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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	54.728	40.930	24.168	-	24.168	28.170	24.411	34.838	19.905	Continuing	Continuing
BV4: <i>Area Protection and Alt Nav Technology Development</i>	-	30.912	13.183	-	-	-	-	-	-	-	0.000	44.095
ED5: <i>Assured Positioning, Navigation and Timing (PNT)</i>	-	-	3.013	14.133	-	14.133	28.170	20.579	27.792	12.789	Continuing	Continuing
EH8: <i>DISMOUNTED</i>	-	10.038	10.896	10.035	-	10.035	-	3.832	7.046	7.116	Continuing	Continuing
EJ2: <i>MOUNTED</i>	-	13.778	13.838	-	-	-	-	-	-	-	0.000	27.616

A. Mission Description and Budget Item Justification

This funding line is directly aligned to the Army Assured Positioning, Navigation and Timing modernization priority.

The Assured Positioning, Navigation and Timing (APNT) provides Army ground maneuver forces access to assured PNT under conditions where Global Positioning Systems (GPS) may be limited or denied (jammed and spoofed) as per the National Defense Authorization Act guidance. APNT products are ruggedized tactical systems that enable Army forces the ability to shoot, move, communicate, thereby allowing forces to maneuver from operational and strategic distances to close with, destroy, and exploit the enemy with sufficient combat power, tempo, and momentum. APNT addresses two critical capability gaps: Access and Integrity. Access is the ability to retrieve accurate PNT information in a contested Electronic Warfare/Cyber environment. Integrity is the ability to trust the PNT information. PNT is a critical enabler of many Army Maneuver, Fires, and Command and Control systems that are dependent on accurate Position and Timing, and a foundational Multi-Domain Battle capability to support: calibrated force posture (position and maneuver across strategic distances); multi-domain formations (operate in contested spaces against near-peer adversaries); convergence (continuous integration of capabilities in all domains).

Approved Requirements: The Army Requirements Oversight Council (AROC) approved the Alternative Navigation (ALTNV) Abbreviated Capabilities Development Document (A-CDD) in October 2022. The Joint Requirements Oversight Council (JROC) approved the Dismounted APNT System (DAPS) Capabilities Development Document (CDD) on 28 January 2022. The Army Requirements Oversight Council (AROC) approved the Mounted APNT System (MAPS) CDD on 12 September 2020. MAPS and DAPS are implementing Congressional and OSD guidance to develop and field Military Code (M-Code) Global Positioning System (GPS) Ground user Equipment. The AROC approved the Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) Mounted Form Factor (CMFF) Abbreviated Capabilities Development Document (A-CDD) on 04 January 2021. In support of House Report 116-442, 2020, the program will prototype modular cards and software according to the Modular Open System Approach (MOSA) standards, for future modernization and new weapons systems. On 31 January, 19 March, and 10 August 2019, the MAPS, DAPS, ALTNV Directed Requirements were approved, respectively. Joint Requirements Oversight Council Memo (JROCM) 049-10, dated 05 April 2010, approved the PNT Assurance Initial Capabilities Document and designated the Army as the Lead Component for Assured PNT.

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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>
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(BV4) - The Area Protection and Alternative Navigation project line currently funds the Alternative Navigation (ALTNAV) Enterprise. The ALTNAV Enterprise is a global navigation solution providing warfighters with an alternative source of positioning and timing information. In accordance with National Defense Authorization Act (NDAA) Guidance (2021 NDAA: Section 1611), ALTNAV Enterprise is a complementary capability to Global Positioning System and may be used as contingency in the PNT PACE (Primary, Alternative, Contingency, Emergency) Plan that facilitates continued operations as GPS is degraded or denied. ALTNAV Enterprise consists of: (1) Space Segment, (2) Ground Control Segment, (3) User Equipment and Software.

(ED5) - The Assured Positioning Navigation Timing project develops a Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) APNT Card and a Modular Open Systems Approach (MOSA) APNT modernization efforts which enables the transition of incremental and disruptive technologies to fieldable PNT solutions to pace or overmatch current and evolving threats in accordance with National Defense Authorization Act (NDAA) Guidance (2021 NDAA: Section 1611).

(EH8) - The Dismounted APNT System (DAPS) meets congressional (10 USC 2281) and Department of Defense guidance to provide resilient and survivable M-Code Global Positioning System (GPS) capable Ground User Equipment (MGUE) receivers and Alternative Navigation (ALTNAV). The DAPS will provide Soldiers Assured PNT (APNT) information utilizing various sources of PNT data to address multiple threats and ensure mission success where Global Positioning System (GPS) may be limited or denied. DAPS will deliver APNT in an optimized form factor that supports mission profiles in denied environments.

