

Program Executive Office  
Command, Control, Communications,  
Computers, Intelligence and Space  
Systems (PEO C4I and Space Systems)

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## Communications and GPS Navigation Program Office (PMW/A 170)

*NDIA San Diego Fall Industry  
Event*

8 October 2019  
CAPT Catherine Boehme  
Deputy Program Manager (PMW/A 170)

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***Deliver threat-based C4I and space capabilities to enable  
the fleet to compete, deter and win – tonight***



# Agenda

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- PMW/A 170 Mission/Vision/Overview
- OV-1
- Organizational Chart
- Portfolio Overview
- Accomplishments & Upcoming Events
- Science and Technology Initiatives
- Contracts, Market Surveys and Future Opportunities
- Where Industry Can Help



# PMW/A 170

## Communications and GPS Navigation

### *Mission:*

***Provide and support interoperable, cost-effective communications and position, navigation, and timing services, enabling information warfare for maritime forces***

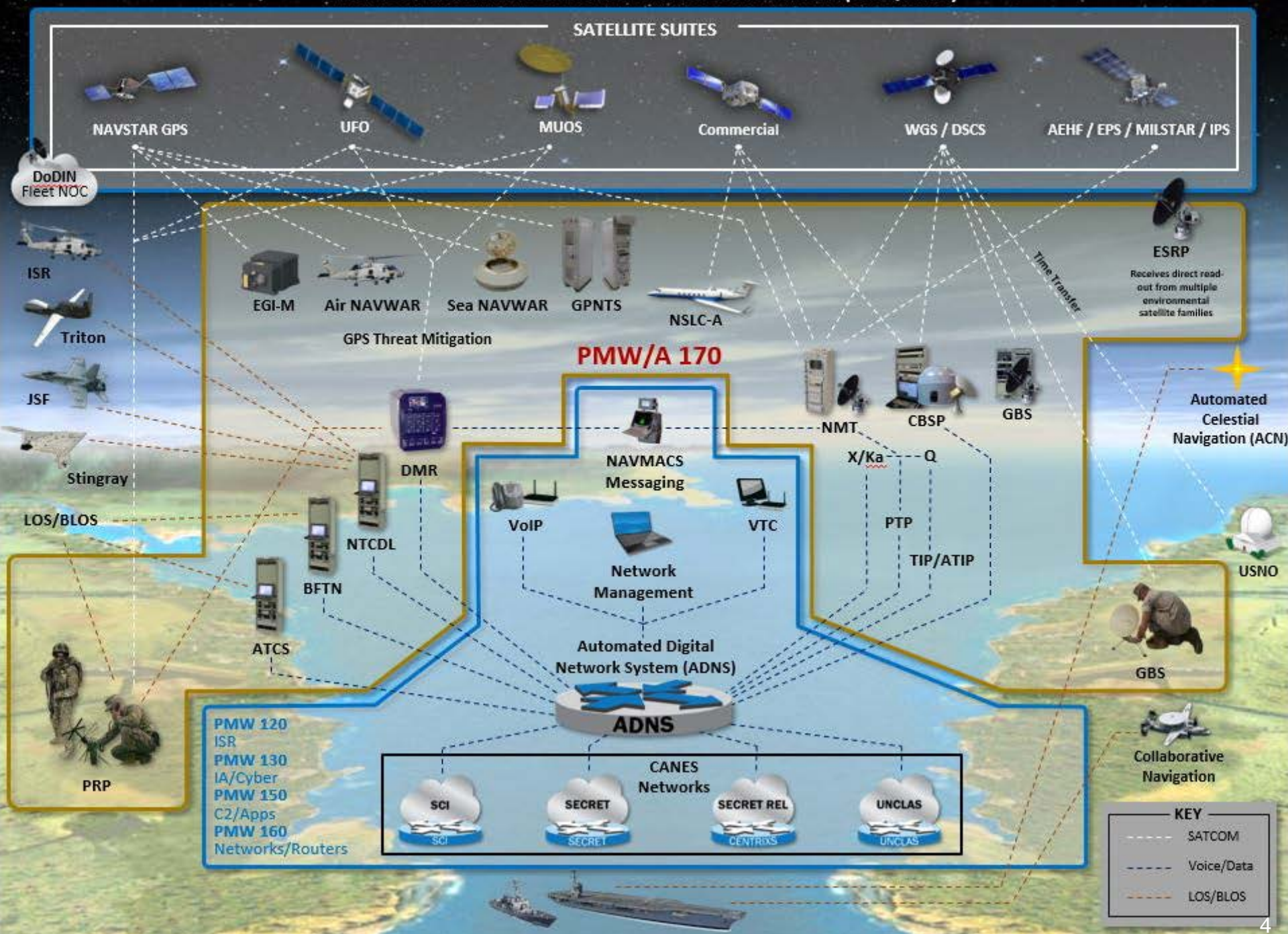
<b>SATCOM</b>	Satellite communications programs enable voice, video, and data transmission/receipt for naval platforms to meet the Fleet's strategic, tactical, and quality of life objectives. Using both commercial and military satellite constellations, they provide transport capability for bandwidth and reach-back to the DoD Information Network. In response to evolving threats to the warfighter, SATCOM programs leverage existing architectures to field capability enhancements, improving Navy's Resilient Command and Control (RC2) posture.
<b>TACCOM</b>	Tactical Communication systems enable command and control between all naval, joint, and coalition platforms. They provide secure voice, video and data connectivity for Surface Force, Ashore, Expeditionary, Special Warfare, and Submarine platforms using Line-of-Sight, Beyond-Line-of-Sight, and satellite communication waveforms operating between 2MHz and 15GHz.
<b>GPS Navigation</b>	GPS technology has proven to be one of the more ubiquitous strategic assets in modern warfare. A growing reliance on GPS has made the need for GPS protection efforts and Assured Positioning, Navigation, and Timing (A-PNT) even more crucial. In response, the U.S. Navy is fielding advanced hardware and software to combat these emerging threats.
<b>RC2 LCI</b>	PMW/A 170 was designated by PEO C4I as the Lead Capability Integrator (LCI) for the Resilient Command and Control capabilities working across several program offices to deliver program improvements that bring critical capabilities. This creates one single lead across multiple programs/program offices to ensure a desired capability is delivered.
<b>APNT LCI</b>	Established as the Lead Capability Integrator (LCI) to provide a collection of partially coordinated DoD efforts aimed at defining requirements and examining potential technologies that can provide PNT to the warfighter in a GPS challenged or denied environment.



