

**Air Traffic Navigation, Integration
and Coordination Systems (ATNAVICS)
Update**

(version 3.0)

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USAACE - Aviation School

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- B References
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This System Training Plan (STRAP) is preliminary.
Front end analysis (mission, task, job) is ongoing. USAACE - Aviation School will amend and update this STRAP as details solidify.

USAACE - Aviation School is the proponent for this STRAP.
Send comments and recommendations directly to: Robert A Story

Comm: 334-255-9655

DSN: 558-9655

Email:

Mailing address:

United States Army Aviation Warfighter Center
Bldg #4507, Rm 204
Ft. Rucker, AL 36362

1.0 System Description

The Air Traffic Navigation, Integration and Coordination System (ATNAVICS) is a highly mobile tactical ground based, Tactical Airport Surveillance Radar (ASR), and Precision Approach Radar (PAR) air traffic control system that can operate in nearly all-weather conditions, day or night designed to quickly establish Air Traffic Services (ATS) at an airfield during the initial phases of deployment and sustain those services throughout operations and redeployment. The ATNAVICS shall facilitate safe handling of air traffic to and from Army airfields and field sites. The ATNAVICS shall offer Identification, Friend or Foe (IFF) features to help prevent fratricide among combined arms forces. The ATNAVICS is designed to support military ATC operations and communicate with other Air Traffic Service (ATS) and Battle Command (BC) systems. The ATNAVICS is also capable of supporting civilian ATC needs to include disaster relief, and other temporary airfield operations anywhere in the world. The High Mobility Multipurpose Wheeled Vehicle (HMMWV) is the prime mover for carrying the ATNAVICS. However, Fiscal Year (FY) 2006 Department of the Army (DA) up-armorng requirements for the HMMWV have rendered a significant payload reduction that makes the carrying of the ATNAVICS system impractical. As a result, the ATNAVICS shall be carried or towed by an up-armored member of the Family of Medium Tactical Vehicles (FMTV) and tows a 10 Kilowatt (kW) generator mounted on a trailer. The system is C-17deployable and UH-60 transportable (shelter only), meets international ATC standards, and contains modernized, digital jam-resistant communications.

The ATNAVICS system includes a Sensor Vehicle, Sensor Trailer, Operations Shelter, and an OPS Trailer. The Sensor Vehicle houses the RF transmitting and receiving equipment for ASR, SSR/IFF, and PAR. The OPS Shelter houses the display and display processing equipment, radio communications equipment, and landline (telephone) equipment. The ATNAVICS has two operator stations in the operations shelter. A fiber optic data link is used to interface the Sensor Vehicle to the OPS Shelter. The Sensor Trailer and OPS Trailer provide 208/120 VAC, 3-phase, 60 Hz power to their respective units.

- FUE occurred in AUG 2002

2.0 Target Audience

TARGET AUDIENCE		
Category	Job	Area of Concentration (AOC) Military Occupational Specialty (MOS)
Operator		
Air Traffic Control Operator	Air Traffic Controller	15Q
Subject Matter Expert (SME)		
Air Traffic and Airspace Management Technician	Technician	150A
Electronic Systems Maintenance	Systems Maintenance Officer	948B
Supply		
Repairer		
Air Traffic Control Equipment Repairer	Electronic Maintenance	94D
Power Generation Repairer	Generator Maintenance	91D

Wheeled Vehicle Repairer	Wheeled Vehicle Maintenance	91B
Utilities Equipment Repairer	Air Conditioning Repair and Maintenance	91C
Trainer		
Aviation Enlisted Training Institute (AETI), Fort Rucker, AL	15Q Advanced Individual Training	Tactical Systems
Unit Training	Command Directed Training	ATNAVICS Proficiency and Certification
US Army Communication and Electronics School, Fort Gordon, GA	94D ATC Equipment Repair School	ATNAVICS Proficiency and Certification
Additional Information/Requirements:		

3.0 Assumptions

- The Army requires no new Military Occupational Specialties (MOSs) or Additional Skill Identifiers (ASIs) to operate, maintain, or support the system.
- The system will not require a change in skill or aptitude requirements, as described in Army Regulation (AR) 611-1 Military Occupational Classification Structure Development and Implementation, 30 Sep 1997.
- Tower and Radar simulators in the institutional training base must be updated to replicate in form and function the ATNAVICS
- Introduction of the ATNAVICS into US Army Aviation units will not require any increase in the physical, sensory, or mental abilities of the personnel who have responsibility for its operation, maintenance, or support.
- Department of the Army, Active Army, Army National Guard and U. S. Army Reserve will provide the necessary resources, personnel, and equipment required to implement and support the ATNAVICS.
- There will not be an increase in total Army force structure to support the manning of the ATNAVICS.
- Training resources will be programmed, budgeted, developed and available as required to implement the training program identified/designed in this STRAP and its annexes.
- All Technical Manuals (TMs) and Interactive Electronic Technical Manuals (IETMs) which conform to applicable military specifications, will be validated and verified.
- The ATNAVICS must have the capability of being trained across all training domains (Institutional, Operational and Self-development).

4.0 Training Constraints

Constraint Type	Probable Impact	Mitigating Efforts
<i>Budgetary</i>		
NONE		
<i>Equipment</i>		
NONE		
<i>Training Equipment</i>		
NONE		
<i>Personnel</i>		
NONE		
<i>Facilities</i>		
NONE		
<i>Human Factors Engineering</i>		
No known constraints		
<i>System Safety</i>		
No known constraints		
<i>Doctrine</i>		
No known constraints		
<i>Environmental</i>		
The ATNAVICS must be Energy	None	The ATNAVICS will not

compliant		create or add any unique energy requirements
Hazards		
Hazards associated with the ATNAVICS include, but are not limited to, movement over unimproved and cross-country terrains, and excessive noise.	The total noise level for the ATNAVICS must be addressed from both an operational impact and from a safety and hearing loss consideration.	
Support Services		
PM funding to support tools, personnel training, training equipment, and Associated Support Items of Equipment (ASIOE) to support the training base for USAACE and CASCOM is dependent upon availability and accuracy of Qualitative and Quantitative Personnel Information (QQPRI).	The Program Manager (PM) is responsible for establishing the service and support contract for the initial fielding years and then will ensure that proper logistical support is established through the Training Requirements Analysis System (TRAS) and the normal Army Logistics System	Ensuring planning and system review involve logistical planning for out years of the ATNAVICS
Command Guidance		
No known constraints		
Soldier Survivability		
No known constraints		
Other		
No known constraints		
Public Law		
No known constraints		

5.0 System Training Concept

- USAACE, as proponent for the ATNAVICS, in Cooperation with U. S. Army Combined Arms Support Command (CASCOM) Systems Integration Division (SID) Sustainment Center of Excellence is responsible for the development and submission of this STRAP.
- Material Developer (MATDEV) training material will be in compliance with and developed using the Analysis, Design, Development, Implementation, Evaluation (ADDIE) methodology, be input using the Training Development Capability (TDC) program, apply the concept of Distributed Learning (DL), and be Shareable Object Content Reference Model (SCORM) compliant. Interactive Multimedia training will also be provided with the ATNAVICS system once developed. All Interactive Multimedia Instruction (IMI) software will be developed in accordance with Army Learning Policy and Systems (ALPS) TR 350-70 Army Learning Policy and Systems, TRADOC Pam 350-70-2 Multimedia Courseware Development Guide, TRADOC Pam 350-70-10 Systems Approach to Training Course and Courseware Validation, TRADOC Pam 350-70-12 The Army Distributed Learning (DL) Guide, Military Handbook (MIL-HDBK) 29612-4A Department of Defense Handbook Glossary for Training (Part 4), and DoD Instruction 1322.20 Development and Management of Interactive Courseware (ICW) for Military Training. The system will not require a change in skill or aptitude requirements, as described in Army Regulation (AR) 611-101.
- ATNAVICS tasks will be added to the existing user courses within the ASAT Database for 15Q (Air Traffic Control Operator) and 150A (Air Traffic and Airspace Management Technician Warrant Officer) conducted at Ft. Rucker, AL and for the maintainer course 94D (Air Traffic Control Equipment Repairer) and 948B (Electronic Systems Maintenance Technician) conducted at Ft. Gordon, GA. Procedures for the operation and maintenance of the ATNAVICS will also be described in approved technical manuals issued with each ATNAVICS. ATNAVICS Technical Manuals will also be available for download from the Defense Logistics Support Agency (LOGSA).
- USAACE, DOTD and U. S. Army Combined Arms Support Command (CASCOM) Systems Integration Division (SID) Sustainment Center of Excellence are responsible for the integration of training into USAACE and CASCOM proponent schools, resident/nonresident training programs, and for integration strategies into this STRAP.
- USAACE has accepted the use of a non-embedded System TADSS device for use with the ATNAVICS as an incremental approach to the fully embedded training

requirements of the CPD. This portable TADSS simulation device may be used in the institutional and operational training domains to support ATNAVICS Operator Air Traffic Control proficiency and training.