(EJ2) - The Mounted APNT System (MAPS) meets congressional (10 USC 2281) and Department of Defense guidance to provide resilient and survivable M-Code GPS capable MGUE receivers and Alternative Navigation (ALTNAV). The MAPS will deliver systems that provide the Army's combat forces access to assured PNT information under conditions where space-based GPS may be limited or denied to enable Army forces the ability to move, shoot, communicate, and provide situational awareness.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	57.620	40.930	48.356	-	48.356
Current President's Budget	54.728	40.930	24.168	-	24.168
Total Adjustments	-2.892	0.000	-24.188	-	-24.188
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.300	-			
• SBIR/STTR Transfer	-1.592	-			
• Adjustments to Budget Years	-	-	-24.188	-	-24.188

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
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Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: BV4: *Area Protection and Alt Nav Technology Development*
 Congressional Add: *Alt Nav*

	FY 2023	FY 2024
	14.000	-
Congressional Add Subtotals for Project: BV4	14.000	-
Congressional Add Totals for all Projects	14.000	-

Change Summary Explanation

The \$24.188 Million budget reduction is a result of realignment from Mounted (EJ2) and ALTNAV (BV4) RDTE budgets to ALTNAV (SSN K49041) OPA to support ALTNAV fielding.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>				Project (Number/Name) BV4 / <i>Area Protection and Alt Nav Technology Development</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
<i>BV4: Area Protection and Alt Nav Technology Development</i>	-	30.912	13.183	-	-	-	-	-	-	-	0.000	44.095
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

There are no Base funds for project Area Protection and Alt Nav Technology Development (BV4) in Fiscal Year (FY) 2025. The ALTNAV Enterprise will fully transition to Procurement, Assured Positioning, Navigation and Timing (SSN K49041) to support ALTNAV fielding.

A. Mission Description and Budget Item Justification

Alternative Navigation (ALTNAV) Enterprise is a global navigation solution providing warfighters with an alternative source of positioning and timing information. ALTNAV Enterprise is a complementary capability to Global Positioning System and may be used as contingency in the PNT PACE (Primary, Alternative, Contingency, Emergency) Plan that facilitates continued operations as GPS is degraded or denied in accordance with National Defense Authorization Act (NDAA) Guidance (2021 NDAA: Section 1611). ALTNAV Enterprise consists of: (1) Space Segment, (2) Ground Control Segment, (3) User Equipment and Software.

The Area Protection and Alt Nav Technology Development project supports the ALTNAV capability and complementary PNT technologies. ALTNAV provides radio frequency (RF) and source diversity that enables Army users access to accurate and assured position and time information in GPS denied environments. ALTNAV Abbreviated Capabilities Development Document (A-CDD) was Army Requirements Oversight Council (AROC) Approved, October 2022.

There are no Base funds for project Area Protection and Alt Nav Technology Development (BV4) in Fiscal Year (FY) 2025. The ALTNAV Enterprise will fully transition to Procurement, Assured Positioning, Navigation and Timing (SSN K49041) to support ALTNAV fielding.

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

	FY 2023	FY 2024	FY 2025
Title: Area Protection & Alt Nav Technology Development	16.912	13.183	-
Description: This effort supports Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS), PNT software frameworks and Alternative Navigation (ALTNAV) PNT capabilities.			
FY 2024 Plans: Fiscal Year (FY) 2024 Base funds in the amount of \$13.183 million completes Alternative Navigation (ALTNAV) Ground Control Segment Development and Performance Verification Testing.			
FY 2024 to FY 2025 Increase/Decrease Statement:			

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) BV4 / Area Protection and Alt Nav Technology Development
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Funding decreased from \$13.183 Million in Fiscal Year (FY) 2024 to \$0.000 Million in Fiscal Year (FY) 2025. There are no Base funds for project Area Protection and Alt Nav Technology Development (BV4) in Fiscal Year (FY) 2025. Effort ends in Fiscal Year (FY) 2024.			
Accomplishments/Planned Programs Subtotals	16.912	13.183	-

	FY 2023	FY 2024
Congressional Add: Alt Nav	14.000	-
FY 2023 Accomplishments: Fiscal Year (FY) 2023 Congressional Add in the amount of \$14.000 million supports acceleration of the Alternative Navigation (ALTNAV) Enterprise Ground Control Segment Development and Testing.		
Congressional Adds Subtotals	14.000	-

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• K49020: Dismounted Hub	26.594	41.533	63.139	-	63.139	59.688	67.571	64.428	65.071	Continuing	Continuing
• K49030: Mounted Hub A-PNT	137.505	153.517	129.835	-	129.835	127.335	127.383	127.496	128.769	Continuing	Continuing
• K49041: ALTERNATE NAVIGATION (ALT NAV)	-	4.962	39.977	-	39.977	41.282	11.552	-	-	0.000	97.773
• OMA - 432126000: DCS Long Haul Communications	12.000	2.872	3.301	-	3.301	3.173	3.236	3.301	-	0.000	27.883

Remarks
 Linked to:
 K49020 / Dismounted Hub is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing
 K49030 / Mounted Hub A-PNT is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing
 K49041 / Alternative Navigation (ALTNAV) is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing
 DCS Long Haul Communications funds commercial satellite airtime for ALTNAV

D. Acquisition Strategy
 The Alternative Navigation (ALTNAV) Ground Control Segment Capability will be implemented by utilizing a mix of competitive Other Transaction Authority (OTA)'s and Federal Acquisition Regulation contracts. This will provide incremental capability to use and inform future Mounted Assured Positioning, Navigation, and Timing System (MAPS) and Dismounted Assured Positioning, Navigation, and Timing System (DAPS) requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) BV4 / <i>Area Protection and Alt Nav Technology Development</i>

