



# SIMULATORS DIVISION (AFLCMC/WNS) Update

22 June 2023

Ms. Penny Mason
Deputy Division Chief
Simulator Division

# 

# **Recent Successes**



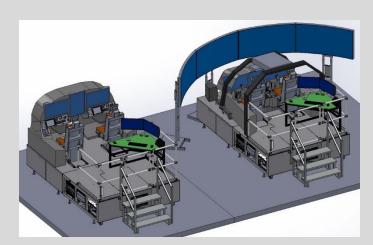
JPATS T6 GBTS - DRG



**SCARS DEVSECOPS Demonstration - CAE** 



**B-52 Notional MET- ASI** 



**B-1 R-CPT Drawing - ASI** 

8,400 Training Events 26,635 Training Hours 1,800 Aircrews Trained 19,500 Personnel Trained

> MAF DMO – HII DMON – Northrop Grumman

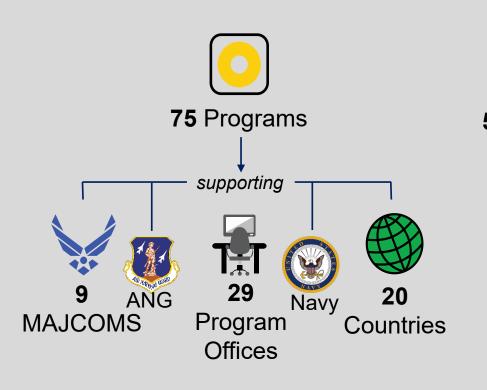






# **Simulators Snapshot**















**667** Funding Documents





















# **Simulators Division Leadership**





CHIEF OF ENGINEERING (EN) Kelly Navarra

DEPUTY Jeff Pfledderer



CHIEF OF FINANCE (FM) Kristen O'Sullivan

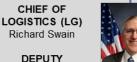
DEPUTY Bruce Comer



DIVISION CHIEF SENIOR MATERIEL LEADER Col C, 'Matt' Ryan



DEPUTY DIVISION CHIEF Penny Mason



DEPUTY Christal Green



CHIEF OF CONTRACTING (PK) Christine Diehl

DEPUTY Abby Hoefler





AIR COMBAT **Branch Chief** Renee Sauerland

#### DEPUTY Michael Hayes

EN - Susan Schemmel/ Djauna Prewitt/Barry Green FM - Eric Gilley LG - Michael Baldwin PK - Abby Hoefler

#### Fighter/Attack Maj Anthony Maxie

Bombers/Special Mission Maj Alex Hermes



AIR MOBILITY **Branch Chief** Monika Mapley

#### DEPUTY Rex Easley

EN - Barry Green / Gernai Bledsoe FM - Brooke Gibson LG - Christal Green PK - Richard Fries

#### Airlift

Holly Hogsett

#### Tankers

Rex Easley (Acting)



#### SPECIAL OPS & AETC Lt Col Josh Trantham

DEPUTY Lt Col Blake Bradford

**Branch Chief** 

EN - Brian Woehrman / Greg Enochian FM - Josh Elliott LG - Tonita Davis PK - Shane Hemmerich

#### Special OPS

Lt Col Blake Bradford

#### Air Education Maj Sean Morris

Innovation Cell Douglas Patton



#### OPERATIONAL TRAINING **INFRASTRUCTURE Branch Chief**

Lt Col Drew Frazier

EN - Tom Casey/ Mike Baker FM - Steve Hevl LG - Vacant PK - Shane Hemmerich

#### **Distributed Training Systems** Vacant

Common Architecture & **Standards** Scott Poznanski

#### Cybersecurity Gary Coe



#### OPERATIONAL TRAINING **ENVIRONMENT Branch Chief** Lt Col John Kovacic

DEPUTY Johnny Clark

> EN - TBD FM - TBD LG - TBD

PK - TBD

Joint Simulation Environment Johnny Clark



#### **Branch Chief** Doug Rogers

EN - Terri McBeth FM - Eric Ellsworth LG - Robert Hemmerly PK - Michael Carbone

#### Fighter Programs Tanya Hopson

Airlift / Tanker Programs Vacant

#### **New Business**

Jesse Dewberry



#### **ANALYSIS &** INTEGRATION **Branch Chief** Scott Cumminas

EN - Jeff Pfledderer FM - Vacant

LG - Vacant PK - Vacant T&E - Pat McLeod

**Program Control** Vacant

#### **Division Action Group**

Kara Truelove



# **Guiding Efforts**



- Implementing Simulator Common Architecture Requirements and Standards (SCARS)
- Developing, fielding and sustaining a common synthetic environment (Joint Simulation Environment)
- Increasing the capability and interoperability of distributed training networks
- Ensuring sufficient concurrency, fidelity, connectivity, and recapitalization of training systems