- The PM in cooperation with CRD Combat Developers have agreed to an incremental approach to a fully embedded training capability. In this incremental approach the ATC Common Simulator (ACS) will be used as Stand Alone TADSS Device assigned to the system. The ACS has the capability to train on Tower, ATNAVICS Radar and TAIS operations. The system will be capable of being interlinked with other aviation simulators to run scenarios with all facilities involved.
- The ATNAVICS with the assigned TADSS simulation capability is capable for use in Live, Virtual, Constructive, Gaming-Integrated Training Environment (LVCG-ITE).
- ATNAVICS training will be developed and conducted under the oversight, direction, and time-phased approvals of the USAACE Directorate of Training and Doctrine (DOTD) and Systems Integration Division (SID), CASCOM. ATNAVICS training products will be prepared in accordance with the SAT process. Task analysis and individual task development will be performed using the US Army Training Development Capability (TDC) program, provided as Government Furnished Equipment (GFE).
- The Aviation Proponent along with the ATNAVICS Program Management Office will ensure the TSP remains current throughout the ATNAVICS program life cycle and that any revisions are provided to the Army Training Support Center (ATSC) in addition to the regular ATNAVICS distribution requirements.
- The introduction of the ATNAVICS upgrade into the Army will require New Equipment Training (NET) and institutional and unit level training to include the use of Interactive Multimedia Instruction (IMI)/Computer-Based Instruction (CBI), extension training materials and TMs for certification and sustainment training. A New Equipment Training Team (NETT) will provide the necessary training for operators and maintainers in units/institutions.
- Training for Active and Reserve Component units will be identical.
- USAACE and CASCOM Training Developers (TNGDEVs) will update institutional training of the ATNAVICS when verified and validated training materials are received from the Program Management Office and instructor personnel have been trained and qualified on the system upgrades and capabilities of the ATNAVICS System.
- The instructor personnel will be trained on the ATNAVICS during Operator and Maintainer Instructors and Key Personnel Training (IKPT). The IKPT Instructor must provide instructor personnel a copy of the Master courseware to assist in identifying changes in existing institutional training.
- The Unit/Sustainment training will be accomplished using a combination of the ATNAVICS NET and an Exportable Training Package (ETP) that will be left

- with the units identified in the New Equipment Training Plan (NETP).
- PM-ATNAVICS is responsible for Funding of all NET Fielding events.

5.1 New Equipment Training Concept (NET)

The MATDEV will provide courseware for the NETT IAW the SAT process. The MATDEV will develop a course of instruction to be used in the Exportable Training Package ETP, which the NETT will leave with the units as they are trained IAW the NETP. The Program Manager, PM ATC, is responsible the funding for the NETT, to include travel funds. The ATNAVICS PM Office will deliver a copy of all courseware materials to USAACE DOTD and CASCOM SID for review, revision (if needed), and approval prior to fielding.

The NET concept is implemented through the materiel developer's requirement to provide a Training Support Package (TSP) for NET, unit sustainment, and institutional training and is the basis for all training. NET requirements include;

1. ATNAVICS NET is the materiel developers responsibility. It will be conducted by PM ATC or a PM selected contractor. It will be monitored by the USAACE DOTD and CASCOM Training Directorate.
2. NET will be conducted at the receiving units when the system is delivered. The units will be responsible to conduct sustainment and ATC qualification and proficiency training on the system after receiving the NET. NET details will be in the New Equipment Training Plan (NETP).
3. NET will be conducted in conjunction with the fielding of the ATNAVICS. The ATNAVICS will require operator and maintainer NET for Instructors and Key Personnel Training (IKPT). PM ATC will provide USAACE DOTD and CASCOM SID with the training materials required to train operator and maintainer tasks IAW the training strategy developed for ATNAVICS. The TNGDEV at CASCOM SID is responsible for the selection of the critical tasks to support the 94D training at the proponent school. The TNGDEV at USAACE DOTD is responsible for selection of the critical tasks to support the 15Q training at the proponent school.
4. PM ATC is responsible for the development of all NETP materials and ensures that they are in compliance with TRADOC Regulation 350-70, Army Learning Policy and Systems, 6 Dec 2011 .
5. New Equipment Training Team (NETT). A NETT will be provided by PM ATC to conduct all NET training requirements.
6. The NET strategy is based on Army Regulation 350-1, Army Training and Leader Development, 4 Aug 2011 RAR in conjunction with the NET requirements and is the responsibility of PM ATC. The strategy will be coordinated with USAACE and CASCOM schools. NET development will, as a minimum, include a Total Task Inventory (TTI), NET Training Support Package (TSP) that includes multimedia in addition to POI's, lesson plans, technical manuals, student and instructor

guides, and a course management plan. The TSP will include a tutorial "how to" module that permits identification of Soldier training proficiency by module. The ATNAVICS equipment and training subsystem, all devices and products must be available for NET. The following NET courses are required: (1) Test Player Training, (2) Instructor and Key Personnel (I&KP) Course, and (3) Unit NET.

7. The Instructor and Key Personnel Course should be conducted at least a year prior to the first fielding to allow training developer for USAACE and CASCOM to develop and submit lesson plans IAW TRADOC timelines.
8. Once the unit has been fielded and received NET, the materiel developer will remain on call, and continue to support the system until fielding is completed throughout the entire MACOM. Fielding and training to Reserve and National Guard units, will be conducted in the same manner and at the same time as active army, and provided at selected locations determined to be the most cost effective and feasible.

5.2 Displaced Equipment Training (DET)

The ATNAVICS does not displace any existing equipments, consequently there is no DET training.

5.3 Doctrine and Tactics Training (DTT)

The ATNAVICS Upgrades do not change any of U.S. Army Aviation Doctrine and Tactics procedures with regard to deployment or use of the System in the Operational Environment.

5.4 Training Test Support Package (TTSP)

The USAACE TD with assistance of PM ATC will develop a Test Training Support Package (TTSP). USAACE and CASCOM proponents will review and approve the TTSP. The Lesson Plans (LPs) developed by PM ATC for the NET TSP will be put in the Training Development Capability (TDC) at least one year prior to FUE.

The final TTSP consists of:

- Training schedule for player personnel.
- POI for each affected MOS
- List of training devices and embedded training components.
- Army training and evaluations program, draft mission training plan (MTP) or changes to the MTP.
- Target audience description
- Draft Soldiers' Training Publications (STPs) or changes
- Lesson Plans (LP)
- Critical Task List (CTL)
- Field manuals (FM) or changes to FM's (when not provided with the Doctrine and Organization Test Package) Technical Manuals (TM), which conform to applicable military and commercial specifications, will be validated and verified, prior to initial NET and delivered to the user not later than 60 days prior to first system delivery.

6.0 Institutional Training Domain

Institutional training courses for controllers (15Q) will be taught at USAACE and the training courses for maintainers (94D) will be taught at the CASCOM , in accordance with the Army Campaign Plan. Training is developed in compliance with the requirements identified in this STRAP, per the guidance in TRADOC Regulation 350-70 and designed to be safe, mission focused, and based on aviation doctrine.

Institutional training and instruction will be in accordance with TRADOC Regulation 350-70 para 3-9. ALC [Army Learning Concept] instructional guidelines such as: performance oriented, emphasizing hands-on practical exercises, and prepares aviation soldiers to achieve and sustain proficiency of individual tasks. Standards are determined from the Mission Essential Task List (METL) and Soldier Training Publications (STPs). Training will be designed to be sequential by steps/procedures. Institutional and unit training programs should capitalize on TADSS technology that support efficient and effective training. Institutional Training products will be updated as need it.

6.1 Institutional Training Concept and Strategy

The institutional training strategy consists of Equipment familiarization during Institutional Training while attending the Air Traffic Control Operator Course (15Q), and the Air Traffic Control Equipment Repairer (94D). Soldiers will have a limited amount of time during Institutional training to be introduced to and given general knowledge on four Major ATS Systems. It is the strategy during this Introduction Phase to the ATNAVICS to impart the General Tasks associated with the employment of the ATNAVICS System in the Field environment. This strategy is based upon the Operational Training Strategy of RL progression Training when the Soldier is assigned to their Unit and assigned to a particular ATS System for Training.

The Strategy for Air Traffic and Airspace Management Warrant Officer Course (150A) conducted at Ft. Rucker, AL will be to give the 150A a full understanding of Air Traffic Control Radar Operations, Airspace Planning and Approach Planning IAW FAA Standards and Requirements.

The Strategy for Electronic Systems Maintenance Technician Warrant Officer (948B) conducted at Ft. Gordon, GA will be to give the 948B a full understanding of ATNAVICS Theory of operations, sustainment strategies and unique capabilities repair operations of the ATNAVICS.