- Requirement documents include:
- ALTNAV Abbreviated Capabilities Development Document (A-CDD), Army Requirements Oversight Council (AROC) Approved, October 2022.
 - DAPS Capabilities Development Document (CDD), Joint Requirements Oversight Council (JROC) Approved, 28 January 2022.
 - MAPS Capabilities Development Document (CDD), Army Requirements Oversight Council (AROC) Approved, 12 September 2020.
 - Alternative Navigation (ALTNAV) DR, 10 August 2019.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) BV4 / Area Protection and Alt Nav Technology Development
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Management Support	Various	Various : Various	1.622	1.181	Dec 2022	0.659	Dec 2023	-		-		-	0.000	3.462	-
Subtotal			1.622	1.181		0.659		-		-		-	0.000	3.462	N/A

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ALTNV Enterprise Ground Control Segment Development	Various	Various : Various	3.507	11.624	Oct 2023	6.022	Nov 2023	-		-		-	0.000	21.153	-
Modular Open System Approach (pntOS & CMOSS)	Various	Various : Various	18.616	10.965	Nov 2022	-		-		-		-	0.000	29.581	-
Subtotal			22.123	22.589		6.022		-		-		-	0.000	50.734	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering and Technical Services - Government	IA	C5ISR : Various	0.532	0.307	Nov 2022	0.322	Nov 2023	-		-		-	0.000	1.161	-
Engineering and Technical Services - Contractor	Various	DCS Corporation / MITRE / QED Corporation : APG, MD	6.273	3.171	Feb 2023	2.398	Dec 2023	-		-		-	0.000	11.842	-
Subtotal			6.805	3.478		2.720		-		-		-	0.000	13.003	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) BV4 / Area Protection and Alt Nav Technology Development
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Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
ALTNAV Enterprise Ground Control Segment (GCS) Dev																												
ALTNAV Enterprise Ground Control Development																												
ALTNAV Performance Verification Testing																												
ALTNAV Performance Verification Testing																												
ALTNAV Program Initiation																												
ALTNAV Program Initiation																												
ALTNAV Enterprise GCS Installation & Fielding (OPA Funded)																												
ALTNAV Enterprise GCS Installation & Fielding (OPA Funded)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) BV4 / <i>Area Protection and Alt Nav Technology Development</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ALTNAV Enterprise Ground Control Segment (GCS) Dev	2	2019	3	2024
ALTNAV Performance Verification Testing	1	2024	2	2024
ALTNAV Program Initiation	2	2024	2	2024
ALTNAV Enterprise GCS Installation & Fielding (OPA Funded)	4	2024	2	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army										Date: March 2024		
Appropriation/Budget Activity 2040 / 4					R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)				Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
ED5: Assured Positioning, Navigation and Timing (PNT)	-	-	3.013	14.133	-	14.133	28.170	20.579	27.792	12.789	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Assured Positioning, Navigation and Timing (APNT) project funds the development of Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) APNT Card and APNT modernization efforts. This enables the Science & Technology transitions of incremental and disruptive technologies to fieldable Positioning, Navigation and Timing (PNT) solutions to pace or overmatch current and evolving threats and in accordance with National Defense Authorization Act (NDAA) Guidance (2021 NDAA: Section 1611).

The CMOSS APNT Card provides the APNT solutions required by the CMOSS Mounted Form Factor (CMFF) Abbreviated Capability Development Document and distributes APNT data to payloads within the CMFF chassis and external systems as needed. It is designed to provide PNT in satellite denied or degraded environments ensuring mission accomplishments. The CMFF APNT card provides trusted PNT by utilizing multiple PNT sources and leveraging multiple open architectures. The CMOSS APNT Card prototyping and software development will be conducted in accordance with modular open systems approach (Reference House Report 116-442, 2020). The CMOSS APNT Card complies with the PNT Reference Architecture and MOSA compliant hardware; CMOSS and software frameworks (PNT Operating System (pntOS)), to ensure a plug and play capability.

APNT Modernization development will address the next generation of PNT solutions for clients and vehicular platforms. It will fully implement a Modular Open Systems Approach (MOSA), incorporate Military GPS User Equipment (MGUE) Increment 2, and improve complementary PNT capability that provides accurate positioning and timing in the absence of GPS for extended missions.

Fiscal Year (FY) 2025 Base funds in the amount of \$14.133 million continues the development of the CMOSS APNT Card and supports APNT modernization efforts.