### **SCARS Overview**



# SCARS provides an Enterprise Solution

An enterprise solution must be capable of spanning multiple generations of training systems

#### **Key Attributes**

- Common Design
- Common Computational Tech Stack
- Single USAF-Wide Ops Center
- User Development Toolkit

Warfighter

Acquisition

Industry Partners

Increase in speed to the field Higher fidelity of models Improved interoperability Reduced cyber risk

Increase in speed to the field Reduced acquisition cost Lower life cycle cost Reduced vendor lock Less contract actions

Voice in standards
Opportunity to develop
common models
Higher reuse/less development
risk for affiliates, pathfinders



### **SCARS Standards**



# On Premise Equipment (OPE) Basic Integration

Specifications for interfacing a training system with SCARS OPE

#### **Application Certification**

Processes for certifying and migrating simulation applications to SCARS OPE

#### **Common Security Controls**

Specifications for inheriting security controls from SCARS Security Operations Center to a training system integrated with an OPE

#### **Data**

Specifications for standard data formats for interoperability, including Geospatial Data Specification (GDS) and the MBSE Style Guide

#### **Certification Process**

Processes for verifying and sustaining compliance with SCARS Standards

#### **DevSecOps**

Processes for development and sustainment of software on SCARS OPE, using a CI/CD pipeline

To request access to the SCARS Standards, email aflcmc.wns.scarsstandards@us.af.mil



# JSE OV-1







#### **JOINT SIMULATION ENVIRONMEMT (JSE)**

#### SCOPE



Many-on-Many Mission Analysis



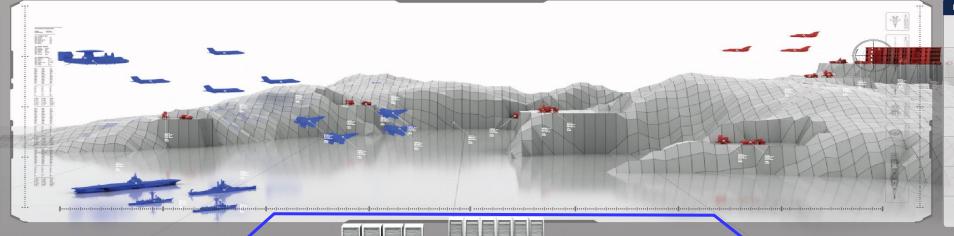
Verification and Validation



MITL Training



Tactics, Techniques, and Procedure (TTP) Development and Validation





Cruise Missile Defense (CMD)

Defensive Counter Air (DCA)

Offensive Counter Air (OCA)

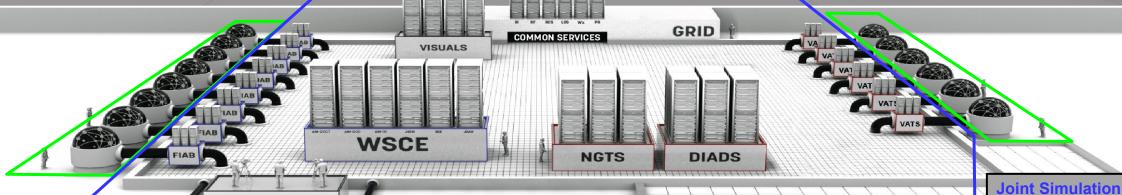
Suppression of Enemy Air Defenses (SEAD)

Destruction of Enemy Air Defenses (DEAD)

Strike

Airborne Interdiction

**Environment** 



KEY FEATURES



SUPPORTS ALL SECURITY LEVELS



THREAT MODELS
REFLECTING THE LATEST
INTELLIGENCE DATA

ART



GOVERNMENT-OWNED EXPANDABLE ARCHITECTURE



DENSE THREAT LAYDOWNS WITH HUNDREDS OF ENTITIES



REAL-TIME MISSION PLAYBACK



BLUE AND RED MAN-IN-THE-LOOP (MITL)



INTEGRATED NEXT GEN THREAT SYSTEM (NGTS)