6.1.1 Product Lines

Product lines will consist of hardware, software, publications, courses, lessons, training aids, training facilities and management services that will provide the capabilities that trainers and Soldiers need to train in the institution, operational, and self-development domains.

6.1.1.1 Training Information Infrastructure

ATNAVICS training infrastructure will require the use of the following items. Department of Defense (DOD) standards such as the U.S. Army Distributed Learning System (DLS), Sharable Content Object Reference Model (SCORM), and Army Training Information Architecture-Migrated (ATIA-M) will be implemented in the design and development of the TSS products. ATNAVICS Life Cycle Support will include training, training software and courseware design that will be developed in a reusable and maintainable format, i.e., SCORM compliant. PM ATC is responsible for the funding of support tools, personnel training, training equipment, and Associated Support Items of Equipment (ASIOE) to support the training base for CASCOM and USAACE. The amount is dependent upon availability and accuracy of Qualitative and Quantitative Personnel Requirements Information (QQPRI). Training Development Capability (TDC) or its TRADOC approved replacement will be used in this effort.

The ATNAVICS will be equipped with state-of-the-art secure and jam-resistant voice and data communications systems to coordinate and disseminate air information. The communication system must comply with the JTA, JTA-A, and DISR with DII COE (Level 6 - Threshold and Level 8 - Objective) and NCES.

6.1.1.1.1 Hardware, Software, and Communications Systems

The ATNAVICS will provide digital connectivity to Tactical Airspace Integration System (TAIS), Mobile Tower System (MOTS) and Battle Command (BC) systems for institutional training through existing Local Area Network, and data capable radios. PM will provide life-cycle software support for ATNAVICS.

The Army Training Network (ATN) supports the DL concept and facilitates the dissemination and delivery of training support information.

6.1.1.1.2 Storage, Retrieval, and Delivery

Access and storage of ATNAVICS training and information will be made available through one or more of the following locations:

- Training Development Capability Database (TDC)
- The Army Learning Management System (ALMS)
- Army Training Network (ATN)
- The Central Army Registry (CAR)

6.1.1.1.3 Management Capabilities

ATNAVICS training products and information will be managed through the Digital Training Management System (DTMS) , Computer Assisted Instruction (CAI), TDC, and the Automated Instructional Management System - Personal Computer (AIMS-PC)

6.1.1.1.4 Other Enabling Capabilities

PM ATC Training Support Center

Toll Free: 1-866-585-8544

Comm: (256) 890-8763

DSN: 282-1048

Email: atcsupport@gdc4s.com Interoperability and data exchange as required by the Training Support System (TSS) will exist with the Live, Virtual, Constructive-*Integrating Architecture* (LVC-IA).

6.1.1.2 Training Products

The Materiel Developer will develop an exportable Interactive Multimedia Instruction (IMI) TSP that will support DL and train-the-trainer training. For institutional, the live FTX portion of the institutional training base, and for unit training and sustainment in the Operational Training Domain, components will employ embedded training capabilities, be multimedia based, and/or use distance-learning technologies. The subsystem will contain (as a minimum) doctrinal manuals, system TMs, TADSS, IMI, TSP and courses (complete with a digitized POI, lesson plans, student and instructor guides, course management plan, and an air traffic control tower simulator for embedded operator training). The package will be coordinated with USAACE and CASCOM training developers. This process will facilitate the production of training support products for delivery with the Training Support System and the ability to rapidly update tasks and their instructional products using digital information systems.

6.1.1.2.1 Courseware

The PM will provide an ATNAVICS multi-media training support package that can be used to support institutional training at Ft. Rucker (15Q) and Ft. Gordon (94D), unit sustainment training and distance learning training using the DTMS and CATS Government Systems. The PM will also be responsible for upgrading the TSP as newer versions of software become available and modifications are made to the ATNAVICS system.

6.1.1.2.2 Courses

Course Name	Course Number
Initial Military Training	
Air Traffic Control Operator	222-15Q10
Air Traffic Control Equipment Repairer	102-94D10
Air Traffic and Airspace Management Technician	2G-150A
Electronic Systems Maintenance Technician	4F-948B
Professional Military Education (PME)	

ATC Operator Advanced Leaders Course (ALC)	222-15Q30-C45
ATC Operator Senior Leaders Course (SLC)	222-15Q40-C46
Functional And ASI	
Mobilization	

6.1.1.2.3 Training Publications

All doctrinal and training publications may be in printed and/or electronic format, used for training individuals or units. The term "training publications" includes *training literature*, both official and unofficial. The training literature is a body of writing published to provide information and training on the training, doctrine, operational doctrine, and tactics, techniques, and procedures (TTP) adopted for use in training individuals assigned to ATC units. The following are examples of Field Manuals and Soldier Training Publications that are required to support the ATNAVICS training program and should be updated and included (If appropriate) in the Multimedia TSP:

Publications	Publication Date
Field Manuals	
ADP and ADRP 1-02 Operational Terms and Military Symbols w/change 1	26 Sep 12
FM 1-100 Army Aviation Operations	21 Feb 97
FM 3-04.111 Aviation Brigades	07 Dec 07

FM 3-04.120 Air Traffic Services Operations	16 Feb 07
FM 3-04.126 Attack, Reconnaissance Helicopter Operations	16 Feb 07
FM 3-04.300 Airfield and Flight Operations Procedures w/C1 and C2	08 Dec 08
FM 3-52 Airspace Control	08 Feb 13
ATP 5-19 Composite Risk Management	APR 2014
Technical Manuals	
TC 3-04.81 Air Traffic Control Facility Operations, Training, Maintenance and Standardization	29 Oct 10
TM 11-5840-381-10	01 Dec 2012
TM 11-5840-381-10-HR	15 Jan 2013
TM 11-5840-381-23	01 Dec 2012

TM 11-5840-381-23P	15 Aug 2012
Soldier Training Publications	
STP 1-93C1-SM-TG Soldiers Manual and Trainers Guide, MOS 93C, Air Traffic Control, Skill Level 1	01 Apr 02
STP 1-93C24-SM-TG Soldiers Manual and Trainers Guide, MOS 93C, Air Traffic Control, Skill Levels 2/3/4	04 Jun 02
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Special Texts

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6.1.1.2.4 Training Support Package (TSP)

The ATNAVICS TSP will provide training products, materials, and information that supports individual and collective task that will be integrated into a training and management exercise. The multimedia TSP will be a tutorial 'how to' module that permits audiences to be self-taught, wherever feasible, and will include a diagnostic test module that permits identification of Soldier training proficiency by module. Certification and sustainment training will be facilitated by the multimedia TSP left with the unit following NET.

6.1.1.3 TADSS

Soldiers will use the ATNAVICS for training in ATS units and the institutional training base. MOS 15Q, ATC Operator Course, radar simulators in the institutional training base must be updated to replicate in form and function the ATNAVICS. The PM is responsible for development, integration, and life cycle management of TADSS IAW AR 350-38.

6.1.1.3.1 Training Aids

The training aids used at the institution are: Projectors, laptops and mock-ups of the ATNAVICS system. Material Developer will develop 3-D objects that are fully interactive Free Play/Exploration mode, allowing user to attach/detach parts as desired. View internal components, rotate the equipment in all directions, view parts in context through semi transparency, view equipment in line drawing or X-Ray mode, disassemble and reassemble the equipment while experiencing constraints on parts, get detailed information, etc. User can pause animation and move 3D model around freely, including any camera angle and part movements in real time. To perform a task, the user must be able to select parts and actually perform the actions to be done on the 3D model, such as removing/replacing parts in real time and perform multi-direction cross-sectioning in real time. Movement constraints can be associated with parts (such as hinges, bolts, gauges) and user can move parts in constrained manner in real time. Parts can be linked to other 3D simulations, documents, and web pages. It may have the capability of being inserted into Microsoft Word, PowerPoint and Adobe PDF via "insert" menus.

6.1.1.3.2 Training Devices

Soldiers will use the ATNAVICS for training in ATS units and the school house. The system will provide the ability to train controllers using the depiction of electronic ASR/PAR scenarios, incorporating voice and audio interaction in an embedded ATC trainer. Additionally a maintenance trainer will be used that provides supervisor-selected, automatic insertion of maintenance faults into the actual sub-systems of the ATNAVICS to develop the maintainers' troubleshooting skills and knowledge to correct real faults within the system. Collective training will be conducted using an interface with the ATNAVICS and other aviation simulations, including MOTS, TAIS, and the Aviation Combined Arms Tactical Trainer (AVCATT).

The ATNAVICS requirement for embedded training to provide Air Traffic Control (ATC) radar simulator used for controller skill task qualification and proficiency training when live air traffic is not present at the airfield serviced by the ATNAVICS has been satisfied in the interim by providing a stand-alone ATC Common Simulator (ACS) that will be issued to each ATC Unit by the PM for each system. The Training Simulator can be used inside the ATNAVICS shelter or as a stand-alone training device during downtime at home-station or during training exercises.