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

	FY 2023	FY 2024	FY 2025
Title: CMOSS - PNT Modular Card	-	3.013	4.008
Description: CMOSS APNT Card development.			
FY 2024 Plans: Fiscal Year (FY) 2024 Base funds in the amount of \$3.013 Million support Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) PNT Modular Card Development.			
FY 2025 Plans:			

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Fiscal Year (FY) 2025 Base funds in the amount of \$4.008 Million completes CMOSS APNT Block 1 Card development and initiates Block 1 Integration and Block 2 Development and Testing.			
FY 2024 to FY 2025 Increase/Decrease Statement: Funding increased from \$3.103 Million in FY 2024 to \$4.008 Million in FY 2025 for continued development.			
Title: APNT Modernization	-	-	10.125
Description: Development will address the next generation of PNT solutions for clients and vehicular platforms, full Modular Open Systems Approach (MOSA), incorporate Military GPS User Equipment (MGUE) Increment 2, and improve complementary PNT capability.			
FY 2025 Plans: Fiscal Year (FY) 2025 Base funds in the amount of \$10.125 million initiates prototype hardware/software development and test.			
FY 2024 to FY 2025 Increase/Decrease Statement: Funding increased from \$0 Million in FY 2024 to \$10.125 Million in FY 2025. This increase supports Technology Maturation & Risk Reduction efforts to conduct advanced component development activities with emphasis on proving component and subsystem maturity.			
Accomplishments/Planned Programs Subtotals	-	3.013	14.133

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• AW6: Modular GPS Independent Sensors Advanced Tech	10.131	12.343	11.282	-	11.282	5.010	5.940	10.300	6.829	0.000	61.835
• AV8: Navigation Warfare (NAVWAR) Advanced Technology	1.949	6.029	3.988	-	3.988	6.036	5.352	10.955	15.494	0.000	49.803
• K49020: Dismounted Hub	26.594	41.533	63.139	-	63.139	59.688	67.571	64.428	65.071	Continuing	Continuing
• K49030: Mounted Hub A-PNT	137.505	153.517	129.835	-	129.835	127.335	127.383	127.496	128.769	Continuing	Continuing

Remarks
0603463A AW6 Modular GPS Independent Sensors Advanced Tech and AV8 Navigation Warfare (NAVWAR) Advanced Technology will transition Science & Technology (S&T) work for modular open systems approach (MOSA) compliance to Assured Positioning, Navigation and Timing.

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Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) ED5 / <i>Assured Positioning, Navigation and Timing (PNT)</i>

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
0604120A ED5 Assured Positioning, Navigation and Timing will transition PNT Modernization/complementary PNT capabilities to the Mounted Hub A-PNT and Dismounted Hub programs.											

D. Acquisition Strategy

The Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Modular Open Suite of Standards (CMOSS) APNT Card and APNT modernization efforts will utilize a mix of competitive Other Transaction Authority (OTA)'s and Federal Acquisition Regulation contracts in order to effectively prototype cards for integration into the CMOSS Mounted Form Factor system and to develop and test for APNT Modernization efforts. Both strategies will encompass prototype development, engineering trade-offs and soldier touch points to achieve the best balance of capability and cost.

The acquisition strategy for CMOSS APNT Card emphasizes using open standards and architecture to make it simpler and more cost-effective to upgrade capabilities and keep pace with commercial technology by eliminating complex integration challenges, lack of competition, and proprietary interfaces.

The acquisition strategy for APNT modernization efforts is being informed by Industry Market Research. Pending market research results, anticipating a multi-vendor Technology Maturation & Risk Reduction phase to conduct advanced component development activities with emphasis on proving component and subsystem maturity prior to integration with client systems and vehicle platforms. This will be followed by a down select to a single vendor Engineering and Manufacturing phase for final development and test.

Requirement documents include:

- DAPS Capabilities Development Document (CDD), Joint Requirements Oversight Council (JROC) Approved, 28 January 2022.
- Abbreviated Capabilities Development Document (A-CDD) for the CMOSS Mounted Form Factor, Army Requirements Oversight Council (AROC) approved on 4 January 2021.
- MAPS CDD, Army Requirements Oversight Council (AROC) approved on 12 September 2020.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army												Date: March 2024				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
2040 / 4				PE 0604120A / Assured Positioning, Navigation and Timing (PNT)				ED5 / Assured Positioning, Navigation and Timing (PNT)								
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
Project Management Support	Various	Various : Various	5.843	-		0.331	Nov 2023	0.642	Nov 2024	-		0.642	0.000	6.816	Continuing	
Subtotal			5.843	-		0.331		0.642		-		0.642	0.000	6.816	N/A	
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
CMOSS APNT Card	Various	Various : Various	-	-		1.821	Nov 2023	1.266	Nov 2024	-		1.266	0.000	3.087	Continuing	
APNT Modernization	Various	Various : Various	-	-		-		6.752	Nov 2024	-		6.752	0.000	6.752	Continuing	
Subtotal			-	-		1.821		8.018		-		8.018	0.000	9.839	N/A	
Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
Engineering and Technical Contracting Services	C/FFP	Various : APG, MD	11.924	-		0.861	Nov 2023	3.705	Nov 2024	-		3.705	0.000	16.490	Continuing	
Subtotal			11.924	-		0.861		3.705		-		3.705	0.000	16.490	N/A	
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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	
Test and Evaluations	Various	Various : Various	-	-		-		1.768	Jan 2025	-		1.768	0.000	1.768	Continuing	
Subtotal			-	-		-		1.768		-		1.768	0.000	1.768	N/A	
Project Cost Totals			17.767	-		3.013		14.133		-		14.133	0.000	34.913	N/A	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army							Date: March 2024			
Appropriation/Budget Activity 2040 / 4			R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)			Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)				
	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks
 Increase in cost categories consistent with overall increased funding.