# **JSE Core Components**



# **GRID: Global Reusable Interface Domain**

Communicates physics-based interactions and propagation effects to all entities

- WNS: Provides Systems Engineering
- Funding Source: 50/50 USAF/USN
- Integrator: NAWCAD

# DIADS: Digital Integrated Air Defense Simulation

C3, data flows/links, and operator displays of a threat IADS, early warning and height finder radars

- WNS: Provides Systems Engineering
- Funding Source: 50/50 USAF/USN
- Integrator: NAWCAD/412 EWG

#### **ART: Analysis & Reporting Tool**

Enables near real-time and post mission analysis of simulation generated data

- WNS: Provides Systems Engineering
- Funding Source: 50/50 USAF/USN
- Integrator: NAWCAD

#### **Common Services**

Services that generate the physics-based data that describe the synthetic environment. Critical to providing a "fair fight" (e.g., RF, IR, weather, etc.) WNS: Provides Systems Engineering

Funding Source: 50/50 USAF/USN
Integrator: NAWCAD / 445 TS / SWEGs

# **WSCE: Weapon Server Common Environment**

Real-time, high-fidelity kinetic weapon fly outs and Blue counter-measures

- WNS: Provides Systems Engineering
- Funding Source: 50/50 USAF/USN
- Integrator: NAWCAD / 445 TS

#### **NGTS: Next Generation Threat System**

Synthetic environment generator, models hundreds of threat and friendly constructives. Hosts high fidelity MSIC and NASIC models

- WNS: Provides Systems Engineering
- Funding Source: 50/50 USAF/USN
- Integrator: NAWCAD / 445 TS / 31 CTS

#### **VATS: Virtual Air Threats**

Authoritative Piloted Air Threat using NASIC TMAP models

- WNS: Provides Systems Engineering
- Funding Source: 50/50
- Integrator: XA

#### **FIAB: Fighter In A Box**

Rehosted OFP representing a Blue System of Interest (e.g., F-22, B-21, etc.)

- WNS: Manages fielding & sustainment
- Funding Source: Platform SPO or WNS
- Integrator: NAWCAD / 445 TS / SWEGs / XA

#### **HSI: Human Systems Interface**

Domes, visual systems, cockpits, etc.

- WNS: Manages fielding & sustainment
- Funding Source: WNS
- Integrator: WNS

Enterprise Developer: Industry NAWCAD 412th EWG XA SWEG INTEL

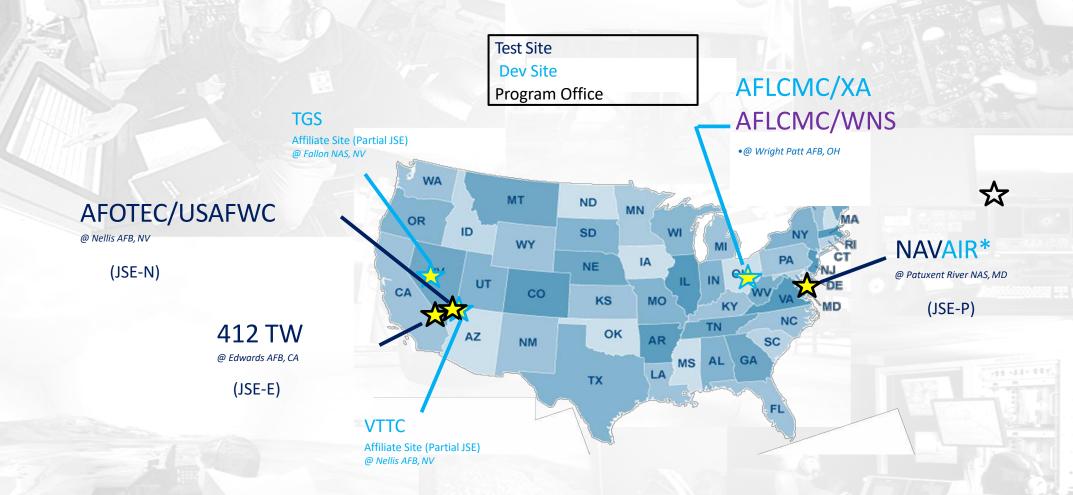
JSE

JSE Ecosystem



# **JSE Partner Sites**





\* JSE-P is operational in support of F-35 Blk 3F IOT&E



# JSE and You



- Future models and devices must have commonality to connect to JSE
  - GSI is the interface to JSE (how you will plug into the Global Reusable Interface Domain (GRID)); government owned standard for model development
  - Simulation Common Architecture Requirements and Standards (SCARS)
     Inc IV will include GSI
- Hi-fidelity (OFP-based) models of platforms and sensors required to fully leverage physics-based environment