***Assured, Resilient Communications and GPS  
Navigation: Anytime, Anywhere***

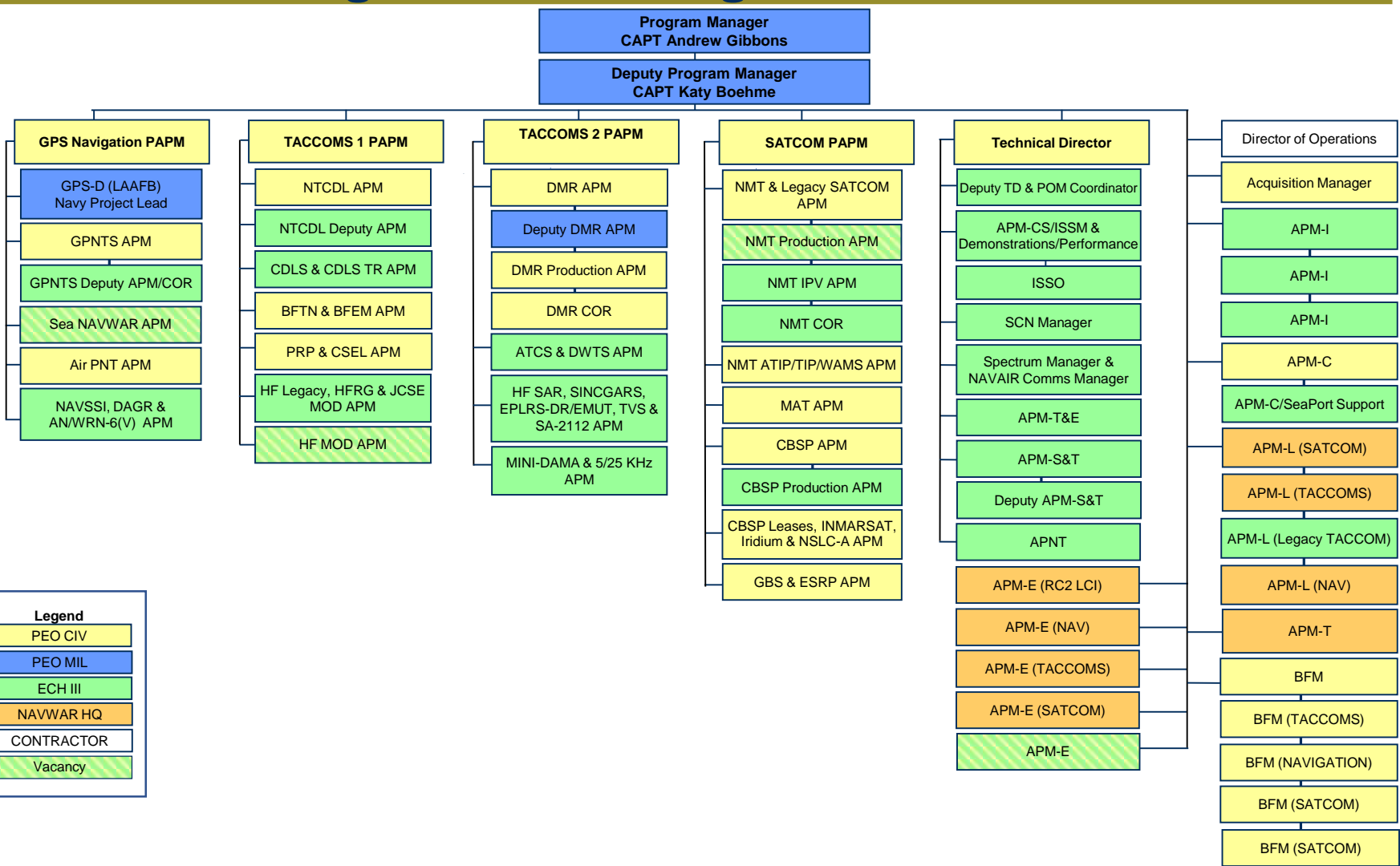


# COMMUNICATIONS AND GPS NAVIGATION PROGRAM OFFICE (PMW/A 170)





# PMW/A 170 Communications and GPS Navigation Program Office Organizational Chart





# PMW/A 170

## Portfolio Overview

	Materiel Solution Analysis	Technology Maturation and Risk Reduction	Engineering & Manufacturing Development	Production & Deployment	Operations & Support (Sustainment)
	<b>A</b>	<b>B</b>	<b>C</b>	<b>FRP</b>	
ACAT I					NESP
ACAT II					SHF AN/WSC-6 (V)
ACAT III			NTCDL	GPNTS BFTN	CWSP SINCARS CDLS INMARSAT
ACAT IV				GBS CBSP DMR Sea NAVWAR Air NAVWAR**	HF Legacy CSEL
AAP					ESRP Afloat TV-DTS NAVSSI ESRP Ashore EPLRS-DR AN/WRN-6(V) MINI DAMA DAGR 5/25 kHz HF SAR
PROJECTS	MAT		ATCS Air Navigation GPS Modernization*** SMT		TIP JCSE MOD NSLC-A PRP TVS IRIDIUM
EC/MM*	BRSE	WAMS NoGAPSS	M-Code	MAGNA MUOS on DMR	AC2 Modem ATIP CDLS - TR Adaptive Coding

\*Engineering Changes/Major Modifications (not projects) being developed and fielded as part of Post Milestone C Programs of Record

\*\*NAVAIR 1.0

\*\*\*PMW/A 170 is the Navy's Lead GPS Program Office