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) ED5 / Assured Positioning, Navigation and Timing (PNT)

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
CMOSS APNT Card Development (Block 1)	[Blue Bar: FY 2023 Q1-Q4, FY 2024 Q1-Q2, FY 2025 Q1-Q2]																											
	Block 1 PNT Card Development																											
CMOSS APNT Card Developmental Testing (Block 1)	[Blue Bar: FY 2024 Q3-Q4, FY 2025 Q1-Q2]																											
	Block 1 PNT Card Testing																											
CMOSS APNT Card Integration (Block 1)	[Blue Bar: FY 2025 Q3-Q4, FY 2026 Q1-Q2]																											
	Block 1 PNT Card Integration																											
CMOSS APNT Award Contract	[Blue Triangle: FY 2025 Q1]																											
	Contract Award																											
CMOSS APNT Card Development (Block 2)	[Blue Bar: FY 2025 Q3-Q4, FY 2026 Q1-Q2]																											
	Block 2 PNT Card Development																											
CMOSS APNT Card Developmental Testing (Block 2)	[Blue Bar: FY 2026 Q3-Q4, FY 2027 Q1-Q2]																											
	Block 2 PNT Card Testing																											
CMOSS APNT Card Integration (Block 2)	[Blue Bar: FY 2027 Q3-Q4, FY 2028 Q1-Q2]																											
	Block 2 PNT Card Integration																											
APNT Modernization Release Request for Proposal (RFP)	[Blue Triangle: FY 2024 Q1]																											
	Release RFP																											
APNT Modernization Award Contract	[Blue Triangle: FY 2025 Q1]																											
	Contract Award																											
APNT Modernization Prototype Delivery	[Blue Triangle: FY 2026 Q1]																											
	Deliver Prototype																											
APNT Modernization Test & Evaluation of Prototype	[Blue Square: FY 2026 Q2]																											
	Test & Evaluation																											
APNT Modernization Contract Award/Technology Maturation ...	[Blue Bar: FY 2025 Q3-Q4, FY 2026 Q1-Q2]																											
	APNT Modernization TMRR																											
APNT Modernization Engineering Manufacturing Development	[Blue Bar: FY 2028 Q3-Q4, FY 2029 Q1-Q2]																											
	APNT Modernization EMID																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) ED5 / <i>Assured Positioning, Navigation and Timing (PNT)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CMOSS APNT Card Development (Block 1)	1	2022	1	2026
CMOSS APNT Card Developmental Testing (Block 1)	4	2023	2	2025
CMOSS APNT Card Integration (Block 1)	4	2024	1	2027
CMOSS APNT Award Contract	1	2025	1	2025
CMOSS APNT Card Development (Block 2)	1	2025	1	2027
CMOSS APNT Card Developmental Testing (Block 2)	4	2025	4	2027
CMOSS APNT Card Integration (Block 2)	1	2027	4	2029
APNT Modernization Release Request for Proposal (RFP)	4	2024	4	2024
APNT Modernization Award Contract	2	2025	2	2025
APNT Modernization Prototype Delivery	4	2025	4	2025
APNT Modernization Test & Evaluation of Prototype	4	2025	1	2026
APNT Modernization Contract Award/Technology Maturation & Risk Reduction	2	2025	4	2027
APNT Modernization Engineering Manufacturing Development	1	2028	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EH8 / DISMOUNTED
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EH8: <i>DISMOUNTED</i>	-	10.038	10.896	10.035	-	10.035	-	3.832	7.046	7.116	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Dismounted Assured PNT (APNT) System (DAPS) meets congressional (10 USC 2281) and Department of Defense guidance to provide resilient, survivable, M-Code Global Positioning System (GPS) capable Ground User Equipment (MGUE) receivers and Alternative Navigation (ALTNV). The DAPS will provide Soldiers Assured PNT (APNT) information utilizing various sources of PNT data to address multiple threats and ensure mission success where Global Positioning System (GPS) may be limited or denied. DAPS will deliver APNT in an optimized form factor that supports dismounted mission profiles in denied environments.

- DAPS GEN I is delivering Assured PNT as Quick Reaction Capability (QRC) supporting United States Army Europe (USAREUR) and United States Army Pacific (USARPAC)
- DAPS GEN II is leveraging the QRC and lessons learned. Initial Operational Capability is planned for 2QFY25

Fiscal Year (FY) 2025 Base funds in the amount of \$10.035 million will support the completion of an Operational Assessment (OA) to determine the operation effectiveness and suitability for incorporating the integrated Anti-Jam (AJ) Antenna capability with the DAPS GEN II for future configurations (vehicular, maritime and aviation).