# **Points of Contact**



Col C. Matt Ryan (Senior Materiel Leader): charles.ryan.1@us.af.mil

Lt Col John Kovacic (Materiel Leader): john.kovacic@us.af.mil Mr. Johnny Clark (Deputy Branch Chief): johnny.clark.1@us.af.mil



# Challenges



- Budget increases are not keeping up with inflation
- Calendar years 2024-2026 will be Source Selection heavy
- Shrinking budgets = cannot fund everything



# Penny's Thoughts



- Interest in common/enterprise solutions
- Continuing to move toward digital materiel management
- Cyber and ATO's are becoming high priority and increasingly important
- TSA IV award is coming
- Emphasis on test standardization and thoroughness



# **Key Take-Aways**



- We value your partnership and appreciate your feedback as we work through execution challenges
- JSE is an Air Force priority program to field the synthetic test and training environment of the future...AF vision is ubiquitous use
- Strategic goal to characterize the cost/benefit of full (Stage 3) SCARS implementation as soon as possible
- SCARS can make training more affordable with common services/apps, and common h/w baseline
- Opportunity for light-weight sims to make training more affordable (family of targeted sims, JSE sites, etc.)
- Need your help with End-of-life software





# CONTRACTING UPDATE

Ms. Christine Diehl Chief of Contracting Christine.diehl@us.af.mil Simulator Division



# **WNS Near-Term Acquisitions**



# 2023

2024

- (KDAM) RATS CLS/TSSC
- KDAM\_ATARS C&I
- TSA IV ~ Awarded

- C-17 TS
- B-52 CLS/TSSC
- AWACS DRAGON FCTS
- CAF DMO/DMON 3.0

Roughly 25% of WNS USAF portfolio is sole source; 75% is competitive or undecided pending market research



# **Future WNS Acquisitions**



2025

2026

2027

2028

- C-5 ATS/MATS
- AFSOC ACTS
- ANG OTS
- T-6 GBTS
- AWACS MTS
- C-130J
   MATS Production
- F-15 TDAS

- B-1
- B-2
- C-130H ATS
- C-130J MATS TSSC
- F-15 MTC
- KC-46 ATS
- KC-46 MTS
- Spatial D
- E-4B

- A-10 TS
- F-16 STP
- KC-135

- E-4B
- Alt Chambers
- MAF DMO?
- T-1A GBTS
- RATS CLS/TSSC
- KDAM ATARS C&I
- F-16 STP



# TSA IV



- TSA IV is a multiple award ID/IQ contract awarded 31 May 23
- Will utilize FAR 16.5 Fair Opportunity Selections
- Decentralized any USAF PCO may use if program fits contract scope
- Ceiling = \$32.5B; 5 year base ordering period; two options to extend up to another 5 years of ordering; each order may have up to 10-year PoP
- 37 contractors in award pool: 18 small businesses and 19 unrestricted (large) businesses



# **TSA IV Small Businesses**



- Aero Simulation (ASI)
- Aerospace Training Systems Partners (ATSP) JV
- Aviation Training Consulting
- Craig Technologies
- CTE II JV
- CymSTAR LLC
- DRG of Oklahoma
- Falconry Training Solutions JV
- Fidelity Technologies Corp.

- Innovative Training Solutions JV
- JF Taylor, Inc.
- Logistics Services International
- Nova Technologies
- Phoenix Defense Ventures LLC JV
- Pinnacle Solutions
- PTC Solutions JV
- Radiance Technologies
- Spirit Simulation JV



# **TSA IV Large Businesses**



- Alion Science & Technology
- American Systems
- AXR Solutions JV
- Azure Training Systems JV
- Boeing
- Booz Allen Hamilton
- CACI
- CAE USA
- Collins Aerospace
- Flight Safety Services

- General Dynamics
   Information Technology
- Huntington Ingalls Industries
- Lockheed Martin
- Northrop Grumman
- SAIC
- Trusted Readiness Solutions JV
- TRU Simulation + Training
- Veraxx Engineering
- Vertex Aerospace



# **Interactive Session**







# **C-17 Training Systems**



#### **Program Requirements**

The C-17TS Sustainment contract will provide aircrew instruction (ATS only), courseware, ATS & MTS CLS, concurrency and obsolescence modifications, and training flights to produce certified aircrew members. CLS on ATSs also will include supporting the simulators in a networked DMO environment. This contract will also include ATS instruction of C-17 foreign partners on USAF devices. This task order may include the same services for Foreign Military Sales (FMS) case countries. Cybersecurity Risk Management Framework (RMF) requirements will apply.

