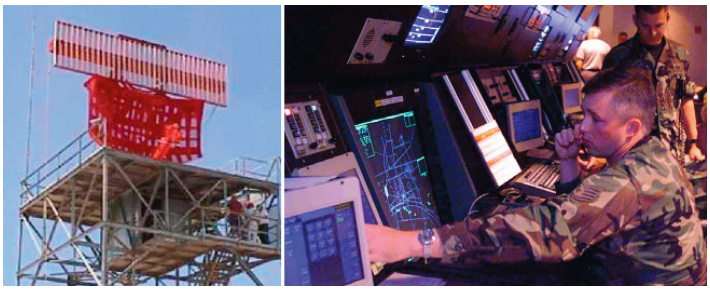
National Airspace System (NAS)

Executive Summary
- The Department of Defense National Airspace System (DoD NAS) requires detailed adaptations appropriate to each individual deployment location to achieve operational effectiveness.
- The DoD NAS requires the accomplishment of additional program improvements to achieve its full operational military capability.
- Follow-on operational test and evaluation of the DoD NAS is anticipated to occur in 2008-2009.

System
- The DoD NAS is a joint effort with the Federal Aviation Administration (FAA) to upgrade the operational Air Traffic Control (ATC) equipment, supporting system radar, and approach control.
- The DoD NAS ties the air traffic controller, military air crews, and ground personnel into an integrated operational communications network.
- The DoD Advanced Automation System (DAAS) and the Digital Airport Surveillance Radar (DASR) are components of the NAS modernization and are scheduled to be installed at 93 military airfields.
- DoD NAS includes the Voice Communication Switching System (VCSS), which was approved for full-rate production in November 1999.



Mission
- Military air traffic controllers use the DoD NAS to accomplish their mission of safe and effective air traffic operations and ensure the seamless conduct of air traffic control for aircraft transitioning between military and FAA-controlled airspace.
- The DoD NAS also provides military forces the capability to develop and sustain wartime readiness for operational airspace, air crews, air traffic controllers, and maintainers.
- The ATC facilities in the continental United States that are equipped with DoD NAS prepare controller and maintenance personnel for wartime deployment and extended overseas military operations.
- DAAS, DASR, and VCSS provide interoperability with the FAA ATC systems and ensure that DoD ATC service is available for civil and military operations, combat readiness training, and management of assigned airspace.

Activity
- The Air Force Operational Test and Evaluation Center (AFOTEC) conducted the DoD NAS Multi-Service Operational Test and Evaluation III in accordance with the DOT&E-approved test plans.
- The DoD NAS System-of-Systems Optimization Working Group analyzed current system installations, and is in the early stages of identifying standardized procedures needed for the program.
- DOT&E submitted the Beyond Low-Rate Initial Production Report for the DoD NAS system on March 18, 2005.

Assessment
- Testing was adequate to evaluate the DoD NAS as operationally effective when a detailed set of adaptations appropriate to the conditions of each individual deployment location are successfully completed. These adaptations are needed to account for site-specific characteristics (e.g., air traffic, structures, trees, and terrain) that are unique to each airfield.
- Testing was adequate to confirm that the DoD NAS was not operationally suitable because of the need for additional system technical data elements, additional system training, increased DAAS availability, additional manpower, additional security upgrades, and better system logistics.
- Integration of the follow-on operational test and evaluation of DoD NAS into the updated system test strategy is needed to ensure the system is achieving its maximum military utility as currently configured and in the future.
- The site-specific integration of DoD NAS requires highly skilled subject matter experts to be directly involved in the installation of the system to ensure proper implementation at each location prior to government acceptance.
- Detailed primary and secondary target data processing and characterization analysis is necessary to ensure safe and satisfactory configurations are installed at each DoD NAS fielding location.

- DoD NAS effectiveness deficiencies were also noted during system test in the areas of conflict alerts and Minimum Safe Altitude Warnings, radar clutter limitations, and processor capacity.

Recommendations

1. The Air Force should prepare an integrated follow-on operational test and evaluation program that addresses:
   - Conflict alerts
   - Minimum Safe Altitude Warnings
   - Radar clutter limitations
   - Processor capacity
   - DOT&E beyond low-rate initial production recommendations
   - Emerging features of the DoD NAS
2. The Air Force should implement a full-rate production system-of-systems optimization directive that ensures formal implementation and developmental contractor compliance.
3. The Air Force should accomplish detailed primary and secondary target data processing and characterization analysis to ensure safe and satisfactory configurations are installed at each DoD NAS fielding location.