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

	FY 2023	FY 2024	FY 2025
Title: Dismounted APNT System (DAPS)	10.038	10.896	10.035
Description: This effort supports the DAPS hardware and software development, system engineering and client integration, development and operational testing, and program management efforts.			
FY 2024 Plans: Fiscal Year (FY) 2024 Base funds in the amount of \$10.896 million will support the completion of Initial Operational Test and Evaluation (IOT&E) for DAPS GEN II, and development and testing to integrate an Anti-Jam (AJ) Antenna capability with the DAPS for future configurations (vehicular, maritime and aviation).			
FY 2025 Plans: Fiscal Year (FY) 2025 Base funds in the amount of \$10.035 million will support the completion of an Operational Assessment (OA) to determine the operation effectiveness and suitability for incorporating the integrated Anti-Jam (AJ) Antenna capability with the DAPS GEN II for future configurations (vehicular, maritime and aviation).			
FY 2024 to FY 2025 Increase/Decrease Statement:			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 level of effort anticipated to remain stable. FY 2025 Base funds completes the Operational Assessment of the Anti-Jam (AJ) Antenna capability with the DAPS GEN II.			
Accomplishments/Planned Programs Subtotals	10.038	10.896	10.035

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

Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• K49020: <i>Dismounted Hub</i>	26.594	41.533	63.139	-	63.139	59.688	67.571	64.428	65.071	Continuing	Continuing

Remarks
K49020 / Dismounted Hub is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing.

D. Acquisition Strategy
The Dismounted Assured PNT (APNT) System (DAPS) acquisition strategy consists of an iterative development security operations (DevSecOps) methodology for the development, testing, production and fielding of a material solution that implements Congressional guidance for M-Code capability (10 USC 2281), Modular Open Systems Approach (Reference House Report 116-442, 2020), and the DAPS Capability Development Document (CDD) (signed 28 January 2022) performance requirements. The DAPS strategy leverages competitive Other Transaction Authority (OTA) agreements and Small Business Innovative Research (SBIR) contracts to assess industry capabilities, develop prototypes, and mature technology upgrades. Developmental test and operational assessment results informed a best value decision in November 2021 for the selected material solution for final engineering development, production and manufacturing readiness, and Limited User Test (LUT). LUT results informed a major capabilities acquisition program Milestone C decision March 2023. Following the successful Milestone C decision, a sole source, hybrid indefinite Delivery/Indefinite Quantity (ID/IQ) SBIR Phase III production contract was awarded in March 2023. The DAPS program conducted production qualification testing and an Initial Operational Test and Evaluation (IOT&E) in 1Q FY 2024 to support a Full Rate Production Decision in 3Q FY 2024.

Much like its predecessor the Defense Advanced Global Positioning System Receiver (DAGR), the DAPS must operate in a vehicular, maritime, and aviation environments. The DAPS offers design flexibility that may be leveraged as a multi-role device. Future roles for DAPS may include vehicular, maritime and aviation PNT capability provider. The DAPS program will evaluate and execute an engineering change proposal for integration of an Anti-Jam (AJ) Antenna capability.

DAPS requirement documents include:

DAPS GEN I Quick Reaction Capability (QRC): DAPS Directed Requirement (19 Mar 2019), Alternative Navigation Directed Requirement (10 August 2019), APNT Requirements Trace and Concurrence for DAPS with ALTNAV Handheld Devices memorandum (16 April 2020) and DAPS Directed Requirement Addendum (18 May 2021).

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</i>
DAPS GEN II Program of Record (POR): The Joint Requirements Oversight Council (JROC) approved the Dismounted APNT System (DAPS) Capabilities Development Document (CDD) on 28 January 2022.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EH8 / DISMOUNTED
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
Project Management Support	Various	Various : Various	0.579	0.324	Dec 2022	0.272	Dec 2023	0.278	Dec 2024	-		0.278	Continuing	Continuing	Continuing
Subtotal			0.579	0.324		0.272		0.278		-		0.278	Continuing	Continuing	N/A

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
DAPS Prototyping & Engineering Development, Production & Manufacturing Readiness	MIPR	Various : Various	14.955	1.501	Dec 2022	3.548	Dec 2023	4.783	Jan 2025	-		4.783	Continuing	Continuing	Continuing
Engineering and Technical Product Development	MIPR	C5ISR : APG, MD	1.883	1.197	Dec 2022	0.768	Dec 2023	0.783	Dec 2024	-		0.783	Continuing	Continuing	Continuing
Subtotal			16.838	2.698		4.316		5.566		-		5.566	Continuing	Continuing	N/A

Remarks
FY 2025 Product Development increased due to evaluation and execution of an engineering change proposal for integration of an Anti-Jam (AJ) Antenna capability.

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
Engineering and Technical Services - Government	Various	C5ISR : Various	0.530	0.327	Nov 2022	0.893	Nov 2023	0.911	Nov 2024	-		0.911	Continuing	Continuing	Continuing
Engineering and Technical Services - Contractor	C/CPFF	Various : Various	0.586	0.876	Dec 2022	0.699	Dec 2023	0.713	Dec 2024	-		0.713	Continuing	Continuing	Continuing
Subtotal			1.116	1.203		1.592		1.624		-		1.624	Continuing	Continuing	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</i>

