FAA Faulted for Slow Progress In ATC Modernization

BRUCE D. NORDWALL/WASHINGTON

The FAA's management of national airspace system programs is once again under fire, this time from the Transportation Dept.'s Inspector General. While earning kudos for progress in Free Flight Phase 1, the agency is being chastised for schedule slippages and cost growth in a number of other major projects.

Topping the list is the Wide Area Augmentation System for GPS, which is already forecast to cost more than three times the initial estimate. Even though the agency expects WAAS to be operational in 2003, the remaining costs are up in the air and being reviewed.

While it has been known for some time that WAAS would not quite meet the advertised Category 1 precision instrument approach performance (200-ft. height above touchdown and ½-mi. visibility), the agency intends to decide this spring whether to press on to get the last increment, or settle for a "near-Category 1" capability.

The Standard Terminal Automation Replacement System (Stars), which appeared to be back on track, continues to have testing problems that threaten the cost and schedule targets for the first installation, slated for Philadelphia this November, according to the Inspector General. The IG cites 523 software trouble reports that have cropped up during testing. Of these, 175 were judged "critical" and must be corrected before the first unit can be deployed. (The FAA declined to comment on the IG report.)

But the IG may be mixing apples and oranges. According to Raytheon, Stars has 1.3 million lines of code and four different configurations: the early display configuration in place in El Paso Tex.; a Defense Dept. version at Eglin AFB, Fla.; Full Stars 1, and the configuration slated for Philadelphia—Full Stars 2.

It isn't clear to the company how many of those trouble reports are associated with each configuration. Full Stars 2 is set to enter operational test and evaluation on Mar. 26, according to Bob Meyer, Raytheon's business development manager for air traffic management systems. Before that can happen, critical trouble areas will be resolved, he asserted. Raytheon has high confidence that the Philadelphia installation will occur on time.

HOWEVER, NOTHING can be done in isolation in the air traffic control system, and Stars is a good example of the complex interrelationships. The automated radar terminal system (ARTS) that Stars is replacing receives analog inputs from existing terminal radars. Stars, however, needs digital radar inputs, so it is tied to the new ASR-11 digital radar. Unfortunately, it has also had technical problems, which prompted the FAA to delay its go-ahead for full production by 11 months, to November 2002. The slip resulted from changes the controllers wanted in the radar's software filtering, according to Raytheon.

THAT COULD FORCE the agency to make the tough decision to either modify some existing analog radars so they can provide digital outputs for Stars, or slip Stars even further. Adding a digitizer to analog radar is not a difficult task; such a device is already in use with an analog radar at McGuire AFB, N.J. In fact, that radar has been operating and controlling live aircraft since June 2000. Philadelphia has an ASR-9 digital radar at the airport, but also relies on an analog radar at NAS Willow Grove, Pa., for some coverage. Raytheon says a digitizer could be added to that output until the ASR-11 destined for Willow Grove is installed.

A further procurement wrinkle is that the Defense Dept. is the lead agency for the ASR-11 acquisition for both civil and military use. Raytheon produces both the radar and Stars.

THE SECOND GPS adjunct—the Local Area Augmentation System—is designed to increase the precision of GPS instrument approaches in Category 1, 2 and 3 weather conditions. While WAAS is capable of only "near Cat. 1," LAAS will meet Cat. 1 from the start. Although it remains to be demonstrated, Raytheon expects later versions to achieve Cat. 2 and even Cat. 3. The FAA anticipates having LAAS operations in place by the end of 2004, with installation ultimately planned for 160 U.S. airports (*AW&ST* Mar. 4, p. 69).

Actually, LAAS should be in a category different from the other acquisitions surveyed by the IG. Even though the report describes cost deviations from the original estimates, LAAS is being developed by an industry team. Raytheon, Honeywell and Thales are funding different parts of the development, using their own funds—lured by the opportunity for procurement contracts if the development is successful. But there has not been any government acquisition cost yet.

While not listed in the accompanying chart, the goal of the Airport Movement Area Safety System (Amass) is to increase airport surface safety. Northrop Grumman Electronic Systems' equipment applies software enhancements to inputs from ASDE-3 radar to alert controllers of potential collision hazards. But Amass is currently seven years behind schedule and $92 million over the 1993 cost projections, according to the report. To date, systems have been commissioned at only eight of 34 planned airports. The FAA's latest revised schedule indicates that the final airport system will be ready in late 2003.

A newer concept for improving airport surface safety is the Airport Surface Detection Equipment-X (ASDE-X). Instead of using radar, Sensis Corp.'s multilateration system triangulates on transponder responses of aircraft and vehicles. The ASDE-X program was approved last September and should start in 2003. Even so, its cost has grown 27% from the original estimate.

The IG report lauded the progress made during Free Flight Phase 1 in acquiring automated controller tools and information exchange systems that link the FAA and airline operations centers. That effort followed the successful deployment of Lockheed Martin's Display System Replacement at 20 U.S. en route centers.

AN UNPLANNED KINK in the agency's modernization plan stems from the Sept. 11 terrorist attacks; the full ramifications of that tragedy are still not clear. Nevertheless, one result is that long-range radars, which can track aircraft even without transponders, will be retained for the foreseeable future. Previously, it was thought that some equipment could be decommissioned, relying on secondary surveillance radars and aircraft transponders, and eventually automatic dependent surveillance-broadcast (ADS-B) to track aircraft. ADS-B will automatically transmit the aircraft's GPS position to controllers by data link.

The FAA should make a key decision on the data link for ADS-B this spring. That would allow the avionics industry to move forward with equipment designs, while the airlines and other users plan for financing and improving their fleets.

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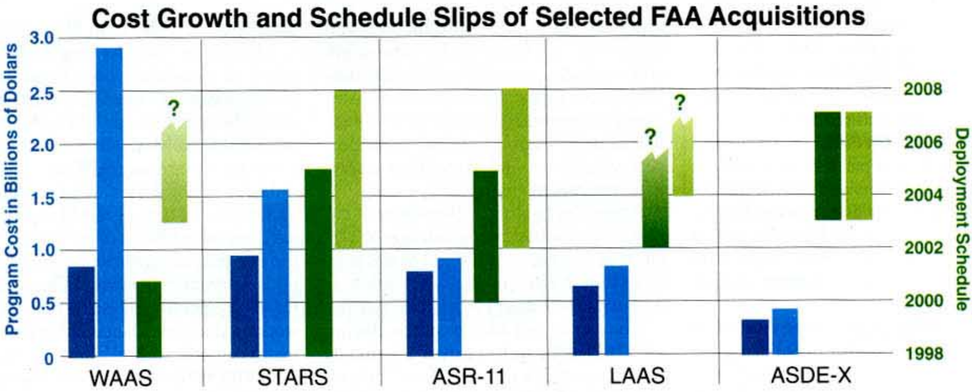
Cost Growth and Schedule Slips of Selected FAA Acquisitions



WAAS: Wide Area Augmentation System
STARS: Standard Terminal Automation Replacement System
ARS-11: Airport Surveillance Radar
LAAS: Local Area Augmentation System
ASDE-X: Airport Surface Detection Equipment-X

Original Program Estimate
Current Program Estimate
Original Deployment Schedule
Current Deployment Schedule

Source: U.S. Transportation Dept. Inspector General