#### **ACQUISITION STRATEGY**

PENDING ASP
Undecided

#### PERIOD OF PERFORMANCE

10 year Period of Performance End Date: August 2034

# RFI RFP Award Released Sep 23 Apr 24

#### **POINT OF CONTACT**

Program Manager: Zachary McClellan Email: zachary.mcclellan.1@us.af.mil

PCO: Rabbanai Tebah

Email: rabbanai.tebah@us.af.mil

#### **FUNDING**

Firm-Fixed-Price Contract and Cost Reimbursable CLINs

#### **CURRENT CONTRACTOR**

The Boeing Company (Boeing)



### CAF DMO



#### **Program Requirements**

This is a Contractor Owned, Contractor Operated Contract. It provides the training, scheduling, and distributed mission operation services necessary to ensure interoperability and interconnectivity of participant systems in accordance with the Joint Special Access Program Implementation Guide (JSIG). There are 107 portals supported worldwide, CAF DMO will be adding 11 additional sites which includes three (3) JSE sites (Nellis, Edwards and Pax River). The core functions of the contract are to provide Networking, Distributed Training Center Support (CAF DTC, VTTC); Interoperability and Integration as well as Cyber Security. The requirements are: Network Availability Rate Threshold of 99.7% and Latency threshold of <65 milliseconds with an objective of <10 milliseconds.

#### **ACQUISITION STRATEGY**

Full & Open, FAR Part 15
IDIQ Contract

#### PERIOD OF PERFORMANCE

Jun 24 – Jun 34 5-year base with five 1-year options

# MILESTONES

RFP Award

Released Sep 23

**RFI** 

Jun 24

#### **POINT OF CONTACT**

Program Manager: Nathan Stevens Email: Nathan.stevens@us.af.mil

PCO: Kendall Holmes

Email: kendall.holmes.2@us.af.mil

#### **FUNDING**

\$ TBD Firm Fixed Price/Cost Plus

#### **CURRENT CONTRACTOR**

Northrop Grumman



# **AWACS DRAGON FCTS**



#### **Program Requirements**

The Airborne Warning and Control System (AWACS) Diminishing manufacturing sources Replacement of Avionics for Global Operations and Navigation (DRAGON) Flight Crew Training System (FCTS) contract will provide CLS and TSSC support to three sims at Tinker AFB, OK. CLS and TSSC support consist of ensuring the training system is operational/available at 98%, maintaining multi-airfield VDB, configuration/data management, potential concurrency and obsolescence modifications, possibly establishing connection to the DMON, and may include drawdown or retirement; DMON and drawdown requirements still tbd.

#### **ACQUISITION STRATEGY**

#### **PENDING ASP**

Competitive Fair Opportunity Selection using TSA IV

#### PERIOD OF PERFORMANCE

1 year base 5x 1-year options End date: July 2030

# MILESTONES Draft FOPR FOPR Award Sep 23 Nov 23 May 24

#### POINT OF CONTACT

Program Manager: Capt William Sousa Email: william.sousa@spaceforce.mil

PCO: Diane Chen

Email: Diane.chen@us.af.mil

#### **FUNDING**

\$ TBD
Firm Fixed Price w/ Cost
Reimbursable

#### **CURRENT CONTRACTOR**

CAE



# B-52 Legacy Training Systems Sustainment CLS/TSSC



#### **Program Requirements**

The Awardee will be tasked with providing CLS and TSSC sustainment services to the legacy B-52 Weapon System Trainer (WST). There will be no upgrades or updates made to the WSTs. The Awardee will also not be required to keep any developmental trainer in a ready state. Additionally, there will not be a requirement to support Distributed Mission Operations (DMO) related environments.

