

Line #	Budget Activity	Program Element Number	Program Element Title	Page
107	04	0604826J	Joint C5 Capability Development, Integration, and Interoperability Assessments.....	Volume 5 - 1

***Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide***

Line #	Budget Activity	Program Element Number	Program Element Title	Page
142	06	0603829J	Joint Capability Experimentation.....	Volume 5 - 21
150	06	0605126J	Joint Integrated Air & Missile Defense Organization (JIAMDO).....	Volume 5 - 27
180	06	0204571J	Joint Staff Analytical Support.....	Volume 5 - 45
183	06	0303166J	Support to Information Operations (IO) Capabilities.....	Volume 5 - 51
191	06	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA.....	Volume 5 - 55

UNCLASSIFIED

UNCLASSIFIED

The Joint Staff • Budget Estimates FY 2021 • RDT&E Program

*Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide*

Line #	Budget Activity	Program Element Number	Program Element Title	Page
203	07	0208043J	Planning and Decision Aid System (PDAS).....	Volume 5 - 75

**UNCLASSIFIED**

The Joint Staff • Budget Estimates FY 2021 • RDT&E Program

**Program Element Table of Contents (Alphabetically by Program Element Title)**

<b>Program Element Title</b>	<b>Program Element Number</b>	<b>Line #</b>	<b>BA</b>	<b>Page</b>
COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA	0804768J	191	06.....	Volume 5 - 55
Joint C5 Capability Development, Integration, and Interoperability Assessments	0604826J	107	04.....	Volume 5 - 1
Joint Capability Experimentation	0603829J	142	06.....	Volume 5 - 21
Joint Integrated Air & Missile Defense Organization (JIAMDO)	0605126J	150	06.....	Volume 5 - 27
Joint Staff Analytical Support	0204571J	180	06.....	Volume 5 - 45
Planning and Decision Aid System (PDAS)	0208043J	203	07.....	Volume 5 - 75
Support to Information Operations (IO) Capabilities	0303166J	183	06.....	Volume 5 - 51

**UNCLASSIFIED**

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 The Joint Staff **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)	<b>R-1 Program Element (Number/Name)</b> PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments
---	--

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	68.968	22.435	20.062	19.190	-	19.190	19.445	20.988	20.740	20.771	Continuing	Continuing
001: C5 Assessments and Analyses	35.980	11.648	9.275	9.303	-	9.303	9.292	10.687	10.462	10.493	Continuing	Continuing
002: C5 Capability Development	20.263	5.787	5.787	5.119	-	5.119	5.342	5.340	5.341	5.341	Continuing	Continuing
003: Joint Fires C2 Interoperability	12.725	5.000	5.000	4.768	-	4.768	4.811	4.961	4.937	4.937	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Lead command, control, communications, computers, and cyber (C5) assessments, analyses, capability development, and joint fires command and control (C2) interoperability efforts required to achieve an effective, integrated, and interoperable joint force. Efforts include C5 requirements determination, C5 architectures development and integration, C5 data standardization, joint fires C2 interoperability, and C5 integration and interoperability assessments.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	22.435	20.062	20.274	-	20.274
Current President's Budget	22.435	20.062	19.190	-	19.190
Total Adjustments	0.000	0.000	-1.084	-	-1.084
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Reductions	-	-	-1.084	-	-1.084

**Change Summary Explanation**

Changes from FY 2020 to FY 2021:

(DWR) The FY 2021 funding request was reduced by \$1,064K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.

Additional \$20K reduction based on economic assumptions for non-pay, non-fuel purchase inflation.

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments				Project (Number/Name) 001 / C5 Assessments and Analyses			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
001: C5 Assessments and Analyses	35.980	11.648	9.275	9.303	-	9.303	9.292	10.687	10.462	10.493	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Conduct analysis and assessment activities to inform and enhance joint warfighter capabilities in support of national security requirements. Provide timely, facts-based findings and recommendations to DoD decision-making processes that validate operational requirements and fund interoperable capabilities. Conduct interoperability assessments and analyses that evaluate capability and interoperability of fielded and emerging command, control, communications, computers, and cyber (C5), and systems in response to operational issues and shortfalls. Conduct integration assessment efforts focused on emerging capabilities in wireless devices and security, operational and tactical command and control, networking, satellite communications, advanced secure digital datalinks, and allied/coalition data exchanges.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> C5 Assessments and Analyses	11.648	9.275	9.303
<b>Description:</b> Support the Chairman's statutory requirement to advise the Secretary of Defense on development of joint command, control, communications and cyber capability, including integration and interoperability of such capability through requirements, integrated architectures, data standards and assessments. Also supports the Chairman's focus area of improving joint warfighting capability and the SECDEF's line of effort to strengthen alliances and attract new partners. Interoperability is assessed and integrated solutions are developed to improve C5 system performance by providing recommendations based on operational architectures and evolving standards and data products. Combatant Commands, Services, Agencies and Allies/Coalition partners are provided a laboratory, exercise and assessment venue for the warfighter and capability developer to identify and solve interoperability, integration, and cyber issues.			
<b>FY 2020 Plans:</b> Conduct quantifiable analysis, assessment, and integration activities in both actual and replicated operational environments to inform and enhance C5I Joint warfighter capabilities in support of capability development, acquisition, and systems employment decisions. Conduct interoperability assessments, analyses, and integration through rapidly reconfigurable C5 laboratories replicating joint and coalition system of systems operational environments that can respond to emerging warfighter needs and issues. Employ a deployable assessment capability supporting the collection and analysis of decision quality data for command and control operations from the operational to lowest tactical echelons of command, in field conditions, in real time to provide immediate feedback on the data being collected. Projects include:			



# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	<b>Project (Number/Name)</b> 001 / <i>C5 Assessments and Analyses</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
Cyber Guard (CG)/Cyber Flag (CF) - Provide assessment and technical support to cyber exercises to include C2 information systems, while conducting assessments of cyber effects on systems integrated into the DoD Information Network.			
Trusted Network Environment - Support cross domain security solution that provides cross domain collaborative services (e-mail with attachments, chat, VoIP, and file share) between US SIPRNET, coalition bi-lateral and multilateral networks that does not compromise respective national networks or domains.			
Counter-UAS (CUAS) – Data collection and analysis during RTD&E test events as well as in support of urgent operational needs in active operational theaters. Analysis covers all aspects of CUAS defense, including lethal engagements.			
Small Unit Situational Awareness – Support DARPA Squad-X and related efforts to enhance Joint/Coalition small unit situational awareness and lethality with quantitative/qualitative field assessments. Efforts include assessments of GPS-denied navigation aids, unmanned systems performance, command of kinetic/non-kinetic engagements, and employment of expert systems/artificial intelligence systems at small unit level.			
Bold Quest (BQ) 2020 Coalition Interoperability Demonstrations – Support the design, plan, and execution of the BQ events which address close air support, Mission Partner Environment (MPE) / Federated Mission Networking (FMN) development/assessments, counter UAS, IFF testing, and cyber effects on operations for U.S. forces and coalition partners. Support includes accredited exercise networks, associated C2 systems, and data collection and analysis capabilities.			
Joint Tactical Integration - Integrate, refine, and accelerate the migration of Special Operating Forces (SOF) battle-proven capabilities to rapidly improve the Joint warfighting capabilities and lethality of general purpose forces in accordance with governing instructions. Capabilities include integrated secure radio networks, tactical data links, tactical cellular, enroute satellite communications, enhanced situational awareness, fratricide prevention, and a more efficient kill-chain.			
Coalition Interoperability and Assurance Validation (CIAV) - Assess US and coalition systems support in-theater operations by ensuring C5 capabilities adequacy before current operational employment in the Afghan and Iraq areas of operations. Conduct CIAV projects in the INDOPACOM AOR. CIAV assessments improve interoperability and joint warfighting capabilities.			
<b>FY 2021 Plans:</b> Support National Military Strategy and Globally Integrated Operations (GIO) by conducting quantifiable analysis, assessment, and integration activities that inform and enhance Joint warfighter capabilities and interoperability. Activities utilize actual and replicated operational environments and networks to conduct capability development, support joint and coalition experimentation,			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff			<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>		<b>Project (Number/Name)</b> 001 / <i>C5 Assessments and Analyses</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>and support acquisition and systems employment decisions. Continue to address warfighter needs across all domains by conducting activities in rapidly reconfigurable C5ISR laboratories replicating joint and coalition system of systems operational environments as well as in operational venues such as exercises. Employ a deployable assessment capability supporting the collection and analysis of decision quality data for command and control operations from the operational to lowest tactical echelons of command, in field conditions, in real time to provide immediate feedback on the data being collected. Projects include:</p> <p>Bold Quest (BQ) 2021 Coalition Interoperability Demonstrations – Support the design, plan, and execution of the BQ events which address close air support, Mission Partner Environment (MPE) / Federated Mission Networking (FMN) development/assessments, counter Unmanned Aircraft Systems (UAS), Identification, Friend or Foe (IFF) testing, and cyber effects on operations for U.S. forces and coalition partners. Support includes accredited exercise networks, associated C2 systems, and data collection and analysis capabilities.</p> <p>Cyber Guard (CG)/Cyber Flag (CF) - Provide assessment and technical support to cyber exercises to include C2 information systems, while conducting assessments of cyber effects on systems integrated into the DoD Information Network.</p> <p>Counter-UAS (CUAS) – Data collection and analysis during RTD&amp;E test events as well as in support of urgent operational needs in active operational theaters. Analysis covers all aspects of CUAS defense, including lethal engagements.</p> <p>Joint Tactical Integration - Integrate, refine, and accelerate the migration of Special Operating Forces (SOF) battle-proven capabilities to rapidly improve the Joint warfighting capabilities and lethality of general purpose forces in accordance with governing instructions. Capabilities include integrated secure radio networks, tactical data links, tactical cellular, enroute satellite communications, enhanced situational awareness, fratricide prevention, and a more efficient kill-chain.</p> <p>Coalition Interoperability and Assurance Validation (CIAV) - Assess US and coalition systems support in-theater operations by ensuring C5 capabilities adequacy before current operational employment in the Afghan and Iraq areas of operations. Conduct CIAV projects in the INDOPACOM area of responsibility.</p> <p>Joint Network Integration Environment – Integrate advanced C5 technologies to improve the capabilities and resiliency of US Force Korea's warfighting networks. Improve information sharing between U.S., Republic of Korea, and planned mission partner forces.</p>					

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	<b>Project (Number/Name)</b> 001 / <i>C5 Assessments and Analyses</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
Joint All-Domain Command and Control – Provide the joint hub for an integrated wide-area experimental network and conduct supporting interoperability assessments and integration activities. Contribute to wargames, exercises and experiments that explore current and future warfighting C2 concepts with coalition partners including Mission Partner Environments.  <b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> (DWR) The FY 2021 funding request was reduced by \$184K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.			
<b>Accomplishments/Planned Programs Subtotals</b>		11.648	9.275
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
Biannual review of C4/Cyber resources includes an examination of the current and future Budget/Spend Plan, Lines of Effort, Acquisition Strategy and current Execution.  The award of a Multi Award Contract (MAC) seeks efficiencies in the performance of requirements for C4/Cyber and Information services, and promotes contractor teaming to provide critical technical and management support. The MAC approach also seeks to reduce the costs of current contract support through the elimination of multiple fees for service contracts, and through the competitive award of contract services.			