The PM is responsible for development, integration, and life cycle management of TADSS IAW AR 350-38.

6.1.1.3.3 Simulators

The PM in cooperation with CRD Combat Developers have agreed to an incremental approach to a fully embedded training capability. In this incremental approach the ATC Common Simulator (ACS) will be used as Stand Alone TADSS Device assigned to the system. The ACS has the capability to train on Tower, ATNAVICS Radar and TAIS operations. The system will be capable of being interlinked with other aviation simulators to run scenarios with all facilities involved.

6.1.1.3.4 Simulations

Simulations will support Equipment Training (ET), institutional and sustainment training and will include both individual and unit level training exercises which can be linked into an Army, Joint and combined training environment. This will allow all levels of operator and system managers to conduct training and evaluation. PEO-STRI will be incorporated into the process and upgrade developments of all simulation systems to meet the needs of the Integrated Training and T&E environments. The PM is responsible for development, integration, and life cycle management of TADSS IAW AR 350-38.

6.1.1.3.5 Instrumentation

The Materiel Developer will ensure that the ATNAVICS will have the capabilities to integrate with ABCS systems as well as CTC facilities. This will allow the system to be placed into operation during battle simulations and virtual training centers use as well as CTC exercises. Interactive Multimedia Instruction (IMI) on the AN/TPN-31 ATNAVICS will be developed to support Institutional, Operational and Self Development Training.

6.1.1.4 Training Facilities and Land

Institutional training for the ATNAVICS will utilize existing classroom space that will support a class size of at least 12 students USAACE and 8 students at CASCOM for lecture type instruction. Existing hanger space will be used for institutional FTX staging area, hands-on system maintenance training, and storage of the ATNAVICS. CASCOM will require additional power, ground connections and, cabling for the ATNAVICS.

NOTE: Existing open Field Training Areas (FTA's) will be utilized to run full operational testing and operator training. During operational testing and operator training adequate space must be allocated to the ATNAVICS to ensure that there is a RF Hazard Standoff of approximately 10 feet away from the PAR Antenna and that the ATNAVICS Local Oscillator Frequency does not conflict with any airfield/airport in the local area. If adequate safety standoff cannot be achieved an approved radiation protection structure should be provided to ensure safe operation in a confined area.

6.1.1.4.1 Ranges

Not Applicable

6.1.1.4.2 Maneuver Training Areas (MTA)

The ATNAVICS user will utilize existing ranges/maneuver areas during Field training Exercises (FTX) that are cost efficient and training effective. These maneuver areas provide realistic representations (scenario's designed by the user) and will provide realistic representation of the existing and projected threat, duplicate or replicate the time movement, and counter-measures.

6.1.1.4.3 Classrooms

- Institutional training will use existing classrooms.
- USAACE and CASCOM will require 2 each (4 total), complete ATNAVICS for institutional required Field Training Exercises 15Q10 and 94D10 courses.

6.1.1.4.4 CTCs

There are no Combat Training Center instrumentation and interface requirements beyond what is required to support participation in digitized exercises.

6.1.1.4.5 Logistics Support Areas

Existing hanger space will be used for institutional FTX staging area, hands-on system maintenance training, and storage of the ATNAVICS. Units are responsible for Storage and Staging areas for the ATNAVICS and securing all sensitive and pilferable items during storage of the system

6.1.1.4.6 Mission Command Training Centers (MCTC)

Not Applicable

6.1.1.5 Training Services

PM ATNAVICS is responsible for the New Equipment Training Plan (NETP):

- PM ATNAVICS must provide resources for the most cost-effective training program and strategies for leaders, staff, crews, and maintainers. These must be determined as early as possible in the program, and ensure that the training enables those Soldiers to achieve the performance levels required for the ATNAVICS and as specified in the requirement documents.
- Funding for training development of ATNAVICS equipment, TADSS for the training bases and the field is a PM ATNAVICS responsibility IAW AR 350-1.
- Embedded training will not adversely impact the operational requirements or capabilities of the system. The requirement should be identified early enough in the Life Cycle Management Model (LCMM) to be incorporated into prototype designs that analyze its capability to train individual tasks through force-level collective tasks, as required.
- PM ATNAVICS, with active participation by the DOTD/CASCOM training developers, will require the contractor to develop or update a complete training system, e.g., institutional training devices, simulators, IKPT, and NET. The system will contain (as a minimum) ETM's, and TSPs and courses (complete with digitized lesson plans, student and instructor guides).
- PM ATNAVICS will develop an Interactive Multimedia TSP consisting of instructor/operator and user training and manuals. The interactive multimedia TSP will include tutorial "how to" modules that permit audiences to be self-taught, where feasible, and include a diagnostic module that permits identification of DL in accordance with the SAT process that the government will validate during developmental and operational testing. PM ATNAVICS will update all training materials when a software update/upgrade occurs.
- The ATNAVICS NETP shall be developed via the Government Provided AMTAS Software IAW AR 350-1 and DA Pam 350-40.

6.1.1.5.1 Management Support Services

The ATNAVICS training subsystems will require management support services. These support services will be those that support or contribute to improved program management and sustainment for training programs. These services will include:

- Information management services (Army Training Information Management Program (ATIMP), and library and information repository services).
- Courseware management services (Intermediate Level Education (ILE) management, multimedia courseware management, and distributed learning management).
- Communicative technologies management (Department of the Army Multimedia Visual Information Production and Distribution Program (DAMVIPDP), Electronic Multimedia Information Capability (EMIC), and Visual Information/ Training Support Center VI/TSC management).
- Video Tele Training (VTT) program management.

The PM must coordinate funding for the life cycle of the ATNAVICS program management and sustainment for training programs. Standard Army management support services are available throughout the Army support system related to these requirements.

6.1.1.5.2 Acquisition Support Services

Acquisition support services will be needed to procure the ATNAVICS using appropriate contract vehicles. Contract management services and other contract vehicles are a standard provided system for support. ATNAVICS Product Manager must coordinate funding for the life cycle of the system.

6.1.1.5.3 General Support Services

The PM is responsible for coordinating Army or contractor support and funding for the required general support services throughout the life cycle of the ATNAVICS, and to ensure coordination to include any and all support items and or systems.

6.1.2 Architectures and Standards Component

ATNAVICS is part of an overall ATS capability which includes the MOTS, TAIS, and TTCS. Together these systems form a network of airspace information and aviation force protection capabilities across the operational environment. ATNAVICS serves as an enabler for aviation by providing precision aircraft deconfliction and airspace information services by voice and data radio transmissions to unified action aircraft operating from, to, and through its terminal airspace areas of responsibility. The ATNAVICS is collocated and electronically linked by landline and radio, and objectively by Local Area Network (LAN), with the MOTS to provide aircraft radar guidance and precision recovery capabilities from the edges of terminal airspace to the landing area. The ATNAVICS is electronically linked to the TAIS and objectively to the LAN to provide its radar data to populate the Common Operational Picture (COP) through the Global Information Grid (GIG). TAIS will also be the ATNAVICS' electronic link to Army Battle Command System (ABCS). When required by METT-TC, ATNAVICS will be electronically linked to joint, multinational, and civil ATC systems and facilities to coordinate and transfer responsibility for aircraft in the various stages of flight. A seamless, electronic linkage between Army ATS systems should be facilitated by an ATS network as an objective capability. An ATS network capability will enable cooperative ATS systems to effectively operate without dependency on competitive, non-ATS network resources and bandwidth.

6.1.2.1 Operational View (OV)

The ATNAVICS' provides ground control approach radar for an airfield and its surrounding airspace within the Division and Theater areas of responsibility. The ATS provided includes surveillance radar, secondary surveillance radar, precision approach radar and procedural sequencing and separation of arriving aircraft, coordinating the IMC recovery of aircraft, and coordinating in-flight emergencies and personnel recovery actions. The ATNAVICS will be assigned to the ATS Co and AOB of the CAB and TAOG. The ATC tower will be collocated and electronically linked by landline and radio with the ATNAVICS to provide aircraft terminal and ground control guidance within landing area. The ATNAVICS will be electronically linked to the Airspace Information Center (AIC), the area enroute airspace manager and AC2 facilitator, and the MOTS to provide the air tracks for planning and airspace management information that could affect the terminal airspace. The AIC will be the Tower's and ATNAVICS electronic link to ABCS. When required by METT-TC, the ATNAVICS will be electronically linked to Unified Action ATC systems and facilities to coordinate and transfer responsibility for aircraft in the various stages of flight. The ATNAVICS will also be tasked with the rapid restoral of air terminal operations during civil support and stability operations.

6.1.2.2 Systems View (SV)

The ATNAVICS will be a key player in the US Army's net-centric battlefield and the products associated with this architecture depict the current operational activities, information exchanges, and systems functionality required in the tactical employment of ATNAVICS.