SATCOM Div Sustainment Project

TACCOMS 2 Div Sustainment Project

TACCOMS 1 Div Sustainment Project

NAV Div Sustainment Project

## 48 Total Efforts!



# Accomplishments & Upcoming Events

- Recent Accomplishments

- Fleet Readiness Directorate Program Transition
- Global Positioning System-Based Position, Navigation and Timing Service (GPNTS) 1<sup>st</sup> Install commenced May 2019
- Battle Force Tactical Network (BFTN) Continued Operational Testing conducted July-Aug 2019
- Assured Command and Control (AC2) Modem Initial Operational Capability in Dec 2018
- Transitioned 18 programs to Risk Management Framework (RMF) in 2019
- 580 installation efforts since Oct 2018

- Near term events

- GPNTS IOT&E (Q1FY20)
- Digital Modular Radio (DMR) Program Testing with MUOS
- Network Tactical Common Data Link (NTCDL) 1<sup>st</sup> Install (Q1FY21)





# Communications Limiters



**TRAINING**  
CASREPS  
PMS  
Restoral



**RADHAZ**



**RCS, SIZE, WEIGHT**



**SHOCK & VIBE**



**WAVEGUIDE  
& CABLEWAYS**



**MAINTENANCE ACCESSIBILITY  
& RELATED STRUCTURES**

Allocation  
Legacy Systems  
Green Water Loading  
Weight and Moment Impact  
Atmospheric Conditions  
Stack Gas Effects