## UNCLASSIFIED

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2021 The Joint Staff												<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments				<b>Project (Number/Name)</b> 001 / C5 Assessments and Analyses				

  

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Contract Management and Engineering Technical Services	C/CPFF	Various : Norfolk, Suffolk, Eglin	35.980	11.648	Oct 2018	9.275	Oct 2019	9.303		-		9.303	Continuing	Continuing	-
<b>Subtotal</b>			35.980	11.648		9.275		9.303		-		9.303	Continuing	Continuing	N/A

  

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	35.980	11.648	9.275	9.303	-	9.303	Continuing	Continuing	N/A

  

**Remarks**

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 The Joint Staff			Date: February 2020
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments	Project (Number/Name) 001 / C5 Assessments and Analyses	

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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
Joint C5I																											
C5 Assessments and Analyses																											

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 The Joint Staff		Date: February 2020
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments	Project (Number/Name) 001 / C5 Assessments and Analyses

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Joint C5I				
C5 Assessments and Analyses	1	2020	4	2020

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments				Project (Number/Name) 002 / C5 Capability Development			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
002: C5 Capability Development	20.263	5.787	5.787	5.119	-	5.119	5.342	5.340	5.341	5.341	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
C5 capability development functions as the DoD requirements lead for the joint command and control family of programs, Joint cyber, and requirements lead for mission partner environment (MPE). The program also develops joint C4 architectures, joint common systems functions, joint mission threads, leads analysis and reviews architectures and standards in joint capability development systems. C5 development enables warfighter access to authoritative data sources and improves data interoperability by establishing common C2 data and service standards.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2019	FY 2020	FY 2021	
Title: C5 Capability Development									5.787	5.787	5.119	
Description: Lead C2 capability development and integration in order to achieve an interdependent joint force. Supports Chairman's focus to improve joint warfighter capability and enhance global integration. This will be accomplished through four focus areas: capability development, C4 architectures, data and services, and interoperability and integration.												
FY 2020 Plans: Capability Development – Analyze and coordinate the Department’s FY 2022-2026 C2 integrated priority lists and capability gap assessment for JROC approval. Develop and coordinate annual Joint C2 FY 2021 and FY 2022 operational priorities for JROC approval. Enhance C2 requirements validation and management through the Net-enabled Requirements Identification Database (NRID) and Decision Support Tool (DST) suite, and development and management of aligned JCIDS capability development documents. Provide requirements management and operational focus to develop and field the Global Command and Control System-Joint Enterprise (GCCS-JE) cloud-accessible solution utilizing Agile/DevOps acquisition methodologies. Additionally, participate in quarterly Program Increment planning session for Agile/DevOps development of GCCS-JE. Ensure warfighter demands for a functional denied-disconnected, intermittent, low-bandwidth capability at the Combined/Joint Task Force-level are adequately understood and addressed by the capability developer. Ensure joint capability needs are addressed for:												
(1) Nuclear C3 requirements for C4/Cyber-aligned capabilities												
(2) Command and Control of the Information Environment (C2IE)												
(3) Joint Force Capability Catalog/Global Laydown Server (JFCC/GLS)/ORION												

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	<b>Project (Number/Name)</b> 002 / <i>C5 Capability Development</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>(4) Joint Planning Services (JPS) modernization and sustainment</p> <p>(5) Multi-domain Battle C2 initial prototype capability development. Integrate missile warning enhancements identified in VCJCS Competitive Area Study into GCCS-J. Collaborate with J2 and OSD(I) to identify/prioritize Intelligence Support to C2 requirements for materiel solution development.</p> <p>C4 Architectures - Provide architecture and joint mission thread development and analysis products as required to support the Chairman's directed focus areas and Chief Information Officer (CIO) lines of operations (e.g. operational context for Artificial Intelligence). Provide architecture and analysis as required in support of Chairman's Priorities (e.g. Joint Military Net Assessment, Coalition Interoperability). Conduct analysis and validate architectures and engineering designs for continued implementation of the Joint Information Environment (JIE). Update the Joint Common Service/System Function List and Warfighter Mission Area (WMA) architecture development standards to improve WMA architecture integration and interoperability. Continue to improve the quality of and expand the amount of the FCB portfolio architectures available on the WMA architecture portal. Conduct analyses and develop architectures and metrics for JCIDS capability requirement documents.</p> <p>Data and Services – Develop, promote, and integrate warfighter data and services requirements, standards, technical specifications, and policy to improve warfighter interoperability and information sharing with joint, mission partners, and other U.S. government departments and agencies. Perform and lead proof of concept activities of the North Atlantic Treaty Organization (NATO) core data framework and the National Information Exchange Model (NIEM) with selected communities of interest, such as robotics and autonomous systems, to achieve coalition interoperability and demonstrate operational effectiveness for the Mission Partner Environment and for the Federated Mission Networking domain including one complex demonstration with NATO and one Service partners. Continue to lead, align and standardize emerging tactical data link, symbology (including cyber symbology) and messaging standards with enterprise information sharing. Support and guide the maturation of and implementation of NIEM in the interagency, joint and coalition domains as the common enterprise level interoperability information exchange standard for new and updated IT services. Support standardization of common warfighter Identity Access Management, robust cyber security, standardized interfaces and common data tagging to promote warfighter interoperability. Support joint command and control governance and requirements documents development (Information Support Plan) to ensure data and service equities are properly represented on behalf of the warfighter.</p> <p>Interoperability and Integration - Lead mission partner environment (MPE) implementation and support coalition cyber priorities across DoD by performing analysis, conducting assessments and supporting materiel developers. Review and monitor the continued development of the MPE information system to ensure it meets the operational requirements of the Combatant</p>			



# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	<b>Project (Number/Name)</b> 002 / <i>C5 Capability Development</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>Commands and Services and complements the greater MPE initiative. Continue to shape North Atlantic Treaty Organization (NATO) federated mission networking (FMN) implementation to ensure it remains aligned with MPE, including related capability development. Participate in the Combined Communications-Electronics Board to ensure interoperability among the Five Eyes nations (Canada, New Zealand, Australia, UK and U.S.). Coordinate and lead Coalition Interoperability Assurance and Validation (CIAV) interoperability mission-based assessments across the geographic Combatant Commands. Lead the NATO-sponsored Coalition Warrior Interoperability Exploration, Experimentation, Examination, Exercise's FMN Focus Area to ensure standardized, effective development of Joining, Membership, and Exit Instructions.</p> <p><b>FY 2021 Plans:</b></p> <p>Capability Development - Analyze/coordinate out-year C2 integrated priority lists, capability gaps, and Joint C2 operational priorities. Create C2 requirements in concert with DoD's Digital Modernization Strategy. Specifically, address GCCS-J replacement by GCCS-JE to include robust functionality during disconnected operations. Pursue joint capability development/integration for Joint All Domain C2 (JADC2), C2IE, JFCC/GLS/ORION, JPS, Personnel Recovery and Missile Warning IAW SECDEF direction.</p> <p>C5 Architectures - Provide architecture, mission thread, and mission-based analysis development and analysis products as required to support the Chairman's directed focus areas and Chief Information Officer (CIO) lines of operations. Conduct analysis and validate warfighting requirements architectures and engineering designs for continued implementation of the Joint Information Environment (JIE). Update the Joint Common Service/System Function List and Warfighter Mission Area (WMA) Architecture Development Standard to improve WMA architecture integration and interoperability. Continue to improve and expand the quality and amount of architecture information and data available for analysis and reuse on the WMA architecture portal. Conduct analyses and develop architectures and metrics for JCIDS C5 capability requirement documents.</p> <p>Data and Services – Develop, promote, and integrate common enterprise data and services requirements, standards, technical specifications, and policy to improve Joint All Domain C2 interoperability and information sharing with Joint, interagency and coalition mission partners. Perform and lead proof of concept activities, including cloud-based data lakes that enables Artificial Intelligence and cybersecurity standardization of the National Information Exchange Model (NIEM) and the North Atlantic Treaty Organization (NATO) Core Data Framework (NCDF) with selected Joint All Domain C2 communities of interest, including robotics and autonomous systems. Conduct one Joint All Domain C2 complex proof of concept demonstration with NATO with interested Services, Agencies and coalition partners to improve warfighter interoperability and enhance operational effectiveness. Continue to lead, align and standardize emerging Joint All Domain C2 tactical data link, symbology (including cyber symbology) and messaging standards to support common enterprise-level information sharing. Continue to support standardization of common</p>			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	<b>Project (Number/Name)</b> 002 / <i>C5 Capability Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
warfighter Identity Access Management, robust cyber security, standardized interfaces and common data tagging to promote Joint All Domain C2 interoperability.				
Coalition Interoperability - International lead for the Coalition Interoperability Assurance and Validation (CIAV) providing interoperability mission-based assessments across the geographic Combatant Commands. Continue to lead mission partner environment (MPE) implementation and support coalition cyber priorities across DoD by leading the MPE cyber security efforts and supporting the federated mission networking (FMN) cyber security working group. Continue to shape North Atlantic Treaty Organization (NATO) federated mission networking (FMN) implementation to ensure it remains aligned with MPE, including related capability development. Provide support to the Combined Communications-Electronics Board to ensure interoperability among the Five Eyes nations (Canada, New Zealand, Australia, UK and U.S.). Lead the NATO-sponsored Coalition Warrior Interoperability Exploration, Experimentation, Examination, Exercises (CWIX) FMN Focus Area to ensure standardized, effective development of Joining, Membership, and Exit Instructions.				
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> (DWR) The FY 2021 funding request was reduced by \$648K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed. Additional \$20K decrease due to revised economic assumptions.				
<b>Accomplishments/Planned Programs Subtotals</b>		5.787	5.787	5.119
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b> Biannual review of C4/Cyber resources includes an examination of the current and future Budget/Spend Plan, Lines of Effort, and Acquisition Strategy.  The award of a Multi Award Contract (MAC) seeks efficiencies in the performance of requirements for C4/Cyber and Information services, and promotes contractor teaming to provide critical technical and management support. The MAC approach also seeks to reduce the costs of current contract support through the elimination of multiple fees for service contracts, and through the competitive award of contract services.				

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2021 The Joint Staff												<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments					<b>Project (Number/Name)</b> 002 / C5 Capability Development					

  

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Contract Managemnt and Engineering Technical Services	C/CPFF	Various : Norfolk, Suffolk	20.263	5.787	Oct 2018	5.787	Oct 2019	5.119		-		5.119	Continuing	Continuing	-
<b>Subtotal</b>			20.263	5.787		5.787		5.119		-		5.119	Continuing	Continuing	N/A

  

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	20.263	5.787	5.787	5.119	-	5.119	Continuing	Continuing	N/A

  

**Remarks**

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 The Joint Staff			Date: February 2020
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments	Project (Number/Name) 002 / C5 Capability Development	

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
C5 Capability Development																												
C5 Capability Development																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 The Joint Staff			<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	<b>Project (Number/Name)</b> 002 / <i>C5 Capability Development</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>C5 Capability Development</b>				
C5 Capability Development	1	2020	4	2020

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments				Project (Number/Name) 003 / Joint Fires C2 Interoperability			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
003: Joint Fires C2 Interoperability	12.725	5.000	5.000	4.768	-	4.768	4.811	4.961	4.937	4.937	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Lead interoperability efforts across DoD and partner nations at the operational and tactical level for mission partner operations, fire support, combat identification (CID), and friendly force tracking (FFT) capabilities. Conduct joint fire support, joint close air support and CID-FFT action plans to fulfill CJCS-directed, General Officer/Flag Officer (GOFO) level responsibilities. Conduct Joint Fire Support Executive Steering Committee (JFS ESC) standardization team accreditation visits to U.S. and partner nation schoolhouses to ensure memorandum of agreement signatories are accomplishing schoolhouse training in compliance with the memoranda.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Joint Fires C2 Interoperability	5.000	5.000	4.768
<p><b>Description:</b> These efforts directly support Chairman, Joint Chiefs of Staff (CJCS) guidance to increase interoperability with allies and partners, to more effectively counter trans-regional threats. Supports Chairman's focus area of improving joint warfighting capability and the SECDEF's line of effort to strengthen alliances and attract new partners. Execute Joint Staff-sponsored Bold Quest systems-of-systems interoperability assessment, including integration of cyber capabilities with command and control of conventional and Special Operations Force missions from a multinational perspective at the tactical level. Lead the Joint Fire Support Executive Steering Committee (JFS ESC), composed of Flag/General Officer representatives and supporting staffs from the U.S. Services, Special Operations Command and 21 partner nations. Those nations include NATO nations, Australia, Republic of Korea and key Gulf State allies. Also lead the Combat Identification – Friendly Force Tracking Executive Steering Committee (CID-FFT ESC), focused on more effective and efficient combat operations and reduced potential for friendly fire incidents.</p> <p><b>FY 2020 Plans:</b> Plan and execute Joint Staff-sponsored Bold Quest 2020 capability demonstration and assessment, focused on interoperability for joint and coalition fires. Bold Quest data and assessments inform U.S. and Partner Nation investment in multiple capability areas: combat identification, friendly force tracking, digitally aided close air support and fires, integrated air and missile defense (Mode 5 Identify Friend or Foe), coalition intelligence surveillance and reconnaissance, integrated interoperable simulations, and cyber. These efforts directly support the National Military Strategy, the CJCS' global integration objectives and the Combatant Commanders conventional and SOF international engagement programs. Continue leading accreditation visits of current JFS</p>			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604826J / <i>Joint C5 Capability Development, Integration, and Interoperability Assessments</i>	<b>Project (Number/Name)</b> 003 / <i>Joint Fires C2 Interoperability</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>ESC member programs and provide staff assistance visits for development of close air support-related training and certification programs.</p> <p><b>FY 2021 Plans:</b> Plan and execute Joint Staff-sponsored Bold Quest 2021 capability demonstration and assessment, focused on interoperability for joint and coalition fires underpinned by Mission Partner Environment (MPE) concepts. Bold Quest data and assessments inform U.S. and Partner Nation investment in multiple capability areas: combat identification, friendly force tracking, digitally aided close air support and fires, integrated air and missile defense (Mode 5 Identify Friend or Foe), coalition intelligence surveillance and reconnaissance, integrated interoperable simulations, and cyber. These efforts directly support the National Military Strategy, the CJCS' global integration objectives and the Combatant Commanders conventional and SOF international engagement programs. Continue leading accreditation visits of current JFS ESC member programs and provide staff assistance visits for development of close air support-related training and certification programs. Continue leading the CID-FFT ESC and JFS ESC in order to address capability shortfalls/gaps, analyze and recommend integrated joint and coalition solutions to warfighter issues.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> (DWR) The FY 2021 funding request was reduced by \$232K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		5.000	4.768
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
<p>Biannual review of C4/Cyber resources includes an examination of the current and future Budget/Spend Plan, Lines of Effort and Acquisition Strategy.</p> <p>The award of a Multi Award Contract (MAC) seeks efficiencies in the performance of requirements for C4/Cyber and Information services, and promotes contractor teaming to provide critical technical and management support. The MAC approach also seeks to reduce the costs of current contract support through the elimination of multiple fees for service contracts, and through the competitive award of contract services.</p>			