6.1.2.3 Technical View (TV)

The ATNAVICS will be Joint Technical Architecture (JTA) compliant. The ATNAVICS embedded training should incorporate defined technical standards, implementation conventions, business rules and criteria that govern the architecture.

6.1.3 Management, Evaluation, and Resource (MER) Processes Component

1. USAACE and CASCOM SID are responsible for managing the training requirements for the proponent schools.
2. Periodic reviews of course POI and lessons plans will be conducted to ensure the most up to date and relevant information is taught in training facilities. The proponent will ensure that unit supply personnel are familiar with the ALP warranty program (found in the Technical Manual) which is as follows:
 - The ATNAVICS warranty for the product purchased is detailed in full in the applicable Government contract. The ATNAVICS is covered under a one year Manufactures Warranty from date of Issue. Following warranty period the ATNAVICS will be maintained using either the current two level maintenance system or PBL. PM CBA is still being conducted.
 - If the inspection or test reveals defects covered by the warranty, the manufacturer will repair or replace the unit at the discretion of the manufacturer.
 - If the manufacturer determines that the unit is not defective or not covered by warranty, the Program Manager will be notified for action.
 - The warranty does not extend to any unit which: (1) has been subject to misuse or neglect.
 - The manufacturer will not be responsible for the costs of repairs performed by and/or replacement parts or material supplied by anyone other than the manufacturer.
 - Warranty repairs are provided at no charge on qualified systems.
3. MACOM is responsible for reserving resources to cover the cost of non-warranty repairs and replacements, including shipping cost.

6.1.3.1 Management

Where possible, ATNAVICS will use existing facilities and support infrastructure. The staff training estimate in support of ATNAVICS will focus on the most efficient use of existing resources and precisely identify and quantify any expected shortfalls. Training development will focus on producing products that are capable of being used both in the institution and operational use. Students and evaluators will be routinely asked to evaluate training events and products to determine how best to improve the quality and efficiency of instruction while maximizing available resources.

6.1.3.1.1 Strategic Planning

Planning will be conducted in accordance with:

- National Defense strategies
- Joint Vision 2020
- Army Transformation Campaign Plan (ATCP)
- TRADOC plan
- USAACE Campaign Plan

6.1.3.1.2 Concept Development and Experimentation (CD&E)

The ATNAVICS concept is already proven as this system is a replacement and upgrade to the AN/TSQ-71B, Landing Control Central.

6.1.3.1.3 Research and Studies

Training Support System (TSS) efforts have no impact on the research and studies of the ATNAVICS.

6.1.3.1.4 Policy and Guidance

The following documents are to provide guidance and direction for the TSS:

- AR 350-1 and AR 350-38
- TRADOC Regulations 350-70 and 71-20
- TRADOC Pamphlet 525-8-2 w/C1 06Jun2011

6.1.3.1.5 Requirements Generation

The following documents support requirements generated during the JCIDS process for the ATNAVICS system.

- ORD (8 Nov 99)
- CPD (23 Sep 09)
- STRAP

6.1.3.1.6 Synchronization

The fielding of ATNAVICS will be synchronized with the following as applicable to ensure that NET occurs as units are fielded and with the following considerations:

- TADSS Distribution Plans
- Power projection platforms
- Training institutions
- RSO sites

6.1.3.1.7 Joint Training Support

There are no initiatives that support the alignment of the Army TSS with joint training support emplaced at this time.

6.1.3.2 Evaluation

The USAACE QAO will conduct periodic internal and external course and training evaluations.

6.1.3.2.1 Quality Assurance (QA)

QA plans will be utilized IAW each installation's existing QA plan to ensure proper course auditing is complete.

6.1.3.2.2 Assessments

POST-FIELDING TRAINING EFFECTIVENESS ANALYSIS (PFTEA). When resources permit and USAACE has the manpower to support the PFTEA processes, a PFTEA will be conducted not later than 18 months after First Unit Equipped (FUE). The WARMOD Branch, DOTD, USAACE and CASCOM Training Developers will conduct the analysis with the assistance from the Directorate of Evaluation and Standardization, Fort Rucker, AL. The analysis will be conducted using a written survey developed by the NETT and selected ATNAVICS SMEs. The survey will be distributed to units fielded the ATNAVICS and will recognize the need for product or training improvements. The analysis includes coordinating the evaluations of POIs, LPs, personnel selection criteria, and Situation Training Exercises (STXs). The NETT analysis, of demonstrated skills by unit personnel provides data for the evaluation. The data collected by the NETT and the results of the analysis will be staffed throughout USAACE and CASCOM. The PFTEA will recognize the need for product improvements and training improvements if required.

6.1.3.2.3 Customer Feedback

The following tools will be used to seek and receive feedback

- Written surveys
- Interviews
- Focus groups
- Questionnaires

6.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

AARs will be used as described above to provide course material, as well as functional use evaluations. The Center for Army Lessons Learned (CALL) documentation will be analyzed for lessons learned from the field and incorporated into ATNAVICS training as needed.

Civilian		5 MY					
Enlisted		2 MY					
Contract/Spt							
Trvl/Per Diem							
Classrooms							
Equipment Shipping							
AC/DC Power							
Printing							
Other							

Rationale: Each NET will be conducted with each fielding at a cost of \$18,000 per NET for Travel/ Per diem.

Item Resourced	Prior	FY14 Yrs or \$K	FY15 Yrs or \$K	FY16 Yrs or \$K	FY17 Yrs or \$K	FY18 Yrs or \$K	FY19 Yrs or \$K
<u>Training Products</u>							
Training Pubs							
TSP							
IMI							
ETM							
STP							
IETM							
ARTEP/MTP							
Printing							
Distribution							

Rationale:

7.0 Operational Training Domain

The operational domain encompasses training activities that individuals, units and organizations undertake. These activities include training conducted at home station, during major training events (to include Joint exercises) at combat training centers and other locations (to include mobilization centers), and while operationally deployed. Unit leaders are responsible for the proficiency of their subordinates (Soldiers and Army civilians), subordinate leaders, teams/crews, and the unit as a whole. The objective of Operational Training continues to the combat readiness of the unit to provide lethal brigade combat teams to supporting units with versatile, agile, and knowledgeable battle staffs.

7.1 Operational Training Concept and Strategy

Unit training will be conducted initially through NET when ATNAVICS is fielded. All NET training materials will be provided to the unit so that the unit can develop its sustainment training program. Unit sustainment training will be conducted on two levels, individual and collective, and will be progressive from initial to sustainment. Each ATNAVICS will have an on-board Embedded Training (ET) capability to allow sustainment training in either a garrison or field environment. Collective training skills will be acquired and sustained through repetitious application of crew drills, STX, CPX, FTX, the Combined Arms Training Strategy (CATS) and similar exercises, achieving RL standard progression.

7.1.1 Product Lines

Product lines will consist of hardware, software, publications, courses, lessons, training aids, training facilities and management services that will provide the capabilities that trainers and Soldiers need to train in the operational domain.

Required Unit Product lines are listed briefly below:

- Training Devices: The system will be used in the training of Soldiers in the Unit
- Simulators: ATC Common Simulator (ACS)

7.1.1.1 Training Information Infrastructure

ATNAVICS training infrastructure will require the use of the following items:

- Training Development Capability (TDC) or its TRADOC approved replacement

Department of Defense (DOD) standards such as Sharable Content Object Reference Model (SCORM), and Army Training Information Architecture-Migrated (ATIA-M) will be implemented in the design and development of the TSS products. ATNAVICS Life Cycle Support will include training, training software and courseware design that will be developed in a reusable and maintainable format, i.e., SCORM compliant. PM A TNAVICS is responsible for the funding of support tools, personnel training, training equipment, and Associated Support Items of Equipment (ASIOE) to support the training base for CASCOM and USAACE. The amount is dependent upon availability and accuracy of Qualitative and Quantitative Personnel Requirements Information (QQPRI). Digital Training Management System (DTMS) Combined Arms Training Strategies (CATS) will also be used.

7.1.1.1.1 Hardware, Software, and Communications Systems

The ATNAVICS will provide digital connectivity to TAIS and BC systems through LAN, Tactical Packet Network (TPN) access, and data capable radios. The PM will provide life-cycle software support for ATNAVICS.

7.1.1.1.2 Storage, Retrieval, and Delivery

Digital access and storage of ATNAVICS operational training and information will be made available through one or more of the following locations:

- Army Training Network (ATN)
- The Central Army Registry (CAR)
- Army Learning Management System (ALMS)

7.1.1.1.3 Management Capabilities

ATNAVICS training products and information will be managed through the Digital Training Management System (DTMS) , DL , and the Automated Instructional Management System Personal Computer (AIMS-PC), and the Training Development Capability (TDC) Software.