**EMC/EMI**



**SATELLITE FAILURES**

Bandwidth Appetite  
Blockage  
Antenna Handover  
Coverage



**UPDATING  
ORDs & Ao**



**MISSILE/GUN BLAST**





# Major Contract Awards Since Oct 2018

Program	Contractor	Contract #	End Date	Ceiling	Location of Contractor
CBSP	Comtech	N00039-18-D-0007	4/5/2022	\$59.89M	Tempe, AZ
PRP	Harris	N00039-18-D-0070	9/30/2022	\$765M	Rochester, NY
DMR	GDMS	N00039-18-D-0002	12/12/2022	\$198M	Scottsdale, AZ
UHF	Trivec	N00039-18-D-0004	12/17/2022	\$239.3M	Huntington Beach, CA
GPNTS HW	Sechan	N00039-18-D-0008	3/28/2023	\$52M	Lititz, PA
GPNTS HW	Micro USA	N00039-18-D-0009	3/28/2023	\$56.4M	Poway , CA
DMR	Thales	N00039-19-D-0001	1/23/2024	\$31M	Clarksburg, MD
BFTN	L3	N00039-19-D-0035	6/24/24	\$41.5M	Camden, NJ
ATIP	Comtech	N00039-18-D-0003	1/10/2028	\$19.1M	Huntington, NY



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## Current Contracts

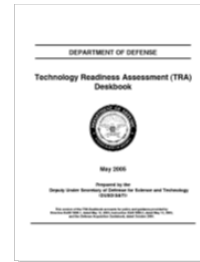
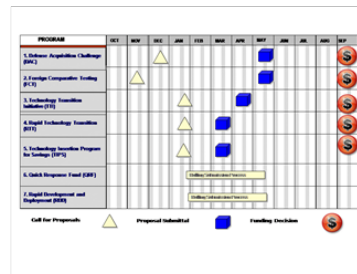
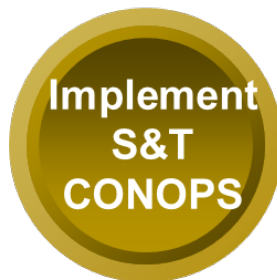


Program	Contractor	Contract #	End Date	Ceiling
GBS	Raytheon	N00039-15-C-0002	12/17/2019	\$33.3M
SHF	Harris	N00039-15-C-0008	12/22/2019	\$6.6M
GPNTS Dev	Raytheon	N00039-11-C-0089	6/30/2020	\$108M
BFTN	Rockwell Collins	N00039-19-C-0025	1/1/2020	\$468.8K
NAVSSI	Micro USA	N00039-14-D-0002	1/9/2020	\$4.5M
NAVSSI	SESCO	N00039-14-D-0003	1/9/2020	\$4.5M
DMR	Cubic	N00039-15-C-0224	8/11/2020	\$6.3M
CBSP	L3	N00039-19-C-0018	Est. 5/20/20	Est. \$1.8M
NMT FOFD	Raytheon	N00039-16-C-0050	12/28/2020	\$466.6M
SHF	Serco	N00039-16-D-0007	2/15/2021	\$4.2M
BFTN	Sealevel	N66001-19-P-7005	6/4/2021	\$132.1K
ESRP	Raytheon	N00039-17-D-0004	1/31/2022	\$49.9M
CBSP ULV	Harris	N00039-14-C-0041	2/25/2022	\$132.6M
CBSP FLV	Harris	N00039-13-C-0001	2/26/2022	\$57.8M
CBSP	Comtech	N00039-18-D-0007	4/5/2022	\$59.89M
PRP	Harris	N00039-18-D-0070	9/30/2022	\$765M
NTCDL	BAE	N00039-16-C-0087	11/28/2022	\$84.7M
DMR	GDMS	N00039-18-D-0002	12/12/2022	\$198M
UHF	Trivec	N00039-18-D-0004	12/17/2022	\$239.3M
GPNTS HW	Sechan	N00039-18-D-0008	3/28/2023	\$52M
GPNTS HW	Micro USA	N00039-18-D-0009	3/28/2023	\$56.4M
DMR	Thales	N00039-19-D-0001	1/23/2024	\$31M
BFTN	L3	N00039-19-D-0035	6/24/24	\$41.5M
DMR	Mnemonics	N00039-16-D-0077	9/7/2026	\$5.4M
DMR	Milpower	N00039-16-D-0078	9/7/2026	\$29.5M
ATIP	Comtech	N00039-18-D-0003	1/10/2028	\$19.1M