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
QRC Production & Equipping	QRC Production & Equipping																											
Program of Record (POR) Engineering Development for Prod...	DAPS POR Engineering Development for Production																											
Developmental Test (POR)	DAPS Developmental Test																											
Limited User Test (LUT)	LUT																											
Milestone C Production Decision	▲ 1 Milestone C Production Decision																											
Low Rate Initial Production (LRIP)	DAPS LRIP																											
Production Qualification Test (PQT)Initial Operational T...					DAPS PQT & IOT&E																							
Full Rate Production (FRP) Decision					▲ 2 FRP																							
Initial Operational Capability (IOC)									▲ 4 IOC																			
Production & Fielding													DAPS Production & Fielding															
DAPS Engineering Change Proposal Dev/ Test					DAPS ECP Dev/Test																							
DAPS Engineering Change Proposal Operational Assessment (OA)									▲ 3 DAPS ECP OA																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EH8 / <i>DISMOUNTED</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
QRC Testing and Analyses	2	2021	1	2022
QRC Production & Equipping	3	2021	2	2023
Capability Development Document (CDD)	2	2022	2	2022
Program of Record (POR) Engineering Development for Production	1	2022	2	2023
Developmental Test (POR)	4	2022	1	2023
Limited User Test (LUT)	4	2022	1	2023
Milestone C Production Decision	2	2023	2	2023
Low Rate Initial Production (LRIP)	2	2023	2	2024
Production Qualification Test (PQT)Initial Operational Test & Evaluation (IOT&E)	4	2023	1	2024
Full Rate Production (FRP) Decision	3	2024	3	2024
Initial Operational Capability (IOC)	2	2025	2	2025
Production & Fielding	4	2024	4	2029
DAPS Engineering Change Proposal Dev/ Test	3	2023	4	2025
DAPS Engineering Change Proposal Operational Assessment (OA)	1	2025	1	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EJ2 / MOUNTED
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
EJ2: MOUNTED	-	13.778	13.838	-	-	-	-	-	-	-	0.000	27.616
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY25, Program Element (PE) 0604120A project EJ2 has no funds. The Mounted program will fully transition to Procurement, Assured Positioning, Navigation and Timing (SSN K49030).

A. Mission Description and Budget Item Justification

The Mounted Assured Positioning, Navigation and Timing System (MAPS) meets congressional (10 USC 2281) and Department of Defense guidance to provide resilient and survivable, M-Code Global Positioning System (GPS) capable Ground User Equipment (MGUE) receivers and Alternative Navigation (ALTNAV). The MAPS will deliver systems that provide the Army's combat forces access to assured PNT information under conditions where space-based GPS may be limited or denied to enable Army forces the ability to move, shoot, communicate, and provide situational awareness. MAPS addresses two critical capability gaps: Access and Integrity. Access is the ability to retrieve PNT information in a contested Electronic Warfare/Cyber environment. Integrity is the ability to trust the PNT information. PNT is a critical enabler of many Army Maneuver, Fire and Command and Control systems that are dependent on accurate Position and Timing. The MAPS will provide PNT when GPS is degraded or denied through military code (M-Code) GPS, Alternative Navigation (ALTNAV) signals, timing, sensor fusion, anti-jam antenna, and beam steering. This capability will deliver distributed assured PNT capabilities to Armored, Stryker and Infantry Brigade Combat Team (BCT) platforms in an iterative and affordable manner that allows for future modernization.

- MAPS GEN I is a Quick Reaction Capability (QRC) capability that concluded fielding in 1Q FY 2023 with 8 BCTs equipped.
- MAPS GEN II completed Milestone C in July 2022 and Initial Operating Capability (IOC) is planned for 4Q FY 2025.

In FY25, Program Element (PE) 0604120A project EJ2 has no funds. The Mounted program will fully transition to Procurement, Assured Positioning, Navigation and Timing (SSN K49030).

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

	FY 2023	FY 2024	FY 2025
Title: Mounted APNT System (MAPS)	13.778	13.838	-
Description: Funding supports MAPS hardware and software development, systems engineering, platform and client system integration, development and operational testing, and program management efforts.			
FY 2024 Plans:			
Fiscal Year (FY) 2024 Base dollars in the amount of \$13.838 million supports completion of Initial Operational Test and Evaluation (IOT&E), MAPS system engineering, and management support. FY 2024 dollars will also support the development of component			

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
hardware and software elements of the modular open systems approach (MOSA) form factor that will inform future generations of MAPS systems.			
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> FY25 funding decreased to zero after completion of IOT&E efforts in FY24.			
Accomplishments/Planned Programs Subtotals	13.778	13.838	-

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• K49030: <i>Mounted Hub A-PNT</i>	137.505	153.517	129.835	-	129.835	127.335	127.383	127.496	128.769	Continuing	Continuing
• ED5: <i>Assured Positioning, Navigation and Timing (PNT)</i>	-	3.013	14.133	-	14.133	28.170	20.579	27.792	12.789	Continuing	Continuing

Remarks
 K49030 / Mounted Hub APNT is an OPA subset of Line Item Number 9897K49000 / Assured Positioning, Navigation and Timing.
 0604120A ED5 Assured Positioning, Navigation and Timing will transition PNT Modernization/complementary PNT capabilities to the MAPS.