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 The Joint Staff												Date: February 2020			
Appropriation/Budget Activity 0400 / 4						R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments				Project (Number/Name) 003 / Joint Fires C2 Interoperability					
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Contract Management amd Engineering Technical Services	C/CPFF	Various : Norfolk	12.725	5.000	Oct 2018	5.000	Oct 2019	4.768		-		4.768	Continuing	Continuing	-
Subtotal			12.725	5.000		5.000		4.768		-		4.768	Continuing	Continuing	N/A
			Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			12.725	5.000		5.000		4.768		-		4.768	Continuing	Continuing	N/A
Remarks															



UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 The Joint Staff			Date: February 2020
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments	Project (Number/Name) 003 / Joint Fires C2 Interoperability	

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Joint Fires C2 Interoperability																												
Joint Fires C2 Interoperability																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 The Joint Staff		Date: February 2020
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments	Project (Number/Name) 003 / Joint Fires C2 Interoperability

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Joint Fires C2 Interoperability				
Joint Fires C2 Interoperability	1	2020	4	2020

# UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support					R-1 Program Element (Number/Name) PE 0603829J / Joint Capability Experimentation							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	13.000	11.239	-	11.239	11.006	11.443	11.481	11.481	Continuing	Continuing
001: Joint Capability Experimentation	0.000	0.000	13.000	11.239	-	11.239	11.006	11.443	11.481	11.481	Continuing	Continuing

## A. Mission Description and Budget Item Justification

The FY2019 NDAA amends the Chairman's responsibilities to address experimentation on future concepts and the 2018 National Defense Strategy Implementation Guidance directs that rigorous experimentation take place on concepts to ensure Department investments adequately address future requirements as well as those of today. Accordingly, the Joint Staff requires an experimentation capability to analyze and validate priority joint concept required capabilities.

Concept analysis and validation will have a multi-faceted nature to meet the Chairmen's Title 10 responsibility of, "identifying new joint military capabilities based on advances in technology and concepts of operation, and recommending investments and experiments in such capabilities." Wargames will assess baseline mission and campaign level outcomes of the concepts as well as identify a tradespace of potential new capabilities. This tradespace of capabilities is further explored with quantitative models and software that identify the most efficient cost and capability tradeoffs to help meet the Title 10 responsibility of "advising the Secretary on new and alternative joint military capabilities, and alternative program recommendations and budget proposals, within projected resource levels."

The National Defense Strategy directs "early design tradeoffs in the requirements process to increase the speed of delivery." The Joint Staff approach to tradespace exploration follows that guidance by providing a cost conscious and operationally relevant prioritization tradeoff technique early in the portfolio design process. Using this rigorous prioritization approach, the capability development cycle can efficiently focus resources on more detailed experimentation of specific capabilities to inform the requirements process. The analysis from the experimentation program will be used to provide foundational evidence to directly inform the Joint Military Net Assessment (JMNA), the Chairman's Program Recommendation (CPR), and ultimately the Defense Planning Guidance for Joint Force development and design.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	0.000	13.000	0.000	-	0.000
Current President's Budget	0.000	13.000	11.239	-	11.239
Total Adjustments	0.000	0.000	11.239	-	11.239
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Internal realignment	-	-	11.239	-	11.239

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff		Date: February 2020
Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0603829J / Joint Capability Experimentation	
<p><b><u>Change Summary Explanation</u></b></p> <p>(DWR) The FY 2021 funding request was reduced during the Secretary of Defense’s Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.</p>		

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0603829J / Joint Capability Experimentation				Project (Number/Name) 001 / Joint Capability Experimentation			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
001: Joint Capability Experimentation	0.000	0.000	13.000	11.239	-	11.239	11.006	11.443	11.481	11.481	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The FY2019 NDAA amends the Chairman's responsibilities to include experimentation on future concepts. The 2018 National Defense Strategy Implementation Guidance directed rigorous experimentation on concepts as a means to ensure Department investments adequately address future requirements, not just near term. Given this, the Joint Staff must establish an experimentation capability suitable for analysis and validation of priority joint concept required capabilities. The base of experimentation and wargaming will expand through the initial operating capability to full operating capability. This will provide the necessary capacity and capability. The combination will allow the Chairman to identify cost efficient and effective capability tradeoffs. This capability will enable the Chairman to fulfill his Title 10 responsibility, "advising the Secretary on new and alternative joint military capabilities, and alternative program recommendations and budget proposals, within projected resource levels." This capability more fully supports the Chairman's production of the Joint Military Needs Assessment (JMNA), the Chairman's Program Recommendation (CPR) and ultimately the Defense Planning Guidance for Joint Force development and design.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Joint Capability Experimentation	0.000	13.000	11.239
<p><b>Description:</b> The FY 2019 NDAA amends the Chairman's responsibilities to address experimentation on future concepts and the 2018 National Defense Strategy Implementation Guidance directs vigorous experimentation take place on concepts to ensure department investments are adequately addressing future requirements as well as those today. The project will deliver analytically rigorous, resource-conscious and operationally-validated portfolio investment strategies for the CJCS to ensure an enduring competitive advantage.</p> <p><b>FY 2020 Plans:</b></p> <p>Integrate, synthesize, and prioritize concept-required capabilities for Joint Force development and design efforts out to 2030 that are aligned with the Capstone Concept for Joint Operations: Joint Force 2030 and based on Joint Operating Concepts for Russia, China, Iran and North Korea.</p> <p>Identify priority concept required capabilities using set criteria of criticality, strategic guidance, and Combatant Command and Service priorities.</p> <p>Evaluate and validate priority concept required capabilities through an integrated and federated experimentation, exercises, wargames, and studies approach.</p>			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0603829J / <i>Joint Capability Experimentation</i>	<b>Project (Number/Name)</b> 001 / <i>Joint Capability Experimentation</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>Conduct study and research of trade space to help prioritize the most efficient options based on cost and capability tradeoffs.</p> <p>In FY 2020, the top 5 to 10 priority CRC's will be evaluated and validated in two joint and/or service exercises; at least one technology demonstration; at least one Globally Integrated Operations (GIO) wargame; leveraging already planned Service and Combatant Command events with extensive use of modeling and simulation. Experimentation will also leverage research and development, science and technology, and Defense Advanced Research Projects Agency (DARPA) efforts.</p> <p><b>FY 2021 Plans:</b> (DWR) \$11.2M funding results from the Secretary of Defense's Defense-Wide Review (DWR) reform effort as part of a realignment of resources to higher priorities within the Department. This synergized and synchronized way forward accelerates the integration of new concepts and capabilities into the Joint Force by developing a continuously adapting Joint Force Development and Design (JFDD) enterprise that can inform Service force development and design efforts. To facilitate this initiative requires several lines of effort (LOE):</p> <ol style="list-style-type: none"> <li>1) Developing and executing Globally Integrated Exercises (GIE);</li> <li>2) Developing and executing a new series of Globally Integrated Wargames (GIWGs) and the associated development of concepts;</li> <li>3) Developing and deploying the IT architecture to collect and share data and information (i.e. exercises, experimentation, wargaming, analysis) that supports JFDD including GIE, GIWG, and Joint Warfighting Concepts;</li> <li>4) Conducting JFDD Enterprise Integration and Testing to inform key decisions and evaluate GIWGs and other JFDD activities including in the near-term JADC2, Contested Logistics, Global Fires, and Information Advantage; and</li> <li>5) Employing red teaming at all levels, implementing reforms to Professional Military Education (PME) for JFDD and incorporating emerging concepts into Joint Doctrine.</li> </ol> <p>Funding allows for alignment and coordination of disparate activities across the Department and establishes a capability for joint experimentation and wargaming focused on JFDD that will enhance the capability of the Joint Staff to provide the Chairman with sound analysis of the future environment, concepts, and joint capabilities.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0603829J / <i>Joint Capability Experimentation</i>	<b>Project (Number/Name)</b> 001 / <i>Joint Capability Experimentation</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
Minor reduction from FY 2020 to FY 2021 reflects baseline funding profile for FY 2021 to FY 2025 (approximately \$11M per year).			
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	13.000
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 The Joint Staff **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support					<b>R-1 Program Element (Number/Name)</b> PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	379.455	52.565	62.805	50.255	-	50.255	53.445	57.926	56.977	56.978	Continuing	Continuing
P001: Core	152.597	9.967	10.378	11.544	-	11.544	10.801	10.798	10.798	10.798	Continuing	Continuing
P003: Black Dart	31.483	3.000	5.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	39.983
P004: Joint Distributed Engineering Plant	22.486	1.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.486
P005: Nimble Fire	97.769	14.000	25.048	20.036	-	20.036	20.065	19.277	18.155	18.155	Continuing	Continuing
P006: Cruise Missile Combat Identification (CID)	75.120	4.998	4.131	4.675	-	4.675	4.475	4.475	4.475	4.475	Continuing	Continuing
P007: Homeland Defense Capability	0.000	15.000	17.748	14.000	-	14.000	18.104	23.376	23.549	23.550	Continuing	Continuing
P008: Joint Regional Integrated Air and Missile Defense Capability	0.000	4.600	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.600

**A. Mission Description and Budget Item Justification**

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is the organization within the Department of Defense chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, joint operational concepts, and operational architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the operational community's proponent for requirements and capabilities in IAMD, and is the joint IAMD proponent within the DoD's resource allocation structures. JIAMDO also leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, conducts evaluations, demonstrations of joint IAMD architectures, and provides advocacy for innovative, technically mature, and affordable solutions.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs, and assesses the validity of those criteria in relation to national and military requirements. At the request of USSTRATCOM and direction of the CJCS, JIAMDO supports USSTRATCOM in the development of the IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and technical oversight of homeland capability solutions.

**UNCLASSIFIED**

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff				Date: February 2020	
Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0605126J I Joint Integrated Air & Missile Defense Organization (JIAMDO)			
B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	52.565	70.038	65.946	-	65.946
Current President's Budget	52.565	62.805	50.255	-	50.255
Total Adjustments	0.000	-7.233	-15.691	-	-15.691
• Congressional General Reductions	-	-7.233			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program reduction	-	-	-15.691	-	-15.691
Change Summary Explanation					
Changes from FY 2020 to FY 2021:					
\$7,634K reduction to Black Dart project.					
\$57K reduction based on economic assumptions for non-pay, non-fuel purchase inflation.					
(DWR) The FY 2021 funding request was reduced by \$8,000K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.					