# S&T Initiatives

- Vision: Utilize S&T investments early and often to proactively address technology gaps at the right time in the acquisition cycle



- S&T's Acquisition Role
  - Facilitate identification and mitigation of technology gaps
  - Provide MDA with technology readiness risk assessments

*PMW/A 170 is making sizeable investments into S&T efforts and recommend industry look for opportunities to engage*



# PMW/A 170

## Current SBIR/RIF/8a/SeaPort Contracts



Program	Contract #	Type/ Performer	SB/LB	End Date	Contract Value
SBIR nAILES (DMR)	N00039-18-C-0028	SBIR Phase II / RKF Engineering	SB	10/28/2019	\$1.5M
Vapor with Pulsed Optical Readout (VaPOR) Clock (GPNTS)	RIF -17 N00039-18-C-0011	RIF/ AOSense	LB	6/20/2020	\$2.9M
Ground Based Beam Forming System (CBSP, NMT)	N00039-18-C-0021	RIF/ TMC Design	SB	7/31/2020	\$1.5M
T-Scan SBIR Phase II (NMT)	N68335-19-C-0134	SBIR Phase II Base / Architecture Technology Corp.	SB	8/31/2020	\$1.5M
SPIN SBIR Topic N112-170 Wideband Radio Local Interference (NMT)	N00039-19-C-0020	SBIR Phase III Base / Bascom Hunter	SB	10/8/2020	\$4.15M
APNT Using Small Satellites in GPS-Den (GPNTS)	N00039-19-C-0021	RIF / TMC Design	SB	6/18/2021	\$1.5M

SeaPort Support Services	Performer	Contract #	End Date
Logistics	CSA	N00178-14-D-7663 NS03	04/03/2021
Systems Engineering	Systems Technology Forum	N00178-14-D-7955 NS02	07/03/2021
Financial Management/Admin	Artemis	N00178-14-D-8006 NS02	08/31/2021
Program Management	Booz Allen Hamilton	N00039-17-F-3010	08/30/2022
Program Management	Highbury Defense Group	N00178-14-D-7309 N0003919F3000	11/18/2023





# PMW/A 170

## Market Surveys



Program	Description	Anticipated RFI	Anticipated RFP
Global Broadcast Service (GBS)	Follow-On Production	September 2018 (closed)	Q2 FY20 (see next slide)
Navy Multiband Terminal (NMT)	NMT Extension (NMT-X)	April 2019 (closed)	TBD
Digital Modular Radio (DMR)	Procurement of 500W Power Amplifiers (PAs)	June 2019 (closed)	Q1 FY20 (see next slide)
GPS Based Positioning, Navigation, Timing Service (GPNTS)	Follow-On Production MAC	Q2 FY20	Q1 FY21 (see next slide)



# PMW/A 170

## *Future Opportunities*



Program	Description	Anticipated RFP	Anticipated Award	Contract Value	SB Set Aside
Communications Data Link System (CDLS)	CDLS Technical Refresh (CDLS-TR)	Q1 FY20	Q4 2020	\$10.6M	Sole Source
Digital Modular Radio (DMR)	Procurement of 500W Power Amplifiers (PAs)	Q1 FY20	Q4 2020	\$5M	Full & Open
Global Broadcast Service (GBS)	Follow-On Production	Q2 FY20	Q2 FY21	\$36M	Full & Open
GPS Based Positioning, Navigation, Timing Service (GPNTS)	Follow-On Production MAC	Q1 FY21	Q4 FY21	\$338M	SB

**\*Updates will be captured in NAVWAR Small Business Forecast and posted on the NAVWAR E-Commerce website**



# Here's Where Industry/Academia Can Help



- SATCOM Modem Solutions
- Increased Solid State Power Amplifiers (SSPAs) efficiency
- Cost effective ways to modernize fleet HF capabilities and ensure reliability in congested and contested environments
- GPS - independent high accuracy timing sources
- GPS - independent navigation solutions
- Metamaterial-based antenna solutions with lower sidelobes and increase G/T
- NIST SP800-53 Compliant Products



# Questions?





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**Accelerated delivery of required capability that is  
affordable, integrated and interoperable**