7.1.1.1.4 Other Enabling Capabilities

Additional capabilities for the Mobile Tower System include:

- Joint Training Information Management System (JTIMS)
- Command, Control, Communications, and Computers Intelligence, Surveillance, Reconnaissance (C4ISR)
- Lifelong Learning

7.1.1.2 Training Products

Operational training will be accomplished with the NET TSP, including the IMI TSP and is to be left with the unit following NET. Embedded training will be an integral part of the ATNAVICS training and leader development strategies. The embedded operator training intent is for ATNAVICS to provide an ATC radar simulated environment to be used for controller skills task qualification and proficiency training when live air traffic is not present at the airfield serviced by the ATNAVICS.

7.1.1.2.1 Courseware

Operational courseware developed for the ATNAVICS will contain instructional packages such as Computer Aided Instruction (CAI), Computer Based Instruction (CBI), Computer Managed Instruction (CMI), Interactive Courseware, (ICW) and Interactive Multimedia Instruction (IMI) to support and sustain operational training at home-station or while deployed. These instructional packages will be accessible through Army DL, ALMS and Army Training Network (ATN), the Digital Training Management System (DTMS) and the Central Army Registry (CAR).

7.1.1.2.2 Courses

Course Name	Course Number
Initial Military Training	
Air Traffic Control Operator	222-15Q10
Air Traffic Control Equipment Repairer	102-94D10
Air Traffic and Airspace Management Technician	2G-150A
Electronic Systems Maintenance Technician	4F-948B
Professional Military Education (PME)	
ATC Operator Advanced Leaders Course (ALC)	222-15Q30-C45

ATC Operator Senior Leaders Course (SLC)	222-15Q40-C46
Functional And ASI	
Mobilization	

7.1.1.2.3 Training Publications

Publications	Publication Date
Field Manuals	
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7.1.1.2.4 TSP

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7.1.1.3 TADSS

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The PM in cooperation with TPO-AB Combat Developers have agreed to an incremental approach to a fully embedded training capability. In this incremental approach the ATC Common Simulator (ACS) will be used as Stand Alone TADSS Device assigned to the system. The ACS has the capability to train on Tower, ATNAVICS Radar and TAIS operations. The system will be capable of being interlinked with other aviation simulators to run scenarios with all facilities involved.

7.1.1.3.4 Simulations

Simulations will support Equipment Training (ET), institutional and sustainment training and will include both individual and unit level training exercises which can be linked into an Army, Joint and combined training environment. This will allow all levels of operator and system managers to conduct training and evaluation. PEO-STRI will be incorporated into the process and upgrade developments of all simulation systems to meet the needs of the Integrated Training and T&E environments. The PM is responsible for development, integration, and life cycle management of TADSS IAW AR 350-38.

7.1.1.3.5 Instrumentation

The Materiel Developer will ensure that the ATNAVICS will have the capabilities to integrate with ABCS systems as well as CTC facilities. This will allow the system to be placed into operation during battle simulations and virtual training centers use as well as CTC exercises. Interactive Multimedia Instruction (IMI) on the AN/TPN-31 ATNAVICS will be developed to support Institutional, Operational and Self Development Training.

7.1.1.4 Training Facilities and Land

At the operational level, the ATNAVICS training will be conducted at the homestation facilities, classrooms, training areas, CTCs, and land that support training.

7.1.1.4.1 Ranges

The ATNAVICS does not require any unique range, complex, course or areas to perform and train its mission.

7.1.1.4.2 Maneuver Training Areas (MTA)

The ATNAVICS user will utilize existing maneuver areas that are cost efficient and training effective. These maneuver areas provide realistic representations (scenario's designed by the user) and will provide realistic representation of the existing and projected threat, duplicate or replicate the time movement, and counter-measures. Existing maneuver areas are environmentally non-destructive and support live or simulated fires. Every effort should be made to exercise/utilize the ATNAVICS capabilities in a simulated environment, a live Situational Training Exercise (STX), or Field Training Exercise (FTX).

7.1.1.4.3 Classrooms

N/A

7.1.1.4.4 CTCs

ATNAVICS must have the operational capability to fully integrate with CTCs. This capability must ensure the system can participate in realistic joint and combined arms training within the four primary training centers.

- National Training Center (NTC)
- Joint Readiness Training Center (JRTC)
- Combat Maneuver Training Center (CMTC)
- Mission Command Training Program (MCTP)

7.1.1.4.5 Logistics Support Areas

Logistics support areas are facilities used for logistics processing, support, storage and staging. The home station unit is responsible for storing training devices and systems, both classified and unclassified.

7.1.1.4.6 Mission Command Training Centers (MCTC)

Not Applicable

7.1.1.5 Training Services

- PM ATC is responsible for the New Equipment Training Plan (NETP). The USAACE and CASCOM training developers will input the appropriate training requirements into the System Training Plan (STRAP).
- PM ATC must provide resources for the most cost-effective training program and strategies for leaders, staff, crews, and maintainers.

7.1.1.5.1 Management Support Services

Training Management and support services will be provided by Air Traffic Services Command (ATSCOM) Inspection and QA Teams. Courseware Management Services will be provided and sustained by USAACE and TRADOC agencies. PM ATC is responsible to ensure the any and all software and hardware updates and changes are updated and provided to the Proponent for incorporation into the Course Management System.

7.1.1.5.2 Acquisition Support Services

No requirements for acquisition support services at the operational level.

7.1.1.5.3 General Support Services

The PM is responsible for coordinating Army or contractor support and funding for the required general support services throughout the life cycle of the ATNAVICS.

7.1.2 Architectures and Standards Component

ATNAVICS is part of an overall ATS capability which includes the MOTS, TAIS, and TTCS. Together these systems form a network of airspace information and aviation force protection capabilities across the operational environment. ATNAVICS serves as an enabler for aviation by providing precision and non-precision aircraft deconfliction and airspace information services by voice and data radio transmissions to unified action aircraft operating from, to, and through its airfield and terminal airspace areas of responsibility. The ATNAVICS is collocated and electronically linked by landline and radio, and objectively by LAN, with the MOTS to provide aircraft radar guidance and precision recovery capabilities from the edges of terminal airspace to the landing area. Additionally the ATNAVICS is electronically linked to the TAIS and MOTS, to provide air tracks for mission planning and airspace control that could affect the terminal airspace. When required by METT-TC, ATNAVICS will be electronically linked to joint, multinational, and civil ATC systems and facilities to coordinate and transfer responsibility for aircraft in the various stages of flight. A seamless, electronic linkage between Army ATS systems should be facilitated by an ATS network as an objective capability. An ATS network capability will enable cooperative ATS systems to effectively operate without dependency on competitive, non-ATS network resources and bandwidth.

7.1.2.1 Operational View (OV)

The ATNAVICS' provides ground control approach radar for an airfield and its surrounding airspace within the Division and Theater areas of responsibility. The ATS provided includes surveillance radar, secondary surveillance radar, precision approach radar and procedural sequencing and separation of arriving aircraft, coordinating the IMC recovery of aircraft, and coordinating in-flight emergencies and personnel recovery actions. The ATNAVICS will be assigned to the ATS Co and AOB of the CAB and TAOG. The ATC tower will be collocated and electronically linked by landline and radio with the ATNAVICS to provide aircraft terminal and ground control guidance within landing area. The Airspace Information Center (AIC), the area enroute airspace manager and AC2 facilitator, will be electronically linked to the ATNAVICS to provide the air picture for planning and airspace management information that could affect the terminal airspace. The AIC will also be the Tower's and ATNAVICS electronic link to ABCS. When required by METT-TC, the ATNAVICS will be electronically linked to Unified Action ATC systems and facilities to coordinate and transfer responsibility for aircraft in the various stages of flight. The ATNAVICS will also be tasked with the rapid restoration of air terminal operations during civil support and stability operations.

7.1.2.2 Systems View (SV)

The ATNAVICS will be a key player in the US Army's net-centric battlefield and the products associated with this architecture depict the current operational activities, information exchanges, and systems functionality required in the tactical employment of ATNAVICS.

7.1.2.3 Technical View (TV)

The ATNAVICS will be Joint Technical Architecture (JTA) compliant. The ATNAVICS embedded training should incorporate defined technical standards, implementation conventions, business rules and criteria that govern the architecture.

7.1.3 Management, Evaluation, and Resource (MER) Processes Component

The following sections (7.1.3.1 thru 7.1.3.3) identify and describe the MER processes required for the ATNAVICS in the operational domain.

7.1.3.1 Management

Where possible, ATNAVICS will use existing facilities and support infrastructure. The staff training estimate in support of ATNAVICS will focus on the most efficient use of existing resources and precisely identify and quantify any expected shortfalls. Training development will focus on producing products that are capable of being used both in the institution and operational use. Students and evaluators will be routinely asked to evaluate training events and products to determine how best to improve the quality and efficiency of instruction while maximizing available resources.

7.1.3.1.1 Strategic Planning

Planning will be conducted in accordance with:

- National Defense strategies
- Joint Vision 2020
- Army Transformation Campaign Plan (ATCP)
- TRADOC plan
- USAACE Campaign Plan

7.1.3.1.2 Concept Development and Experimentation (CD&E)

The ATNAVICS concept is a replacement and upgrade to the AN/TSQ-71B, Landing Control Central.