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P001 / Core			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P001: Core	152.597	9.967	10.378	11.544	-	11.544	10.801	10.798	10.798	10.798	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Core	9.967	10.378	11.544
<b>Description:</b> Provides staff support for JIAMDO operations in the area of ballistic missile defense, air and cruise missile defense, homeland defense, requirements management, combat identification, modeling and simulation, analytical functions and products, senior level briefings, and all travel costs for government and contractor support personnel. Routine functions include performing analyses, demonstrations, and programmatic assessments of technology, operations, requirements, and weapons systems. In coordination with Services and CCMDs, JIAMDO Core funds the definition, assessment, development, and approval of Joint IAMD operational concepts, operational architectures, and capability requirements. These assessments guide the Department's joint, interagency, integrated and net-centric IAMD. JIAMDO Core provides funding to:			
1. Conduct and integrate joint studies, simulations, war games, force resource allocation, and interoperability initiatives.  2. Manage relevant Congressional interaction and CCMD interface.  3. Directly support and sponsor homeland air surveillance-related demonstration and analysis activities.			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605126J / <i>Joint Integrated Air &amp; Missile Defense Organization (JIAMDO)</i>	<b>Project (Number/Name)</b> P001 / <i>Core</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>4. Manage the IAMD Working Group and co-chair the Protection Functional Capabilities Board focusing CCMD, Joint Staff, and Service collaboration efforts to generate joint concepts and develop the IAMD architecture and roadmap.</p> <p>JIAMDO Core enables strategic planning development, security, travel, and other support activities. Funding pays for: contracted Systems Engineering and Technical Assistance (SETA) support for Air &amp; Cruise Missile Defense (ACMD), Ballistic Missile Defense (BMD), Homeland Air Security (HAS) strategic planning, studies &amp; analysis, combat ID, modeling &amp; simulation. Additionally, the JIAMDO Core budget funds daily on-site security management personnel to meet DoD, National Industrial Security Program Operating Manual (NISPOM), and other security regulations, for all administrative and support functions related to higher security classifications, as well as basic office supplies and furniture, and classified/unclassified data connections.</p> <p><b>FY 2020 Plans:</b> Perform air and missile defense studies as directed by higher authority and provide contracted expertise in support of all JIAMDO analytical and requirements management activities. Continue DepSecDef and Joint Requirements Oversight Council directed tasking for non-kinetic and kinetic layered defense modeling. Continue support to Chairman's Net Assessment, Joint Military Net Assessment using analysis and study findings.</p> <p><b>FY 2021 Plans:</b> Complete Phase II of the Homeland Defense Design and begin work on Phase III. Expand efforts to develop joint integrated air and missile defense (IAMD) requirements solutions. With the completion of the Engagement Coordination initial capabilities document (ICD) in mid FY 2020, continue to support solutions efforts with Missile Defense Agency (MDA) and Services for the Planning Capabilities ICD. Provide support to DISA for Networks Management Capabilities ICD. Ensures the solutions efforts support the Joint Requirements Oversight Council (JROC) validated capability requirements documents (ICDs).</p> <p>Refresh the IAMD Operational Architecture, in coordination with CCMDs, and consolidate with Joint Mission Forum initiatives to inform the procurement and integration of new and emerging capabilities.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> FY 2020 to FY 2021 net increase reflects increased requirement of \$1,223K for analytic functions and products offset by \$57K reduction based on economic assumptions for non-pay, non-fuel purchase inflation.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		9.967	10.378
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)	Project (Number/Name) P001 / Core
C. Other Program Funding Summary (\$ in Millions)		
Remarks		
D. Acquisition Strategy		
N/A		

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P003 / Black Dart			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P003: Black Dart	31.483	3.000	5.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	39.983
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Black Dart Counter Unmanned Aircraft Systems Technology Demonstration	3.000	5.500	0.000
<b>Description:</b> Provides funding to support administration and execution of Black Dart demonstrations. Black Dart is a unique joint, interagency demonstration focusing on rapid development and implementation of Counter - Unmanned Aircraft Systems (C-UAS) technology from readily-available commercial and governmental products. Objectives include:			
1. Execute live-fly, live-fire C-UAS technology demonstration to assess and validate existing and emerging Integrated Air and Missile Defense (IAMD) capabilities.			
2. Present emerging solutions to inform requirements decision-making.			
3. Identify and develop IAMD operational concepts, system interoperability, and operational architectures for the C-UAS mission set.			
4. Advocate for C-UAS capabilities and affordable, integrated solutions.			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605126J / <i>Joint Integrated Air &amp; Missile Defense Organization (JIAMDO)</i>	<b>Project (Number/Name)</b> P003 / <i>Black Dart</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p><b><i>FY 2020 Plans:</i></b> Performing missile defense studies (to include C-UAS) as directed by higher authority and provide contracted expertise in support of all JIAMDO analytical and requirements management activities. Execute DepSecDef and JROC directed tasking for non-kinetic and kinetic layered defense modeling. Continue support to Chairman's Net Assessment, Joint Military Net Assessment, Comparative Area Study and OSD Policy using analysis and study findings.</p> <p><b><i>FY 2021 Plans:</i></b> Black Dart functions suspended in FY 2021.</p> <p><b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Black Dart functions suspended in FY 2021.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		3.000	5.500
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P004 / Joint Distributed Engineering Plant			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P004: Joint Distributed Engineering Plant	22.486	1.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.486
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Joint Distributed Engineering Plant (JDEP)	1.000	0.000	0.000
<b>Description:</b> The JDEP is a tool for evaluating interoperability of emerging or newly fielded systems; identifying interoperability deficiencies in existing systems; and verifying corrective actions in a controlled, repeatable environment through the use of hardware in the loop.			
<b>FY 2020 Plans:</b> In FY 2020, JDEP was absorbed under the Black Dart program and will no longer execute as a stand-alone program.			
<b>FY 2021 Plans:</b> In FY 2020, JDEP was absorbed under the Black Dart program and will no longer execute as a stand-alone program.			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	1.000	0.000	0.000



UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)	Project (Number/Name) P004 / Joint Distributed Engineering Plant
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy N/A		

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P005 / Nimble Fire			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P005: Nimble Fire	97.769	14.000	25.048	20.036	-	20.036	20.065	19.277	18.155	18.155	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> JIAMDO Nimble Fire	14.000	25.048	20.036
<b>Description:</b> Nimble Fire is the Department's only IAMD operator-in-the-loop modeling and simulation capability supporting the Chairman's top five critical joint IAMD capabilities: wide-area surveillance and engagement quality tracking, pre-launch interdiction, non-kinetic post-launch capabilities, ballistic missile discrimination, and increased weapons ranges and lethality. Nimble Fire events generally explore joint IAMD capabilities and concepts in the FYDP plus two timeframe. The events combine experienced operators from the tactical communities, virtual simulations accredited by the program offices, current and future advanced capabilities, an integrated air, ballistic and cruise missile threat, and informed scenarios based on the Department's analytical agenda and CCMD operational plans. JIAMDO brings together stakeholders across the engineering, analytical, and tactical communities to assess Joint interoperability of Service and MDA programs of record, explore concepts of employment, inform tactics, techniques and procedures and concepts of operation, provide insights that help shape CCMD integrated priorities and future operational plans, and inform senior leader acquisition and requirements decisions.			
<b>FY 2020 Plans:</b>			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605126J / <i>Joint Integrated Air &amp; Missile Defense Organization (JIAMDO)</i>	<b>Project (Number/Name)</b> P005 / <i>Nimble Fire</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>Execute two Nimble Fire events in support of the Combatant Commands, the Services, and MDA. Implement upgrades at the Virtual Warfare Center to enable robust integration of EW, space and cyber capabilities and effects.</p> <p>Modeling and simulation upgrades:</p> <ol style="list-style-type: none"> <li>1. Develop infrastructure to support modeling of EW techniques to allow Virtual Warfare Center to quickly adapt to a large spectrum of threat capabilities – to include receiver sensitivities, more accurate antenna patterns, power-based radar models, and additional jamming techniques.</li> <li>2. Build from FY 2019 upgrades adding fidelity to Infrared Search and Track (IRST) kill chains; include electro-optical (EO) sensors; and directed energy weapons.</li> <li>3. Develop real-time visualization of clouds and rain within fighter out-the-window displays</li> <li>4. Integrate a Multi-platform IR sensor</li> <li>5. Secure necessary facility space, hardware, and software to capture additional data, achieve simulation capability enhancements to better visualize impacts of EW or IR capabilities</li> <li>6. Integrate higher-fidelity space representations and feasibility of using multi-level security toolsets to integrate into the facility</li> <li>7. Introduce limited cyber effects to explore integration of non-kinetic and kinetic fires</li> <li>8. Update Link-16 network modeling</li> <li>9. Dedicated Unmanned Aerial Systems (UAS) cell</li> <li>10. Additional classified capabilities</li> </ol> <p><b>FY 2021 Plans:</b> Execute two Nimble Fire events in support of the Combatant Commands, the Services, and MDA. Continue the upgrades started in FY 2020 to improve EW and multi-domain modeling &amp; simulation capabilities at the Virtual Warfare Center. Multi-domain primarily refers to space, attack or offensive operations, cyber effects and unmanned systems.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></p>			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0605126J / <i>Joint Integrated Air &amp; Missile Defense Organization (JIAMDO)</i>	<b>Project (Number/Name)</b> P005 / <i>Nimble Fire</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
(DWR) The FY 2021 funding request was reduced during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.				
<b>Accomplishments/Planned Programs Subtotals</b>		14.000	25.048	20.036
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b> N/A				

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P006 / Cruise Missile Combat Identification (CID)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P006: Cruise Missile Combat Identification (CID)	75.120	4.998	4.131	4.675	-	4.675	4.475	4.475	4.475	4.475	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Cruise Missile Combat Identification (CID)	4.998	4.131	4.675
<b>Description:</b> Establishes joint requirements for emerging national and tactical combat identification technology and advocates for fielding CID technology to frontline weapon systems. Monitors, assesses, and enhances current joint air and cruise missile defense combat ID programs.			
<b>FY 2020 Plans:</b> Details of this program are classified and will be provided under a separate cover.			
<b>FY 2021 Plans:</b> Details of this program are classified and will be provided under a separate cover.			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Apparent increase from FY 2020 to FY 2021 results from Congressionally directed reduction in FY 2020.			
<b>Accomplishments/Planned Programs Subtotals</b>	4.998	4.131	4.675

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)	Project (Number/Name) P006 / Cruise Missile Combat Identification (CID)
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy N/A		

## UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 6					<b>R-1 Program Element (Number/Name)</b> PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				<b>Project (Number/Name)</b> P007 / Homeland Defense Capability			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
P007: Homeland Defense Capability	0.000	15.000	17.748	14.000	-	14.000	18.104	23.376	23.549	23.550	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
<b>Note</b> This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.												
<b>A. Mission Description and Budget Item Justification</b> This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.												
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>									<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	
<b>Title:</b> Homeland Defense Capability  <b>Description:</b> Develop Homeland Defense Capability  <b>FY 2020 Plans:</b> Perform technology development efforts. Further details are reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.  <b>FY 2021 Plans:</b> Perform technology development efforts. Further details are reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> (DWR) The FY 2021 funding request was reduced during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.									15.000	17.748	14.000	
<b>Accomplishments/Planned Programs Subtotals</b>									15.000	17.748	14.000	
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>  <b>D. Acquisition Strategy</b> N/A												

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)				Project (Number/Name) P008 / Joint Regional Integrated Air and Missile Defense Capability			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P008: Joint Regional Integrated Air and Missile Defense Capability	0.000	4.600	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.600
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Joint Regional Integrated Air and Defense Capability Mix (JRICM)	4.600	0.000	0.000
<b>Description:</b> Joint Regional Integrated Air and Defense Capability Mix (JRICM) will use analysis of adversary ballistic and cruise missile capabilities to determine if a layered missile defense can successfully degrade or defeat adversary missile attacks to extend base defense duration and maintain aircraft sortie generations rates. Funding will enable the study to proceed with support from the various government organizations and FFRDCs. Organizations will be funded to develop detailed analysis using modeling and simulation to study and evaluate attack operations, as well as defense capabilities in the FY 2023 timeframe.			
<b>FY 2020 Plans:</b> Study ended in FY 2019.			
<b>FY 2021 Plans:</b> Study ended in FY 2019.			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>			



**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020	
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)	Project (Number/Name) P008 / Joint Regional Integrated Air and Missile Defense Capability	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020
N/A			
Accomplishments/Planned Programs Subtotals		4.600	0.000
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			
D. Acquisition Strategy			
N/A			

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

# UNCLASSIFIED

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 The Joint Staff **Date:** February 2020

<b>Appropriation/Budget Activity</b> 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	<b>R-1 Program Element (Number/Name)</b> PE 0204571J / Joint Staff Analytical Support
--	--

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	38.567	16.658	9.216	3.058	-	3.058	3.082	3.079	3.079	3.080	Continuing	Continuing
P001: Future Joint Force Development	19.667	5.301	4.216	3.058	-	3.058	3.082	3.079	3.079	3.080	Continuing	Continuing
P003: GFM DI Enterprise Force Structure (EFS) Integration	18.900	11.357	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	35.257