#### **ACQUISITION STRATEGY**

#### **PENDING ASP**

Competitive Fair Opportunity
Selection using TSA IV

#### **PERIOD OF PERFORMANCE**

TBD – Acquisition Planning Underway



#### **POINT OF CONTACT**

Program Manager: Michael Salyer Email: james.salyer.2@us.af.mil

PCO: Curtis Carson

Email: curtis.carson.2@us.af.mil

#### **FUNDING**

\$ TBD Firm Fixed Price

#### **CURRENT CONTRACTOR**

ATC



### T-6 GBTS



#### **Program Requirements**

T-6 GBTS functions as an integrated part of the USAF Undergraduate Primary Pilot Training, Undergraduate Student Naval Pilot Training, Specialized Undergraduate Pilot Training, USAF Undergraduate Navigator Training, Euro-NATO Joint Jet Pilot Training, and Undergraduate Naval Flight Officer Training programs. The program provide entry-level training to USAF, USN, USMC and USCG student pilots; provide primary & intermediate training to USN Student Naval Flight Officers and basic understanding of airmanship to entry level USAF student navigators. There are 126 total devices across 9 distinct locations. The contractor will provide Maintenance and Logistics Support, TSSC, CLS, Computer Aided Instruction; Config Management, Program Management, Systems Engineering and Cyber Security

#### **ACQUISITION STRATEGY**

#### **PENDING ASP**

Competitive Fair Opportunity Selection using TSA IV

#### PERIOD OF PERFORMANCE

TBD – Acquisition Planning Underway

# MILESTONES RFI FOPR Award Jul 23 Apr 24 Dec 24

#### POINT OF CONTACT

Program Manager: Sara Beth Frye

Email: sara.frye.1@us.af.mil

PCO: Pamela Randall

Email: pamela.randall.1@us.af.mil

#### **FUNDING**

\$ TBD Firm Fixed Price

#### **CURRENT CONTRACTOR**

Delaware Resource Group (DRG)



# **C-5 Training Systems**



#### **Program Requirements**

The C-5 Aircrew Training System consists of 7 Weapon System Trainers at 4 locations and 2 cargo loading systems trainers at JBSA (Lackland). The C-5 Maintenance and Aircrew Training System (MATS) consists of 34 Maintenance Training Devices (MTDs) and 3 Aerial Refueling Part-Task Trainers (ARPTT) at 3 locations. The intent is to combine the ATS and MATS contracts to one. The using organizations are AMC, AETC, USAFE, PACAF AND AFRC. The requirements are: ATS at a 98% availability, Guaranteed Student Graduation and MTDs at a 98% availability.

#### **ACQUISITION STRATEGY**

#### **PENDING ASP**

Competitive Fair Opportunity Selection using TSA IV

#### **PERIOD OF PERFORMANCE**

TBD – Acquisition Planning Underway

#### **MILESTONES RFI** FOPR Award Nov 23 May 24 Oct 25

#### POINT OF CONTACT

Program Manager: Jaime Smith Email: Jaime.smith.13@us.af.mil

PCO: Andre White

Email: Andre.white.7@us.af.mil

#### **FUNDING**

\$ TBD

Firm Fixed Price / Cost Reimbursable

#### **CURRENT CONTRACTOR**

ATS: CymSTAR LLC

MATS: CTE - JV



# Air National Guard Operational Training Support



#### **Program Requirements**

Provide DMO Operations Support for Mission Planning, Manned-Constructive White Force, Technology Support, Scheduling, and Establish & Maintain Secure Accredited Networks for daily DMO. The main customer is the Air National Guard at the Distributed Training Center in Des Moines, IA. The supported MAJCOMS are: ANG, AFRC, AFSCO, ACC, AMC, AECT, AFGSC and Coalitions.

#### **ACQUISITION STRATEGY**

#### **PENDING ASP**

Competitive Fair Opportunity Selection using TSA IV

#### PERIOD OF PERFORMANCE

May 25 – Aug 30
Three Month Transition Period
base year with Four 1-year options



#### **POINT OF CONTACT**

Program Manager: 2LT Lathan Spadafora

Email: lathan.spadafora.1@us.af.mil

PCO: Kari Wedemeyer

Email: kari.wedemeyer@us.af.mil

#### **FUNDING**

\$ TBD

Firm Fixed Price/Cost-Reimbursable

#### **CURRENT CONTRACTOR**

HII MDIS, Inc.



# **AWACS Maintenance Training Systems (MTS)**



#### **Program Requirements**

The Airborne Warning and Control System (AWACS) Maintenance Training System (MTS) provides support training for AETC and 552 ACW Maintenance Personnel. There are twenty-three field and mobile training devices at Tinker AFB, OK. The contractor will provide continued logistic support to manage, maintain, update and operate the training systems. Contractor will provide CLS and TSSC support consist of ensuring the training system is operational/available at 95.

#### **ACQUISITION STRATEGY**

#### **PENDING ASP**

Competitive Fair Opportunity Selection using TSA IV

#### PERIOD OF PERFORMANCE

TBD

End date: July 2030



#### POINT OF CONTACT

Program Manager: Maj Anthony Maxie

Email: anthony.maxie.1@us.af.mil

PCO: Diane Chen

Email: diane.chen@us.af.mil

#### **FUNDING**

\$ TBD

Firm Fixed Price w/ Cost Reimbursable

#### **CURRENT CONTRACTOR**

Fidelity Technologies, Inc.



# **AFSOC ACTS**



#### **Program Requirements**

AFSOC ACTS (Air Force Special Operations Command Air Commando Training Systems) contract enables aircrews to train in simulated but realistic, complex scenarios and exercises to enhance operational readiness, providing excellence in training aids, devices, simulators, and simulations in live, virtual, constructive media, and Air Force Distributed Mission Operations to produce high-quality combat ready professional military aviators across 5 distinct Mission Design Series. Key objectives include: TSSC, CLS, Cybersecurity, DMO and ECPs. There are 10 locations with various devices.

#### **ACQUISITION STRATEGY**

#### **PENDING ASP**

Competitive Fair Opportunity Selection using TSA IV

#### PERIOD OF PERFORMANCE

TBD – Acquisition Planning Underway

# MILESTONES RFI FOPR Award May 24 Nov 24 Oct 25

#### POINT OF CONTACT

Program Manager: Stanley Cadell Email: stanley.cadell.1@us.af.mil

PCO: John Lindsay

Email: john.lindsay.2@us.af.mil

#### **FUNDING**

\$ TBD Firm Fixed Price

#### **CURRENT CONTRACTOR**

**Lockheed Martin Corporation** 



# **B-1 Training Systems**



#### **Program Requirements**

The B-1 Training System (TS) provides concurrent training devices for B-1 aircrews and maintainers. On-site and on-call CLS is provided at 3 main operating locations. The program consists of 20 Maintenance Training Devices (MTDs) and 5 Cockpit Procedure Trainers (CPT), 2 Egress Trainers, 3 Armaments Systems Trainers and 5 Weapon Systems Trainers (WST). The using organization are AFGSC and AETC. The Contractor will provide continuing CLS and change management for concurrency and trainer-unique Reliability and Maintainability changes. The requirements are 97% availability for ATDs and on-call repair in 2 days for MTDs

#### **ACQUISITION STRATEGY**

#### **PENDING ASP**

Competitive Fair Opportunity
Selection using TSA IV

#### PERIOD OF PERFORMANCE

TBD – Acquisition Planning Underway



#### **POINT OF CONTACT**

Program Manager: Matthew Long Email: matthew.long.28@us.af.mil

PCO: Curtis Carson

Email: curtis.carson.2@us.af.mil

#### **FUNDING**

\$ TBD Firm Fixed Price

#### **CURRENT CONTRACTOR**

Aero Simulation, Inc.



# TSA IV Joint Ventures - Small



- ATSP JV Applied Visual Technologies Simulation; C2Technologies
- CTE II JV Carley Corporation; Engineering Support Personnel Inc.
- Falconry Training Solutions JV Alpha-1 Aerospace LLC; Pathfinder Systems, Inc.; SimiGon, Inc.
- ITS LLC JV ProActive Technologies, Inc.; System Studies & Simulation, Inc.; The ASTA Group LLC
- Phoenix Defense Ventures LLC JV Phoenix Logistics, Inc.; Riptide Software, Inc.
- PTC Solutions JV Potawatomi Training, LLC (mentor); CAE USA Mission Solutions, Inc (protégé)
- Spirit Simulation, Inc. JV DynaLantic Corp.; Shen Te Enterprises, Inc.; SA Technical Services, Inc.



# NTSA TSA IV Joint Ventures - Large



- AXR Solutions JV Cole Engineering Services; Specular Theory
- Azure Training Systems JV FAAC Inc; The DiSTI Corporation; PULAU Corporation
- Trusted Readiness Solutions JV Crew Training International, Inc.; PLEXSYS Interface Products, Inc.