7.1.3.1.3 Research and Studies

No requirements for research and studies at the operational level.

7.1.3.1.4 Policy and Guidance

Not applicable at the operational level

7.1.3.1.5 Requirements Generation

The following documents support requirements generated during the JCIDS process for the ATNAVICS system.

- CDD
- ORD
- STRAP

7.1.3.1.6 Synchronization

The fielding of ATNAVICS will be synchronized with the following as applicable to ensure that NET occurs as units are fielded and with the following considerations:

- TADSS Distribution Plans
- Power projection platforms
- Training institutions
- RSO sites

7.1.3.1.7 Joint Training Support

N/A

7.1.3.2 Evaluation

The Air Traffic Services Command (ATSCOM) will conduct periodic internal and external course and training evaluations

7.1.3.2.1 Quality Assurance (QA)

N/A

7.1.3.2.2 Assessments

POST-FIELDING TRAINING EFFECTIVENESS ANALYSIS (PFTEA). When resources permit and USAACE has the manpower to support the PFTEA processes, a PFTEA will be conducted not later than 18 months after First Unit Equipped (FUE). The WARMOD Branch, DOTD, USAACE and CASCOM Training Developers will conduct the analysis with the assistance from the Directorate of Evaluation and Standardization, Fort Rucker, AL. The analysis will be conducted using a written survey developed by the NETT and selected ATNAVICS SMEs. The survey will be distributed to units fielded the ATNAVICS and will recognize the need for product or training improvements. The analysis includes coordinating the evaluations of POIs, LPs, personnel selection criteria, and Situation Training Exercises (STXs). The NETT analysis, of demonstrated skills by unit personnel provides data for the evaluation. The data collected by the NETT and the results of the analysis will be staffed throughout USAACE and CASCOM. The PFTEA will recognize the need for product improvements and training improvements if required.

7.1.3.2.3 Customer Feedback

The following tools will be used to seek and receive feedback; written surveys, interviews, focus groups, and questionnaires.

7.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

AARs will be used as described in paragraph 6.1.3.2.3 above to provide feedback on course material, as well as functional use evaluations. The Center for Army Lessons Learned (CALL) documentation will be analyzed for lessons learned from the field and incorporated into ATNAVICS training as needed.

7.1.3.3 Resource Processes

Not applicable at the operational level

8.0 Self-Development Training Domain

Paragraphs 8.1 thru 8.1.3 discuss the Mobile Tower System in the Self Development Domain

8.1 Self-Development Training Concept and Strategy

This strategy applies to all ATNAVICS operators and maintainers. Learning is a lifelong process. Institutional, organizational, and operational training alone cannot provide the insight, intuition, imagination, and judgment needed in combat. This requires commanders at all levels to create an environment that encourages subordinates to establish personal and professional development goals. Further refinement of those interests should occur through personal mentoring by commanders and first line leaders. Conduct of battle-focused officer and NCO professional development programs are essential to leader development. Exploiting reach-back, distributed learning, and continuing education technologies support these programs. PM will provide exportable Interactive Multimedia Instruction (IMI), DL and train-the-trainer material. These items will be packaged so that individual Soldiers can conduct self-taught, self-paced learning. The package will monitor the Soldier's progress and level of understanding. The training will include IMI and computer based training (CBT) to provide the student with virtual hands on experience. The training will encompass both operator and maintainer training.

8.1.1 Product Lines

Product lines will consist of hardware, software, publications, courses, lessons, training aids, training facilities and management services that will provide the capabilities that trainers and Soldiers need to train in the institution, operational, and self-development domains.

8.1.1.1 Training Information Infrastructure

The ATNAVICS will be equipped with state-of-the-art secure and jam-resistant voice and data communications systems to coordinate and disseminate air information. The communication system must comply with the JTA, JTA-A, and DISR with DII COE (Level 6 - Threshold and Level 8 - Objective) and NCES.

8.1.1.1.1 Hardware, Software, and Communications Systems

N/A

8.1.1.1.2 Storage, Retrieval, and Delivery

Access and storage of ATNAVICS training and information will be made available through one or more of the following locations:

- Training Development Capability Database (TDC)
- The Army Learning Management System (ALMS)
- Army Training Network (ATN)
- The Central Army Registry (CAR)

8.1.1.1.3 Management Capabilities

Not applicable at the operational level

8.1.1.1.4 Other Enabling Capabilities

None at this time.

8.1.1.2 Training Products

Trainers and Soldiers will have the same access to training products as explained in paragraph 6.1.1.2 and 7.1.1.2 for self-development.

8.1.1.2.1 Courseware

Trainers and Soldiers will have the same access to training products as explained in paragraph 6.1.1.2.1 and 7.1.1.2.1 for self-development.

8.1.1.2.2 Courses

Trainers and Soldiers will have access to dL courses that will further their self-development of the ATNAVICS. Courses include:

- Army Correspondence Courses
- Civilian Education Courses
- Functional Courses
- Specialty Courses

8.1.1.2.3 Training Publications

All training materials, publications and technical manuals must be available through the Army publications system in both hard copies and digital formats.

8.1.1.2.4 Training Support Package (TSP)

Not applicable at the self-development level.

8.1.1.3 Training Aids, Devices, Simulators and Simulations (TADSS)

Operational TADDS at the unit and TASC will be the primary source for trainers and Soldiers to further self-development.

8.1.1.3.1 Training Aids

Operational TADDS at the unit and TASC will be the primary source for trainers and Soldiers to further self-development

8.1.1.3.2 Training Devices

Operational TADDS at the unit and TASC will be the primary source for trainers and Soldiers to further self-development.

8.1.1.3.3 Simulators

Not accessible at the self-development level.

8.1.1.3.4 Simulations

Not accessible at the self-development level.

8.1.1.3.5 Instrumentation

Not applicable at the self-development level.

8.1.1.4 Training Facilities and Land

Not accessible at the self-development level.

8.1.1.4.1 Ranges

Not applicable

8.1.1.4.2 Maneuver Training Areas (MTA)

Not accessible at the self-development level.

8.1.1.4.3 Classrooms

Not accessible at the self-development level.

8.1.1.4.4 CTCs

Not accessible at the self-development level.

8.1.1.4.5 Logistics Support Areas

Not accessible at the self-development level.

8.1.1.4.6 Mission Command Training Centers (MCTC)

Not applicable

8.1.1.5 Training Services

Not applicable at the self-development level

8.1.1.5.1 Management Support Services

Not applicable at the self-development level

8.1.1.5.2 Acquisition Support Services

Not applicable at the self-development level

8.1.1.5.3 General Support Services

Not applicable at the self-development level

8.1.2 Architectures and Standards Component

Not applicable at the self-development level

8.1.2.1 Operational View (OV)

Not applicable at the self-development level

8.1.2.2 Systems View (SV)

Not applicable at the self-development level

8.1.2.3 Technical View (TV)

Not applicable at the self-development level

8.1.3 Management, Evaluation, and Resource (MER) Processes Component

Not applicable at the self-development level

8.1.3.1 Management

Not applicable at the self-development level

8.1.3.1.1 Strategic Planning

Not applicable at the self-development level

8.1.3.1.2 Concept Development and Experimentation (CD&E)

Not applicable at the self-development level

8.1.3.1.3 Research and Studies

Not applicable at the self-development level

8.1.3.1.4 Policy and Guidance

Not applicable at the self-development level

8.1.3.1.5 Requirements Generation

Not applicable at the self-development level

8.1.3.1.6 Synchronization

Not applicable at the self-development level .

8.1.3.1.7 Joint Training Support

Not applicable at the self-development level

8.1.3.2 Evaluation

Not applicable at the self-development level

8.1.3.2.1 Quality Assurance (QA)

Not applicable at the self-development level

8.1.3.2.2 Assessments

Not applicable at the self-development level

8.1.3.2.3 Customer Feedback

The following tools will be used to seek and receive feedback; written surveys, interviews, focus groups, and questionnaires.

- Electronic media for surveys, help desks, collaboration
- Interviews
- Focus Groups

8.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

AARs will be used as described above to provide course material, as well as functional use evaluations.

8.1.3.3 Resource Processes

Not applicable at the self-development level.