## A. Mission Description and Budget Item Justification

The Joint Staff Analytical Support (JSAS) family of programs provide defense analytical support capabilities for the Joint Staff and Combatant Commands (CCMDs). JSAS encompasses tools and infrastructure required to conduct analyses and formulate results that assist the Chairman in fulfilling his statutory responsibilities. Key deliverables provided by JSAS include development and implementation of Joint Concepts, concepts of operation, concepts of employment, wide-ranging force structure assessments, course of action development for the joint force environment, analyses and studies for joint concept driven, threat-informed capability development approach to joint force development and design.to aid in decision-making, and other analysis efforts to implement timely, low-cost joint force development initiatives.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	16.658	9.216	4.165	-	4.165
Current President's Budget	16.658	9.216	3.058	-	3.058
Total Adjustments	0.000	0.000	-1.107	-	-1.107
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• SECDEF Defense-Wide Review	-	-	-1.107	-	-1.107

## Change Summary Explanation

(DWR) The FY 2021 funding request was reduced during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0204571J / Joint Staff Analytical Support				Project (Number/Name) P001 / Future Joint Force Development			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P001: Future Joint Force Development	19.667	5.301	4.216	3.058	-	3.058	3.082	3.079	3.079	3.080	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The Joint Staff Analytical Support (JSAS) program supports the Chairman's Title 10 responsibility for the analytical support, management and development of future-based joint concepts. These concepts include concepts of operations and employment that advance Joint Force operational effectiveness and enable the introduction and incorporation of new capabilities. The Joint Concepts program supports the Chairman's responsibility to express a vision for the future joint force; addressing operational problems on a 20-year horizon; identifying joint force development and design implications; and identifying capabilities required to mitigate and solve future joint warfighting gaps. The goal is to enable investment decisions balancing near and long term risk. Threat-informed joint concepts drive capability development and promote horizontal integration for force development and design across the Services, Combatant Commands, Defense agencies, OSD and Joint Staff. Key deliverables include:

Family of Joint Concepts (FOJC): Based on the National Military Strategy (NMS) and providing operational and joint functional approaches to future adversary based challenges or opportunities. These concepts prioritize Russia, China, Iran, North Korea, and Countering Violent Extremist Organizations (hereafter referred to as the 2+3). The FOJC drives capability development and alternative approaches to operating in support of a globally integrated force benchmarked against current and long-term pacing threats. The FOJC includes the Capstone Concept for Joint Operations, Joint Warfighting Concept, Joint Operating Concepts for the 2+3 challenges, Joint Supporting Concepts that address joint warfighting functions, Concepts of Operation and Concepts of Employment.

Capstone Concept for Joint Operations (CCJO): Provides the Chairman's vision for future joint operations and establishes aim points for the development of the future Joint Force. The key theme is globally integrated operations and directs joint concept driven, threat-informed capability to regain competitive advantage.

Joint Warfighting Concept (JWC): Identifies innovative and alternative approaches and design options for the employment of the Joint Force out to 2030.

Joint Operating Concepts: Describe new ways of operating and associated capability requirements to address the 2+3 threat out fifteen years into the future.

Concepts of Operations (CONOPS): Describe how the actions of the joint force components and supporting organizations are integrated, synchronized, and phased to accomplish a specific mission or function within the construct of a future scenario. CONOPS support evaluation of new ways of operating, future force posture mix, advanced capabilities, and authorities in exercises, wargames, and experiments.

Concepts of Employment (CONEMPS): Describe, in broad terms, the application of specific technology, process, weapon system, or unit to perform a particular task or procedure. They are the most specific of all military concepts and contain a level of guidance sufficient to inform the establishment of programmatic requirements. CONEMPS' focus on the cross-domain employment of capabilities and techniques in areas like space, cyberspace, and the electro-magnetic spectrum (EMS) to enable joint information advantage.

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020		
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0204571J / Joint Staff Analytical Support	Project (Number/Name) P001 / Future Joint Force Development		
Joint Operating Environment (JOE) and the Gamechangers report: Developed in partnership with DIA, this report describes the future security environment and projects the implications of change for the Joint Force. The documents describe the circumstances that may alter the security environment and explores how the intersection and interaction of these changes might impact the character of war in the future. They provide a framework to think about the full range of Joint Force missions and how they may evolve over time in order to support development of threat-based future Joint concepts and concepts of operations.				
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
Title: Future Joint Force Development		5.301	4.216	3.058
Description: Future joint force development provides analytic support required to develop future-based joint concepts. The goal is to enable investment decisions balancing near and long term risk. Threat-informed joint concepts drive capability development and promote horizontal integration for force development and design across the Services, Combatant Commands, Defense agencies, OSD and Joint Staff.				
FY 2020 Plans: Execute the Chairman's Joint Concept program. Continue CONOP and CONEMP development to support the FY21 Globally Integrated War Game and related experimentation with a focus on the Joint Warfighting Concept and Joint Supporting Concepts for global C2, logistics, global fires, and information advantage. Publish the Joint Operating Environment 2040 and Gamechangers report in partnership with DIA. Support assessment of concepts in terms of how well the Joint force is achieving the CJCS's Capstone Concept for Joint Operations: Joint Force 2030 as input to the Joint Military Net Assessment. In partnership with the concept sponsors, CCMDs, the Services and other Joint Staff Directorates, complete development and obtain CJCS approval of supporting Joint Concepts. In partnership with selected Combatant Commands and Services, complete final drafts of the Joint Supporting Concepts in the areas of Global C2 (including an allied Five Eyes (FVEY) version), space, intelligence operations, logistics, operating in a CBRN environment, global fires, homeland defense, and information advantage. Support development of the NATO Warfighting Concept with Allied Command Transformation /NATO. Continue futures study to inform our understanding of the challenges of the future operating environment. Maintain and enhance multi-national partnerships in concept development. Support integration of Joint Concepts across the Joint Staff to inform concept driven, threat informed capability development.				
FY 2021 Plans: Execute the Chairman's Joint Concepts Program. Support the execution of the FY 2021 Globally Integrated War Game. Complete Joint Warfighting Concept and Joint Supporting Concepts. Continue global CONOP and CONEMP development to support evaluation of joint concepts in exercises, war games, and experimentation. In partnership with DIA, begin development of the next Gamechangers report and continue to lead the futures community of interest.				
FY 2020 to FY 2021 Increase/Decrease Statement: (DWR) The FY 2021 funding request was reduced during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.				
Accomplishments/Planned Programs Subtotals		5.301	4.216	3.058

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0204571J / <i>Joint Staff Analytical Support</i>	Project (Number/Name) P001 / <i>Future Joint Force Development</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>D. Acquisition Strategy</b> N/A		

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0204571J / Joint Staff Analytical Support				Project (Number/Name) P003 / GFM DI Enterprise Force Structure (EFS) Integration			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
P003: GFM DI Enterprise Force Structure (EFS) Integration	18.900	11.357	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	35.257
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Global Force Management (GFM) data initiative Enterprise Force Structure (EFS) effort provides the next steps for GFM mission application enhancements required to balance global force demand against available military force. This complex task requires technologies that provide integrated information obtained by linking force structure quantitative data (derived from the GFM organizational servers) to qualitative data of Capability, Readiness, Availability and Employment/Location data (C.R.A.E.) resident in GFM mission applications and associated data bases. The Joint Staff is responsible for GFM allocation and will employ a strategy for efficiently providing Enterprise Force Structure (EFS) data utility.

DoD must meet national military objectives that range from large force scenarios to small-scale activities. Our adversaries demonstrate the ability to readily transition from non-kinetic to kinetic effects. Consequently, Information Technology (IT) superiority, capabilities, and recognition of associated vulnerabilities are an operational imperative. Yet, warfighters, strategic planners and GFM decision makers are unable to exchange information in a manner that rapidly and accurately enables force sourcing activities to support SecDef decisions. The Joint Staff is mandated to utilize the Service's organizational server EFS data to enhance managing, assessing, and displaying the health and worldwide disposition of U.S. Forces. Key deliverables include incrementally developed, operationally realistic capability enhancements focused on resource-informed planning and GFM sourcing functionality required by numerous Joint Staff requirements documents.

The Joint Staff Analytical Support (JSAS) enterprise force structure data integration efforts enables Project ORION: a Global Laydown Server and a Joint Force Capabilities Catalog along with functional applications that support a global visibility capability. This capability enhances resource-informed planning, global force management and joint deployment. Global visibility capability also supports future force integration and concept implementation needed to support timely and dynamic response to Combatant Commanders' contingency requirements. Project ORION creates a technical environment that enables rapid integration of the JOPES replacement with remaining GFM data that supports planning and execution of U.S. Military Operations. Project Orion provides operational force structure and the means to allocate and attach units. This capability is the cornerstone for fulfilling the CJCS-directed requirement to integrate force planning, support planning, and deployment planning and execution of military operations. The ORION environment supports all variants of planning and execution processes by providing portal access to authoritative data aggregated in the Global Laydown Servers and associated display of force capabilities, readiness, employment, and availability of the force. This is a cost-effective yet full spectrum approach to support and assist the Chairman in fulfilling his statutory responsibilities while improving current and future joint force management.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> GFM Data Initiative (GFM DI) Enterprise Force Structure Integration (EFS)	11.357	5.000	0.000

## UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0204571J / <i>Joint Staff Analytical Support</i>	<b>Project (Number/Name)</b> P003 / <i>GFM DI Enterprise Force Structure (EFS) Integration</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p><b>Description:</b> The GFM DI EFS integration effort requires RDT&amp;E funds to operationalize force structure data from the service's Organizational Servers to actual forces for employment within the purview of allocation and Joint command and control. This GFM DI effort within the Joint Staff Analytical Support (JSAS) family of programs will immediately streamline the SECDEFs "Forces for Unified Commands" memorandum Assignment Tables. RDT&amp;E efforts for assignment and apportionment functions ended in FY 2015 with the declaration of Full Operation Capability (FOC) for the Automated Global Force Management Tool. GFM DI planned milestones must be met to enable a global visibility capability. GFM applications managed by the Joint Staff are used by the JSAS family of programs.</p> <p><b>FY 2020 Plans:</b> Developing and fielding functional capability applications resident in the ORION environment, and riding on the Global Laydown Server, to meet the CJCS decision support requirements for full operating capability. These include: Force Element Inventory – Predictive Analysis Tool, Preferred Munitions Synchronization Tool, Readiness Synchronization Tool, Constellation Tool, and the TPFDD Visualization Tool.</p> <p><b>FY 2021 Plans:</b> Migrate program to sustainment which will be funded by the Operation and Maintenance appropriation.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Net funding decrease from FY 2019 to FY 2020 reflects project nearing full operational capability. Project moves to sustainment in FY 2021 and is funded by the Operation and Maintenance appropriation.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		11.357	5.000
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> N/A			



# UNCLASSIFIED

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2021 The Joint Staff **Date:** February 2020

<b>Appropriation/Budget Activity</b>					<b>R-1 Program Element (Number/Name)</b>							
0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support					PE 0303166J / Support to Information Operations (IO) Capabilities							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	35.809	0.638	0.553	0.545	-	0.545	0.545	0.545	0.545	0.545	Continuing	Continuing
001: Joint Information Operations Range	35.809	0.638	0.553	0.545	-	0.545	0.545	0.545	0.545	0.545	Continuing	Continuing

## A. Mission Description and Budget Item Justification

The Joint Information Operations Range (JIOR) provides DoD with a closed-loop network that forms a global live-fire information operations range complex. JIOR uses encrypted tunneling over existing transport networks to conduct mission rehearsal, training, testing, concept development and experimentation in support of Information Operations (IO), Electronic Warfare (EW), Offensive Cyber Operations (OCO), Defensive Cyber Operations (DCO), Spectrum Warfare, Space Operations, and Special Operations Forces mission areas in a realistic threat representative environment. JIOR provides the capability to train and certify Cyber Mission Forces on the full spectrum of cyber weapons/capabilities without risk of observation or fratricide. JIOR is accredited by DIA for operations at Unclassified through Top Secret-Special Compartment Information (TS-SCI) in a Multiple Independent Levels of Security (MILS) environment. JIOR is approved for use by Special Access Programs (SAP), Special Access Required Programs (SAR), and for Special Technical Operations (STO). JIOR provides Combatant Commands, Services and Agencies (C/S/A's) and key allied partners the ability to test deployment and gain insights into advanced cyberspace and Electronic Warfare (EW) capabilities under current and future operational environments. JIOR integrates available cyberspace ranges with the training/test communities providing access to low density/high demand test and training resources including critical infrastructure, cyber targets, internet traffic, and opposing forces. JIOR supports Presidential policy and CJCS mandates for training, certification, and recertification of 6000+ cyber mission forces and DoD/Interagency cyber vulnerability assessments. C/S/A's conduct hundreds of mission rehearsal, training, testing, and experimentation events on the JIOR annually.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	0.652	0.553	0.545	-	0.545
Current President's Budget	0.638	0.553	0.545	-	0.545
Total Adjustments	-0.014	0.000	0.000	-	0.000
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	0.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.014	-			

## Change Summary Explanation

Project funding decrease from FY 2020 to FY 2021 reflects minor program adjustment to maintain program balance.