D. Acquisition Strategy
 The Mounted Assured Positioning, Navigation and Timing System (MAPS) acquisition strategy consists of an iterative development operations methodology for the development, testing, production and fielding of a material solution that implements Congressional guidance for M-Code capability (10 USC 2281), modular open systems approach (Reference House Report 116-442, 2020), and the MAPS Capability Development Document (approved 12 September 2020) performance requirements. The MAPS strategy leveraged competitive Other Transaction Authority (OTA) agreements to assess industry capabilities, develop prototypes, and mature technology upgrades. Developmental test and operational assessment results informed a best value decision in September 2020 of the selected material solution for final engineering development, production and manufacturing readiness, and Limited User Test (LUT). LUT results informed a major capabilities acquisition program Milestone C decision in July 2022. A follow-on hybrid fixed priced indefinite delivery indefinite quantity FAR production contract was awarded providing production test articles for Initial Operational Test and Evaluation (IOT&E) in 4Q FY 2023 to 2Q FY 2024 and demonstrate production ramp-up. The IOT&E will demonstrate capability for fielding to Stryker Brigade Combat Teams (BCTs) and the full rate production decision in 4Q FY 2024. FY 2025 follow on test and evaluation will demonstrate capability for remaining Armored Brigade Combat Teams (ABCT) key leader and key combat platforms.

Acquisition of the hardware and software components for the Modular Open Systems Approach form factor will be performed using Broad Agency Announcements and OTAs to assess industry capabilities, develop prototypes, and mature technology upgrades.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / Assured Positioning, Navigation and Timing (PNT)	Project (Number/Name) EJ2 / MOUNTED
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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Management Support	C/CPFF	Various : Various	3.267	0.759	Jan 2023	0.805	Jan 2024	-		-		-	0.000	4.831	-
Subtotal			3.267	0.759		0.805		-		-		-	0.000	4.831	N/A

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mounted PNT Integration - Combat Platforms	C/CPFF	Various : Various	37.050	2.932	Dec 2022	-		-		-		-	0.000	39.982	-
Mounted PNT Integration - Combat Services Support Platforms	Various	Various : Various	3.914	1.099	Feb 2023	-		-		-		-	0.000	5.013	-
Client Software Integration (Various)	MIPR	AvMC / S3I : Huntsville, AL	1.205	0.566	Mar 2023	-		-		-		-	0.000	1.771	-
MAPS MOSA component Hardware and Software development	Various	Various : Various	-	-		5.630	Jan 2024	-		-		-	0.000	5.630	-
Subtotal			42.169	4.597		5.630		-		-		-	0.000	52.396	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering and Technical Services - Government	Various	C5ISR : Various	2.850	0.960	Oct 2022	0.779	Nov 2023	-		-		-	0.000	4.589	-
Engineering and Technical Services - Contractor	C/CPFF	Various : Various	10.305	1.434	Dec 2022	0.933	Jan 2024	-		-		-	0.000	12.672	-
Subtotal			13.155	2.394		1.712		-		-		-	0.000	17.261	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army **Date:** March 2024

Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</i>
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Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Initial Operational Test & Evaluation (IOT&E)	Various	Various : Various	-	6.028	Jan 2023	5.691	Nov 2023	-		-		-	0.000	11.719	-
Subtotal			-	6.028		5.691		-		-		-	0.000	11.719	N/A

Remarks
Due to complexity of the denied and degraded PNT environment required for operational testing, as well as troop availability, IOT&E will occur in two locations spanning two fiscal years.

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	58.591	13.778	13.838	-	-	-	0.000	86.207	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</i>	

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	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
Client and Platform Integration (RDT&E)	█				█																							
Client and Platform Integration (OPA)	█				█				█				█															
MAPS MOSA Component Hardware & Software Development					█																							
LRIP / Full Rate Production (FRP) and Fielding (OPA)	█				█				█				█				█				█							
Initial Operational Test & Evaluation					█																							
Full Rate Production Decision									▲																			
Initial Operational Capability													█															
Follow on Test and Evaluation									█																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0604120A / <i>Assured Positioning, Navigation and Timing (PNT)</i>	Project (Number/Name) EJ2 / <i>MOUNTED</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Client and Platform Integration (RDT&E)	3	2019	4	2023
Client and Platform Integration (OPA)	2	2022	4	2026
Mounted APNT Prototyping and Testing - Phase 1	1	2019	4	2019
Mounted APNT Prototyping and Testing - Phase 2	4	2019	4	2020
Operational Tech Demonstration	4	2020	4	2020
Direct Requirement Decision Selected Material Solution	4	2020	4	2020
Production Maturation - Phase 3	4	2020	4	2022
Development Test	3	2021	4	2022
Limited User Test	4	2021	4	2021
Milestone C Low Rate Initial Production (LRIP) Decision	4	2022	4	2022
MAPS MOSA Component Hardware & Software Development	1	2024	4	2024
Production Contract Award	4	2022	4	2022
LRIP / Full Rate Production (FRP) and Fielding (OPA)	4	2022	4	2028
Initial Operational Test & Evaluation	4	2023	2	2024
Full Rate Production Decision	4	2024	4	2024
Initial Operational Capability	4	2025	4	2025
Follow on Test and Evaluation	2	2025	2	2025