A Milestone Annex

ANNEX A

Training Development Milestone Schedules

This annex contains one TRADOC Form 569-R-E, Sheet A, and five TRADOC Forms, 569-1-R-E, Sheet B, on:

- Individual Training 15Q10
- Individual Training 94D10
- Operator and Maintainer Training Simulator
- TADSS-Operator/ Maintainer
- Desktop Flight Trainer/TMI

ANNEX A

TRAINING DEVELOPMENT MILESTONE SCHEDULE - SHEET A		PAGE 1 OF 1 PAGES	REQUIREMENTS CONTROL SYMBOL	
SYSTEM ATNAVICS	ACAT 3	OFFICE SYMBOL ATZQ-TDT-N	AS OF DATE 1 July 2014	
POINTS OF CONTACT	NAME	OFFICE SYMBOL	TELEPHONE	
MATERIEL COMMAND	PEO Aviation PM ATC	SFAE-AV-AS-ATC	256-955-9008 DSN: 645	
TRADOC PROPONENT	USAACE			
	CD: Mr. Tim Clubb	ATZQ-CDM-T	334-255-3973 DSN: 558	
	ID: SPC Carlos J. Negron	ATZQ-TDT-N	334 255-9656 DSN: 558	
SUPPORTING PROPONENTS:				
	CASCOM			

		CD: Mr. Ronnie Custis	ATCL-TS	804-765-1616 DSN: 687
		TD: SSG Rodney Hudson	ATCS-TSS	804-765-2550 DSN: 539
ITEM	DATE	RESPONSIBLE AGENCY/POC		TELEPHONE
SMMP:	12 Aug 05	PM ATC	Mr. Will Knapp	256-313-2530 DSN: 897
ORD:	29 Nov 92	USAACE CRD	Mr. Tim Clubb	334-255-3973 DSN: 558
ILSMP:	24 Sep 07	PM ATC	Mr. Terry Wingo	256-876-4104 DSN: 746
Threat TSP:	17 Sep 07	USAACE CRD	Mr. Bob Overton	334-255-1392 DSN: 558
QQPRI:	31 May 07	PM ATC	Mr. Will Knapp	256-313-2530 DSN: 897
BOIP:	25 Sep 13	PM ATC	Mr. Terry Wingo	256-876-4104 DSN: 746
NETP:		PM ATC	Mr. Will Knapp	256-313-2530 DSN: 897
COMMENTS: NONE				

SYSTEM MILESTONE SCHEDULE SHEET B					PAGE 1 OF 5 PAGES			
SYSTEM Air Traffic Navigation, Integration and Coordination System					TRADOC SYMBOL ATZQ			
TRAINING PACKAGE								
ELEMENT/PRODUCT: Institutional Training 15Q Operator								
LEGEND	MILESTONES BY FY							
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Course Starts				x				
Lesson Plans Completed		x						
POI Submitted			x					
CAD Submitted	x							
DTT Completed		x						
ITP Submitted	x							
DL			x					
ATNAVICS Simulator			x					
Simulator V & V			x					
NOTES: N/A								

SYSTEM MILESTONE SCHEDULE SHEET B					PAGE 2 OF 5 PAGES			
SYSTEM Air Traffic Navigation, Integration and Coordination System					TRADOC SYMBOL ATZQ			
TRAINING PACKAGE								
ELEMENT/PRODUCT: Institutional Training 94D Maintainer Training								
LEGEND	MILESTONES BY FY							
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Course Starts				x				
Lesson Plans Completed			x					
POI Submitted			x					
CAD Submitted	x							
Distance Learning			x					
NOTES: N/A								

SYSTEM MILESTONE SCHEDULE SHEET B					PAGE 3 OF 5 PAGES			
SYSTEM Air Traffic Navigation, Integration and Coordination System					TRADOC SYMBOL ATZQ			
TRAINING PACKAGE								
ELEMENT/PRODUCT: Operator and Maintainer Training Simulator								
LEGEND	MILESTONES BY FY							
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
ATNAVICS Simulator	x							
NOTES: N/A								

TRADOC FORM 569-1-R-E, Aug 89

SYSTEM MILESTONE SCHEDULE SHEET B					PAGE 4 OF 5 PAGES			
SYSTEM Air Traffic Navigation, Integration and Coordination System					TRADOC SYMBOL ATZQ			
TRAINING PACKAGE ELEMENT/PRODUCT: TADSS Operator Maintainer								
LEGEND	MILESTONES BY FY							
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
TADSS Operator/Maintainer		x						
VAL/VER		x						
TADSS Upgrades					x			
NOTES: N/A								

TRADOC FORM 569-1-R-E, Aug 89

SYSTEM MILESTONE SCHEDULE SHEET B					PAGE 5 OF 5 PAGES			
SYSTEM Air Traffic Navigation, Integration and Coordination System					TRADOC SYMBOL ATZQ			
TRAINING PACKAGE								
ELEMENT/PRODUCT: Desktop Flight Trainer/IMI								
LEGEND	MILESTONES BY FY							
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Simulator Final Version					x			
VAL/VER				x				
IMI				x				
VAL/VER				x				
Upgrades					x			
NOTES: N/A								

TRADOC FORM 569-1-R-E, Aug 89

B References

The following references pertain to the operational testing and subsequent fielding of ATNAVICS:

1. ATNAVICS
ORD 29 Nov 92
2. ATNAVICS
CPD Pending
3. System MANPRINT Management Plan 12 Aug 05
4. Basis of Issue Plan
(BOIP) 25 Sep 13
5. New Equipment Training Plan (NETP) Number In Review

ATNAVICS CPD

C Coordination Annex

Organization/POC (Date)	Summary of Comments Submitted (A/S/C)			Comments Accepted/ Rejected						Rationale for Non-Acceptance - S, C
				Accepted			Rejected			
	A	S	C	A	S	C	A	S	C	
v2.2.2 James E Baker 2014/10/07 - 2014/10/17	Document Accepted As Written			0	0	0	0	0	0	-
v2.2.1 Approvals - Michael P Donohue 2014/10/03 - 2014/10/13	Document Accepted As Written			0	0	0	0	0	0	-
v2.2.1 Approvals - Robert A Story 2014/10/03 - 2014/10/13	Document Accepted As Written			0	0	0	0	0	0	-
v2.2 Army - USAACE - Aviation School 2014/09/02 - 2014/10/02	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - PM-UAS 2014/09/02 - 2014/10/02	No Comments Submitted			0	0	0	0	0	0	-
v2.2 Army - PEO-STRI Customer Support Group 2014/09/02 - 2014/10/02	Document Accepted As Written			0	0	0	0	0	0	-
v2.2 Army - PEO Aviation 2014/09/02 -	No Comments Submitted			0	0	0	0	0	0	-

v2.1 Peer - PM-UAS 2014/07/24 - 2014/08/23	No Comments Submitted			0	0	0	0	0	0	-
v2.1 Peer - PEO-STRI Customer Support Group 2014/07/24 - 2014/08/23	Document Accepted As Written			0	0	0	0	0	0	-
v2.1 Peer - MSCoE - MANSCEN 2014/07/24 - 2014/08/23	Document Accepted As Written			0	0	0	0	0	0	-
v2.1 Peer - MCoE - Infantry & Armor School 2014/07/24 - 2014/08/23	7	0	0	6	0	0	1	0	0	
v2.1 Peer - ICoE - Mil Intelligence School 2014/07/24 - 2014/08/23	8	3	0	3	0	0	5	3	0	
v2.1 Peer - FCoE- ADA School 2014/07/24 - 2014/08/23	4	0	0	4	0	0	0	0	0	
v2.1 Peer - FCoE - Field Artillery 2014/07/24 - 2014/08/23	Document Accepted As Written			0	0	0	0	0	0	-
v2.1 Peer - CYBER CoE - Signal School 2014/07/24 - 2014/08/23	Document Accepted As Written			0	0	0	0	0	0	-
v2.1 Peer - ATSC										

Fielded Devices 2014/07/24 - 2014/08/23	No Comments Submitted	0	0	0	0	0	0	-
v2.1 Peer - Aerial ISR Systems 2014/07/24 - 2014/08/23	No Comments Submitted	0	0	0	0	0	0	-

Key
Completed Review with Comments
Completed Review, No Comments
Active Review Occurring

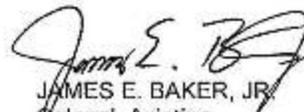
ATZQ-TD

OCT 07 2014

MEMORANDUM FOR RECORD

SUBJECT: Approval of the System Training Plan (STRAP) for the Air Traffic Navigation, Integration and Coordination System (ATNAVICS) Update, Version 2.2

1. Reference: System Training Plan Version 2.2, Air Traffic Navigation, Integration and Coordination Systems (ATNAVICS) Update.
2. The STRAP for the ATNAVICS is approved. Approved STRAP will be posted to the Central Army Registry (CAR) website. This STRAP can be found at the following web address: <http://www.adtdl.army.mil/>.
3. The USAACE DOTD POC for this action is: Mr. Andrew Lecuyer, 334-255-2584 DSN (558) email: andrew.b.lecuyer.civ@mail.mil, U.S. Army Aviation Center of Excellence, ATTN: ATZQ-TDT-N, Fort Rucker, AL 36362-5202.



JAMES E. BAKER, JR.
Colonel, Aviation
Director of Training and Doctrine

Approval Memorandum for ATNAVICS Update STRAP