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0303166J / Support to Information Operations (IO) Capabilities				Project (Number/Name) 001 / Joint Information Operations Range			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
001: Joint Information Operations Range	35.809	0.638	0.553	0.545	-	0.545	0.545	0.545	0.545	0.545	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The Joint Information Operations Range (JIOR) provides DoD with a closed-loop network that forms a global live-fire information operations range complex. JIOR uses encrypted tunneling over existing transport networks to conduct mission rehearsal, training, testing, concept development and experimentation in support of Information Operations (IO), Electronic Warfare (EW), Offensive Cyber Operations (OCO), Defensive Cyber Operations (DCO), Spectrum Warfare, Space Operations, and Special Operations Forces mission areas in a realistic threat representative environment. JIOR provides the capability to train and certify Cyber Mission Forces on the full spectrum of cyber weapons/capabilities without risk of observation or fratricide. JIOR is unique within the Department of Defense and is accredited by DIA for operations at Unclassified through Top Secret-Special Compartment Information (TS-SCI) in a Multiple Independent Levels of Security (MILS) environment. JIOR is approved for use by Special Access Programs (SAP), Special Access Required Programs (SAR), and for Special Technical Operations (STO). JIOR provides Combatant Commands, Services and Agencies (C/S/A's) and key allied partners the ability to test deployment and collaboratively gain insights into advanced cyberspace and Electronic Warfare (EW) capabilities under current and future operational environments. JIOR integrates available cyberspace ranges with the training/test communities providing access to low density/high demand test and training resources including critical infrastructure, cyber targets, internet traffic, and opposing forces. JIOR supports Presidential policy and CJCS mandates for training, certification, and recertification of 6000+ cyber mission forces and DoD/Interagency cyber vulnerability assessments. C/S/A's conduct hundreds of mission rehearsal, training, testing, and experimentation events on the JIOR annually.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Joint Information Operations Range	0.638	0.553	0.545
<b>Description:</b> The Joint Information Operations Range (JIOR) is a closed-loop network that forms a live-fire, distributed range complex utilizing encrypted tunneling to conduct mission rehearsal, training, testing, and experimentation in a threat representative environment to support Information Operations (IO), Cyberspace, Electronic Warfare (EW), Spectrum Warfare, Space Operations and Special Operations Forces (SOF) mission areas.			
<b>FY 2020 Plans:</b> Continue testing and evaluating new, cutting edge technologies and refining networking configurations for optimization of the JIOR. Refine network automation strategy.			
<b>FY 2021 Plans:</b> Continue testing and evaluating new, cutting edge technologies and refining networking configurations for optimization of the JIOR. Refine network automation strategy.			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0303166J / <i>Support to Information Operations (IO) Capabilities</i>	<b>Project (Number/Name)</b> 001 / <i>Joint Information Operations Range</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
Decrease from FY 2020 to FY 2021 reflects minor program adjustment to maintain program balance.			
<b>Accomplishments/Planned Programs Subtotals</b>		0.638	0.553
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2021 The Joint Staff	<b>Date:</b> February 2020
--	----------------------------

<b>Appropriation/Budget Activity</b> 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA
--	--

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	0.000	42.653	40.073	31.125	-	31.125	32.695	32.188	32.002	32.002	Continuing	Continuing
758: Joint National Training Capability (JNTC)	0.000	29.584	27.293	22.375	-	22.375	25.040	24.849	24.663	24.663	Continuing	Continuing
769: Joint Knowledge Development & Distribution Capability (JKDDC)	0.000	1.126	1.608	1.108	-	1.108	1.108	1.108	1.108	1.108	Continuing	Continuing
701: Air Force Joint National Training Capability (JNTC)	0.000	2.917	2.811	2.869	-	2.869	2.869	2.869	2.869	2.869	Continuing	Continuing
772: Navy Joint National Training Capability (JNTC)	0.000	3.260	3.041	3.042	-	3.042	3.042	3.042	3.042	3.042	Continuing	Continuing
773: Joint Interoperability Division (JID)	0.000	1.845	1.419	1.095	-	1.095	0.000	0.000	0.000	0.000	Continuing	Continuing
774: USMC Joint National Training Capability (JNTC)	0.000	0.921	0.901	0.636	-	0.636	0.636	0.320	0.320	0.320	Continuing	Continuing
775: Advanced Distributed Learning (ADL)	0.000	3.000	3.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

These programs support readiness of the joint force by creating a joint training environment to replicate the complex and changing operational environment. These investments directly support defense strategic guidance and enhance joint warfighting readiness by building training capabilities that support the operational readiness of the force. The elements associated with this coordinated effort consist of:

- Joint National Training Capability (JNTC)
- Joint Knowledge Development & Distribution Capability (JKDDC)
- Air Force Joint National Training Capability (JNTC)
- Navy Joint National Training Capability (JNTC)
- Joint Interoperability Division (JID)

# UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff		Date: February 2020
Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA	
<p>- Marine Corps Joint National Training Capability (JNTC)</p> <p>- Advanced Distributed Learning (ADL)</p> <p>JNTC: The mission of the Joint National Training Capability (JNTC) program is to advance joint capabilities and interoperability by concentrating on emerging joint training requirements through collective training using a managed set of globally distributed capabilities and activities. The program resources Service and Special Operations Forces joint training to improve interoperability and create realistic tactical and operational joint training. JNTC enables joint training for Combatant Commands and Services by developing joint training content and ensuring global distributed access. JNTC enabling capabilities support Services and USSOCOM requirements to provide trained and ready forces in support of Combatant Command operational requirements. This program focuses efforts on improving readiness and create a ready surge force consistent with Chairman's guidance.</p> <p>JKDDC: Joint Knowledge Development &amp; Distribution Capability (JKDDC) Joint Knowledge Online (JKO) is the program of record for online joint training that implements and operationalizes the OSD training transformation JKDDC. JKO directly supports the CE2T2 program by developing, delivering, tracking, reporting, and supporting online training for Combatant Command exercises; Combatant Command required training; doctrinally based Joint Operations Core Curriculum; multinational, coalition, interagency training; OSD required training; and administration of the Senior Enlisted Joint Professional Military Education program. JKO expends RDT&amp;E funding for leading edge technology review, market research, and integration to directly enhance various aspects of the training capability required to support Combatant Commanders, CE2T2 Program Goals and Objectives, and the Chairman's training guidance. JKO satisfies all requirements necessary to provide CE2T2 stakeholders with a distributed learning capability and access to web-based training content, learning resources, and distributed online training tools.</p> <p>Air Force JNTC: Air Force JNTC funding provides a focused upgrade to develop models for space-based and cyber capabilities for integration into the Joint Live, Virtual, and Constructive (JLVC) environment as well supporting development of cross-domain solutions. Additionally, the Air Force invests in development of capabilities to enhance the rigor and fidelity of training for live and virtual members of joint training audiences.</p> <p>Navy JNTC: These funds enable Navy to develop unique maritime capabilities that integrate JLVC elements into a seamless joint training environment. The Navy program activities include conducting research, development, and integration of a common, realistic, joint and coalition, operational to tactical level training architecture to deliver individual and collective constructive joint training for use in Fleet Synthetic Training (FST) events, CCDR exercises, Ballistic Missile Defense Exercises (BMDEX) certification events, and BMD at Sea training events in support of CCDR's training, deployment certification and operational requirements.</p> <p>JID: Joint Interoperability Division (JID) supports 35 annual schoolhouse interoperability courses and up to six CAPSTONE Joint Interface Control Officer (JICO) courses tied to various Combatant Command (CCMD) joint exercises. JID trains CCMD, Services and partner nations' operations center personnel on interoperability planning tasks required during contingencies and exercises in emerging mission areas such as joint fires, net enabled weapons, remotely piloted aircraft, integrated air and missile defense, and contested operations including secure internet with Link-16/TDL equipped major weapon systems and smart bombs.</p>		

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2021 The Joint Staff	<b>Date:</b> February 2020
--	----------------------------

<b>Appropriation/Budget Activity</b> 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 6: RDT&E Management Support	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA
--	--

Marine Corps JNTC: These funds provide USMC stability and risk reduction to a variety of ongoing joint efforts focused on improving the fidelity and realism of training simulation systems that prepare Marine Air Ground Task Force (MAGTF) units for deployment in support of CCMD operations. In support of the Commandant's planning guidance, the Marine Corps will continue to improve performance and support of the MAGTF Tactical Warfare Simulation in the areas of the JLVC-Multi-Resolution Federation (MRF) Bridge, common database terrain data ingestion, and JLVC interoperability. It also provides a single source training environment capability enabling users to select single or multiple play boxes (terrain data sets) for training simulation systems. In addition to developing an exercise planning, design, implementation, execution, and control tool, it also enhances pattern of life and indigenous population modular service enabling exercise designers' ability to rapidly build new scenarios and incorporate human geography elements into training scenarios.

ADL: The Advanced Distributed Learning (ADL) initiative supports innovation and provides policy oversight to help the Services, Joint Staff, and partner agencies deliver training and education more efficiently and cost effectively. ADL provides policy oversight and coordination across DoD, coalition partners, and other Federal agencies for distributed learning. This oversight supports interagency interoperability and promotes personnel readiness, ensuring the right people receive the right training at the right time.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	42.653	40.073	37.998	-	37.998
Current President's Budget	42.653	40.073	31.125	-	31.125
Total Adjustments	0.000	0.000	-6.873	-	-6.873
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program reduction	-	-	-6.873	-	-6.873

**Change Summary Explanation**

Changes from FY 2020 to FY 2021:

\$3,000K reduction based on transfer of Advanced Distributed Learning (775) to OSD (Personnel and Readiness).

\$25K reduction based on revised economic assumptions for non-pay, non-fuel purchase inflation.

(DWR) The FY 2021 funding request was reduced by \$3,848K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.

## UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 758 / Joint National Training Capability (JNTC)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
758: Joint National Training Capability (JNTC)	0.000	29.584	27.293	22.375	-	22.375	25.040	24.849	24.663	24.663	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Investment in the Joint National Training Capability (JNTC) program enables Service and Combatant Commands to train as they operate. The requested funding continues to modernize joint training capabilities into a single integrating architecture aligned to DoD Chief Information Officer IT mandates. Funding supports development of cloud-enabled modular training application services within an Open Systems Architecture (OSA). JNTC focuses on delivering operationally relevant training environments and respond to changes in the global security landscape and the warfighter's operational environment. JNTC enables the Department of Defense to be responsive to the warfighters' changing operational concepts, threat environments, and best practices. Funds support improved relevance and realism of training by providing capabilities that replicate the contemporary and future operating environment.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Joint National Training Capability (JNTC)	29.584	27.293	22.375
<b>Description:</b> JNTC provides the technical standards, architecture, and development processes required to integrate/link joint training programs. Funding supports the technical integration of Joint and Service models and simulations with the Joint, Live, Virtual, Constructive (JLVC) training capabilities. The capabilities enable aggregation of training audiences at the Combatant Command, Joint Task Force, and Component Command headquarter levels. The funding also supports modernization of the Joint Training Environment (JTE) through a Modular Open Systems Architecture (MOSA) approach to include a cloud enabled web accessible Joint Training Tool (JTT) that supports all phases of an exercise (planning, execution, and AAR). JTT will increase warfighter access to semi-automated training enablers within the Joint Training Synthetic Environment (JTSE).			
<b>FY 2020 Plans:</b> <ol style="list-style-type: none"> <li>1. Integrate, test, and validate Service and Agency JLVC capabilities (annual requirement).</li> <li>2. Enhance joint simulation (within JLVC) to keep pace with operational environment changes (annual requirement).</li> <li>3. Execute Agile development to identify and build new capabilities into the JTT environment to include modular aggregate simulation capability. Expand JTT user base by shadowing more exercises in order to elicit additional functional requirements and user acceptance under the Agile development concept.</li> </ol>			



# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA	<b>Project (Number/Name)</b> 758 / Joint National Training Capability (JNTC)		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
4. Use web-enabled JTT exercise design and planning services as the primary tool supporting a Tier 1 (National and Combatant Command) and Tier 2 (Joint Task Force) joint training exercises.				
5. Conduct “proof of concept” use of web-enabled JTT simulation service. Continue planning transition of the JTT as the primary tool supporting all aspects of Tier 1 and Tier 2 joint training exercises.				
<b>FY 2021 Plans:</b>				
1. Expand use of web-enabled JTT exercise design and planning services as the primary tool supporting Tier 1 and Tier 2 joint training exercise.				
2. Conduct “proof of concept” use of web-enabled modular JTT simulation service. Continue planning transition of the JTT as the primary tool supporting all aspects of Tier 1 and Tier 2 joint training exercises where aggregate simulation capabilities are required.				
3. Integrate, test, and validate Service and Agency JLVC capabilities.				
4. Enhance joint simulation (within JLVC) to keep pace with operational environment changes (annual requirement).				
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>				
Decrease of \$1,659K due to internal realignment from RDT&E to O&M for continued sustainment of modeling and simulation training enablers.				
Decrease of \$25K due to revised economic assumptions for non-pay, non-fuel purchase inflation.				
(DWR) The FY 2021 funding request was reduced by \$3,234K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.				
<b>Accomplishments/Planned Programs Subtotals</b>		29.584	27.293	22.375
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
N/A				

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 769 / Joint Knowledge Development & Distribution Capability (JKDDC)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
769: Joint Knowledge Development & Distribution Capability (JKDDC)	0.000	1.126	1.608	1.108	-	1.108	1.108	1.108	1.108	1.108	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Joint Knowledge Online (JKO) is the DoD unique and authoritative source for online joint training. JKO is tasked to develop a DoD enterprise-wide, joint individual training toolkit of web-enabled individual and small group training products, services, and enabling training technology. Products and services are developed in response to OSD program goals, CJCS high interest training issues, Joint Staff training priorities, and JKO stakeholders (Combatant Commands, Services, Combat Support Agencies, Interagency, and multinational partners) prioritized training requirements. JKO supports a career-long joint learning continuum, joint professional military education, and tailored common training standards to Service members on tasks that are jointly executed. JKO's research and development will improve all components of the Joint Content Management Architecture (JCMA) including:

1. JKO Learning Management System (LMS): Development and enhancement is required to integrate advanced individual and staff training technologies and methodologies with larger scale, collective training exercises, and modernize military training capability with a DoD enterprise-wide online training toolkit. There are currently over 3.6 million registered users of the JKO LMS.
2. JKO Course Builder: JKO's Course Builder is a separate component used as a force multiplier for organizations to develop online content by both internal and external joint enterprise teams. Course Builder mitigates the need to have programmer's code Shareable Content Object Reference Model (SCORM) standards into content with automation that promotes fiscal efficiency as well as operational responsiveness. Course Builder will also support the new development methodology of micro-learning.
3. Small Group Scenario Trainer (SGST) desktop modeling and simulation based training: This JKO capability trains and prepares thousands of military and civilian personnel deploying to Combatant Command theaters of operation prior to serving in their assigned Combined/Joint Task Force (C/JTF) billets. JKO integration of SGST simulation exercise scenarios and prerequisite JKO courses significantly enhance blended learning training support to large-scale, collective training exercises.
4. JKO Virtual Classroom (VClass): JKO's new virtual classroom, or VClass, meets the need for an enhanced distributed learning capability with the introduction of a collaborative learning environment. VClass is a customizable platform within JKO's architecture and will provide JKO elevated users the tools to meet the unique needs of DoD's training and education audience by providing online/blended course support with syllabus, messaging, gradebook, resources, announcements and synchronous instructional forums.
5. JKO mobile training development: Development and enhancements in JKO's new approach to Responsive Design will significantly increase availability and access of web-based joint training content on portable, hand-held platforms (e.g. cell phones and tablets).

# UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff		Date: February 2020		
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA	Project (Number/Name) 769 / Joint Knowledge Development & Distribution Capability (JKDDC)		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
Title: Joint Knowledge Development & Distribution Capability (JKDDC)		1.126	1.608	1.108
Description: Joint Knowledge Online (JKO) advance technology initiatives primarily include the JKO Learning Management System (LMS) application, Course Builder, Small Group Scenario Trainer (SGST) desktop modeling and simulation based training capability, Virtual Classroom, and mobile courseware training applications. These capabilities increase access to, and facilitate the training and preparation of hundreds of thousands of military and civilian personnel deploying to Combatant Command (CCMD) theaters of operation prior to serving in their assigned Joint and Combined/Joint Task Force (C/JTF) billets. JKO LMS development and enhancements are required to develop, host, deliver, track, report and support students' completions, progress and survey results more effectively and efficiently. C/JTF "battle staffs" and combatant command (CCMD) personnel will be better trained, as individuals and as staffs, based on SGST, VClass development, and implementation throughout the joint training enterprise. JKO mobile courseware training development via Responsive Design facilitates the global distribution of web-based joint training content on portable, hand-held platforms for DoD personnel.				
FY 2020 Plans: Continue development of the LMS, Course Builder, SGST, VClass, and JKO mobile initiatives.				
Research, develop, test, and evaluate a virtual classroom (VClass) open source capability (Sakai) to be integrated into the JKO LMS suite of tools for synchronous (live) and non-synchronous (video-taped) instructor led training as well as a micro learning technology (Pervasive Learning System (PERLS)), in conjunction with ADL, for content development and delivery on both the mobile and LMS platforms. JKO's new VClass capability will provide required enhanced distributed learning (DL) much like today's universities with an expectation of student-to-instructor collaboration; student-to-student collaboration; written assignment evaluation; live instructor response and teaching; and critical thinking exercises and assignments. PERLS delivers self-regulated micro-learning training that is designed to be engaging, usable and practical, allowing individuals to quickly access desired learning content whenever an opportunity arises. As DoD organizations increase training via DL opportunities to mitigate expenses due to decreased funding and personnel, the methodologies of developing and delivering DL must be cutting edge, timely and optimize the learning experience of the joint warfighter. PERLS and micro-learning provide that edge and optimization.				
FY 2021 Plans: Continue to integrate and expand the virtual classroom (VClass) open source capability (Sakai) into the Global Content Distribution System (GCDS) and the JKO LMS suite of tools for synchronous (live) and non-synchronous (video-taped) instructor led training as well as a locally developed micro learning technology called the JKO Personal Accelerated Learning Manager (JPALM) leveraging the PERLS methodology offered by ADL. JKO's new VClass capability will provide required enhanced distributed learning (DL) much like today's universities with an expectation of student-to-instructor collaboration; student-to-student collaboration; written assignment evaluation; live instructor response and teaching; and critical thinking exercises and				

## UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA	<b>Project (Number/Name)</b> 769 / Joint Knowledge Development & Distribution Capability (JKDDC)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>assignments. PERLS delivers self-regulated micro-learning training that is designed to be engaging, usable and practical, allowing individuals to quickly access desired learning content whenever an opportunity arises. As DoD organizations increase training via DL opportunities to mitigate expenses due to decreased funding and personnel, the methodologies of developing and delivering DL must be cutting edge, timely and optimize the learning experience of the joint warfighter. JPALM/PERLS and micro-learning provide that edge and optimization.</p> <p><b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b>          There was a one year increase to the program baseline in FY 2020 to fund open source virtual classroom (VClass), Sakai and micro learning technology (PERLS) research, test, development, and evaluation to keep pace with current state-of-the-art on-line collaborative training. The baseline returns to its pre-FY 2020 programmed baseline in FY 2021.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		1.126	1.608
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 701 / Air Force Joint National Training Capability (JNTC)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
701: Air Force Joint National Training Capability (JNTC)	0.000	2.917	2.811	2.869	-	2.869	2.869	2.869	2.869	2.869	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

Air Force JNTC funding provides a focused upgrade to develop models for space-based and cyber capabilities for integration into the Joint Live, Virtual, and Constructive (JLVC) environment as well as supporting development of cross-domain solutions. Additionally, the Air Force invests in development of capabilities to enhance the rigor and fidelity of training for live and virtual members of joint training audiences.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Air Force Joint National Training Capability (JNTC)	2.917	2.811	2.869
<b>Description:</b> Air Force continues to develop joint enablers that drive realistic/effective training in contested and degraded environments across the CE2T2 enterprise. These capability enhancements provide a thinking and reactive OPFOR to challenge and engage both live and virtual Blue Forces using a combination of kinetic and non-kinetic cyber capabilities. Additionally, it continues to build upon prior investments in the cyber and space domains by improving fidelity of synthetic environments, ability to portray and control blue, red, and neutral entities and effects, interoperability with other Service, joint, and JLVC federation models and simulations, and support of CE2T2 mission partners. It also builds on prior investments in the One War Training System (OWTS) to enhance exercise control, safety, and feedback to training audiences in blended live and synthetic air and land domains.			
<b>FY 2020 Plans:</b> <ol style="list-style-type: none"> <li>1. Develop capability for live OPFOR surface-to-air threats to engage virtual as well as live BLUFOR aircraft.</li> <li>2. Sustain development of and enhance new capabilities for integration of the cyber simulator environment generator and "blue" cyber effects simulation. Continue to add functionality to the ACE-IOS M&amp;S suite. Further development to allow live space aggressor forces to interact with a virtual constructive environment replicating threats to the space environment.</li> <li>3. Sustain space simulation improvements to model improved fidelity of space entities and adversary effects, enhance exercise control and OPFOR capabilities, and improve space simulation interoperability with CE2T2 mission partners.</li> </ol>			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA	<b>Project (Number/Name)</b> 701 / Air Force Joint National Training Capability (JNTC)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>4. Enhance OWTS feedback capability to training audiences by adding an automated near-real time kill removal capability against OPFOR ground targets.</p> <p><b>FY 2021 Plans:</b></p> <p>1. Develop capability for live OPFOR surface-to-air threats to engage virtual as well as live BLUFOR aircraft.</p> <p>2. Sustain development of and enhance new capabilities for integration of the cyber simulator environment generator and "blue" cyber effects simulation. Continue to add functionality to the ACE-IOS M&amp;S suite. Further development to allow live space aggressor forces to interact with a virtual constructive environment replicating threats to the space environment.</p> <p>3. Sustain space simulation improvements to model improved fidelity of space entities and adversary effects, enhance exercise control and OPFOR capabilities, and improve space simulation interoperability with CE2T2 mission partners.</p> <p>4. Enhance OWTS feedback capability to training audiences by adding an automated near-real time kill removal capability against OPFOR ground targets.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> N/A</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		2.917	2.811
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 772 / Navy Joint National Training Capability (JNTC)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
772: Navy Joint National Training Capability (JNTC)	0.000	3.260	3.041	3.042	-	3.042	3.042	3.042	3.042	3.042	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
These funds enable the Navy to develop unique maritime capabilities that integrate joint live, virtual, and constructive elements into a seamless joint training environment. The Navy program activities include conducting research, development, and integration of a common, realistic, joint and coalition, operational to tactical level training architecture to deliver individual and collective constructive joint training for use in Fleet Synthetic Training (FST) events, CCCR exercises, Ballistic Missile Defense Exercises (BMDEX) certification events, and BMD at Sea training events in support of CCCR's training, deployment certification and operational requirements.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2019	FY 2020	FY 2021	
Title: Navy Joint National Training Capability (JNTC)									3.260	3.041	3.042	
Description: Develops unique maritime capabilities that integrate joint live, virtual, and constructive (JLVC) elements into a seamless joint training environment. Using a scientific and phased approach that focuses on modeling ground, air, space, and maritime capabilities, this program researches new technologies and methods that provide a crucial technology-based foundation that supports all JNTC training transformation, JLVC federation, and Combatant Commanders exercise and engagement operations. This program provides a current and emerging multi-functional and multi-domain near-peer threat environment and associated warfighting challenges to stimulate Joint and Navy training audiences, enabling the Fleet Commander to certify deploying forces in a synthetic Joint training environment and JFMCCs to participate in realistic Combatant Commander Exercises.												
FY 2020 Plans:												
1. Continue FY2019 efforts.												
2. Develop improvements to architecture and representations to support the effects of GPS jamming on sensors and weapons systems in partnership with the USAF Distributed Mission Operations Center – Space (DMOC-S).												
3. Develop and engineer web based graphical user interfaces to replace all existing desktop-based applications. Migrate existing desktop environment to virtualized solution. Implement failover and load balancing for simulation.												
FY 2021 Plans:												
1. Continue FY 2020 efforts.												

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / <i>COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA</i>	<b>Project (Number/Name)</b> 772 / <i>Navy Joint National Training Capability (JNTC)</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>2. Provide development of new capability for integration with annual software release of the Navy Training Baseline (NTB) to enable tactics, techniques and procedures (TTP) development for contested environments and ballistic missile defense (BMD).</p> <p>3. Develop advanced models to support Navy and Joint Operational Level of War (OLW) exercises and tactical training; to include Anti-ship Cruise Missile (ASCM) defense, Counter-ISR, including unmanned system (UxS) defense, theater and regional BMD, and AEGIS Weapons System, maritime air, tactical air and unmanned sensor and weapon system capability upgrades.</p> <p><b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> N/A</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		3.260	3.041
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> N/A			



## UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 773 / Joint Interoperability Division (JID)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
773: Joint Interoperability Division (JID)	0.000	1.845	1.419	1.095	-	1.095	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

JID is the sole Department of Defense provider of joint interoperability training and Joint Interface Control Officer (JICO) production. JID trains CCMD, Services and partner nations' operations center personnel in mission areas such as joint fires, net enabled weapons, remotely piloted aircraft, integrated air and missile defense, and contested operations including secure internet with Link-16/TDL equipped major weapon systems and smart bombs. FY19 was the first year the JID received RDT&E funding in order to support the development of the JICO Simulator. The JICO Simulator will allow the JID to train students across the Services on the proper planning, management and execution of tactical data links (TDL) to fill the gaps for non-participating weapon systems missing in live exercises.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Joint Interoperability Division (JID)	1.845	1.419	1.095
<b>Description:</b> JICO Simulator will allow the JID to train students across the Services on the proper planning, management and execution of tactical data links (TDL). The simulator will allow the JID to build robust practice scenarios that students can execute fixing TDL architecture plans as necessary. This capability will not only create realistic training scenarios with the ability to inject multi-tactical data link network anomalies for training, but can also be used to support Combatant Command (CCMD) operations centers during planned exercises.			
<b>FY 2020 Plans:</b> Show data link operations effects with degraded satellites and SIPR connectivity.  Provide multi-level security to Partner Nations' picture.  Inject TDL information (including NATO Link-22) into CCMD, Component and Partner Nation operations centers.			
<b>FY 2021 Plans:</b> Show data link operations effects with degraded satellites and SIPR connectivity.  Provide multi-level security to Partner Nations' picture.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / COCOM Exercise <i>Engagement and Training Transformation</i> <i>(CE2T2) - Non MHA</i>	<b>Project (Number/Name)</b> 773 / Joint Interoperability Division (JID)	

  

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
Inject TDL information (including NATO Link-22) into CCMD, Component and Partner Nation operations centers.			
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> (DWR) The FY 2021 funding request was reduced by \$324K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.			
<b>Accomplishments/Planned Programs Subtotals</b>	1.845	1.419	1.095

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>		
N/A		
<b>Remarks</b>		
<b>D. Acquisition Strategy</b>		
N/A		

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 774 I USMC Joint National Training Capability (JNTC)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
774: USMC Joint National Training Capability (JNTC)	0.000	0.921	0.901	0.636	-	0.636	0.636	0.320	0.320	0.320	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

These funds advance USMC training capabilities by providing stability and risk reduction to a variety of efforts focused on improving the fidelity and realism of training simulation systems. These systems are tailored to prepare operational Marine Air Ground Task Force (MAGTF) units for worldwide deployment in support of CCMD operations and engagements and are available to any organization or entity training via the JLVC federation of training tools. Based on the Commandant's planning guidance, the Marine Corps will continue to improve performance of the MAGTF Tactical Warfare Simulation in the areas of the JLVC-multi-resolution federation bridge, common database terrain data ingestion, and JLVC interoperability. The MAGTF Tactical Warfare Simulation also provides a single source training environment capability that enables users to select single or multiple play boxes (terrain data sets) for training simulation systems easing the burden of requesting terrain, 3D models, and other geographic layers into a single source. In addition to developing an exercise planning, design, implementation, execution, and control tool, the MAGTF Tactical Warfare Simulation also enhances pattern of life (PoL) / indigenous population modular service enabling exercise designers the ability to rapidly build new scenarios and incorporate human geography elements into the training scenarios.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Marine Corps Joint National Training Capability (JNTC)	0.921	0.901	0.636
<b>Description:</b> Provides pattern of life (POL) / indigenous population (IP) concept development and integration, supporting both constructive and virtual training simulation systems by injecting "people packs" with realistic attributes and behaviors associated with specified regions. Full integration of terrain generation 3D models and objects into joint federation synthetic training environment eliminates the burden of requesting terrain data by the Services and CCMDs creates a single, shareable, repository across the federation. Addresses crucial integration of MTWS into the Korean side of multi-resolution federation bridge supporting Ulchi Focus Guardian covering training shortfalls in engineering obstacle simulations (minefields, chemical, anti-tank ditches, bridges, etc.). Initiates design and development of a joint exercise design and control tool enhancing connectivity across multiple platforms providing exercise planning, design and control within various joint simulation constructs.			
<b>FY 2020 Plans:</b> Continue development of pattern-of-life (POL) models that can insert synthetic opposing forces and civilian population into scenarios that will autonomously respond with native behaviors of that region providing synthetic adversaries that adapt to various training scenarios in multi-domain joint training.			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA	<b>Project (Number/Name)</b> 774 / USMC Joint National Training Capability (JNTC)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
<p>Provide a capability for all simulation systems to use the same standardized terrain datasets across training domains. Sustain pre-deployment training for operations while supporting the readiness of deployed forces, particularly those primarily focused on global response force readiness.</p> <p>Address crucial integration of MTWS into Korean side of multi-resolution federation bridge supporting Ulchi Focus Guardian covering shortfalls identified in addressing engineering obstacle simulations (minefields, chemical, anti-tank ditches, bridges, etc.).</p> <p>Continue design and development of a joint exercise design and control tool enhancing interoperability and connectivity across multiple platforms. Deliver sharper training environment definitions, assist with defining friendly, enemy, neutrals (including joint multinational and synthetic forces), and support to concurrent planning tools.</p> <p>Explore innovative ways to train for operations in strategically challenging transregional, multi-domain and multi-functional (TMM) environments. Use web-based cloud technologies to accelerate exercise development and execution.</p> <p><b>FY 2021 Plans:</b></p> <p>Continue development of pattern-of-life (POL) models that can insert synthetic opposing forces and civilian population into scenarios that will autonomously respond with native behaviors of that region providing synthetic adversaries that adapt to various training scenarios in multi-domain joint training.</p> <p>Provide a capability for all simulation systems to use the same standardized terrain datasets across training domains. Sustain pre-deployment training for operations while supporting the readiness of deployed forces, particularly those primarily focused on global response force readiness.</p> <p>Address crucial integration of MTWS into Korean side of multi-resolution federation bridge supporting Ulchi Focus Guardian covering shortfalls identified in addressing engineering obstacle simulations (minefields, chemical, anti-tank ditches, bridges, etc.).</p> <p>Continue design and development of a joint exercise design and control tool enhancing interoperability and connectivity across multiple platforms. Deliver sharper training environment definitions, assist with defining friendly, enemy, neutrals (including joint multinational and synthetic forces), and support to concurrent planning tools.</p> <p>Explore innovative ways to train for operations in strategically challenging transregional, multi-domain and multi-functional (TMM) environments. Use web-based cloud technologies to accelerate exercise development and execution.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b></p>			
			<b>FY 2021</b>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / COCOM Exercise <i>Engagement and Training Transformation</i> (CE2T2) - Non MHA	<b>Project (Number/Name)</b> 774 / USMC Joint National Training <i>Capability (JNTC)</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b> (DWR) The FY 2021 funding request was reduced by \$265K during the Secretary of Defense's Defense-Wide Review (DWR) reform effort to account for change in requirements and contract savings resulting in less funds needed.		<b>FY 2019</b>	<b>FY 2020</b>
		<b>FY 2021</b>	
<b>Accomplishments/Planned Programs Subtotals</b>		0.921	0.901
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A  <b>Remarks</b>			
<b>D. Acquisition Strategy</b> N/A			

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400 / 6					R-1 Program Element (Number/Name) PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA				Project (Number/Name) 775 / Advanced Distributed Learning (ADL)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
775: Advanced Distributed Learning (ADL)	0.000	3.000	3.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The ADL Initiative supports innovation and provides policy oversight to help the Services, Joint Staff, and partner agencies deliver their training and education more efficiently and cost effectively—anytime, anywhere. ADL provides policy oversight and coordination across DoD, Coalition partners, and other Federal agencies for distributed learning. This work supports interoperability (i.e., ensuring interagency technical and organizational systems function together). Ultimately, this promotes personnel readiness, ensuring the right people receive the right training and education, at the right time, and at the right cost.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Advanced Distributed Learning (ADL)	3.000	3.000	0.000
<b>Description:</b> The ADL Initiative supports innovation and provides policy oversight to help the Services, Joint Staff, and partner agencies deliver their training and education more efficiently and cost effectively—anytime, anywhere. ADL provides policy oversight and coordination across DoD, Coalition partners, and other Federal agencies for distributed learning. This work supports interoperability (i.e., ensuring interagency technical and organizational systems function together). Ultimately, this promotes personnel readiness, ensuring the right people receive the right training and education, at the right time, and at the right cost.			
<b>FY 2020 Plans:</b> <ol style="list-style-type: none"> <li>1. Continue implementation of revised DoDI 1322.26 requirements, while also providing coordination with Joint Services, and guidance on the incorporation of xAPI into distributed learning software systems. Planned pilot test with JKO-based blended learning package (in conjunction with a Combatant Command exercise).</li> <li>2. Mobile Training Capability Enhancement for “informal micro-learning” via a smartphone system called the “PERvasive Learning System” (PERLS). Capability capitalizes on personnel learning experience outside of formal training/education settings. Support software development integration of PERLS in JKO LCMS and Mobile tools.</li> <li>3. Learner-Centric, Total Learning Architecture (TLA). Develop next-generation interoperability specifications that will form the backbone for the “learner-centric, next-generation, technology-enabled” future joint learning environment, in direct support of Joint Force Development goals. FY 2020 TRL = 6</li> </ol>			

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 The Joint Staff		<b>Date:</b> February 2020	
<b>Appropriation/Budget Activity</b> 0400 / 6	<b>R-1 Program Element (Number/Name)</b> PE 0804768J / COCOM Exercise Engagement and Training Transformation (CE2T2) - Non MHA	<b>Project (Number/Name)</b> 775 / Advanced Distributed Learning (ADL)	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>
4. Support enhancements to multinational training by continuing collaboration with coalition partners and gaining support to integrate e-learning into multination exercises.			
<b>FY 2021 Plans:</b> The Advanced Distributed Learning project is transferred to OSD (Personnel and Readiness) under a mutually agreed memorandum of understanding. Under the agreement, OSD(P&R) assumes responsibility for all Advanced Distributed Learning activities.			
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease due to program transfer to OSD (Personnel and Readiness).			
<b>Accomplishments/Planned Programs Subtotals</b>		3.000	0.000
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> N/A			

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED



# UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 The Joint Staff										Date: February 2020		
Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0208043J I Planning and Decision Aid System (PDAS)							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	20.834	3.037	4.537	3.039	-	3.039	3.101	3.431	3.431	3.360	Continuing	Continuing
P001: Planning and Decision Aid System OPS	20.834	3.037	4.537	3.039	-	3.039	3.101	3.431	3.431	3.360	Continuing	Continuing

## **A. Mission Description and Budget Item Justification**

Provides engineering and testing support to the Planning and Decision Aid System, a classified Joint Staff command and control system supporting the Combatant Commanders, Services, and Department of Defense agencies.

Classified details provided in a separate CLASSIFIED budget exhibit.

<b><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2019</u></b>	<b><u>FY 2020</u></b>	<b><u>FY 2021 Base</u></b>	<b><u>FY 2021 OCO</u></b>	<b><u>FY 2021 Total</u></b>
Previous President's Budget	3.037	4.537	3.104	-	3.104
Current President's Budget	3.037	4.537	3.039	-	3.039
Total Adjustments	0.000	0.000	-0.065	-	-0.065
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program realignment	-	-	-0.065	-	-0.065

## **Change Summary Explanation**

Minor program decrease to maintain program balance.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED