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For the

U.S. House Transportation and Infrastructure Subcommittee on Aviation

Hearing

On

NextGen: The FAA's Automatic Dependence Surveillance Broadcast (ADS-B) Contract

October 17, 2007

ITT wishes to thank the Committee for the opportunity to testify about this vital program which is an essential building block of the Next Generation Air Transportation System – ADS-B. We recognize the critical role of this committee in exercising program oversight and in authorizing the necessary taxpayer dollars to make the program viable.

ADS-B, a Joint Planning and Development Office (JPDO) priority program, will deliver substantial benefit to the National Airspace System (NAS). ADS-B infrastructure will provide more accurate and more frequently updated ATC surveillance data supporting improved operation of today's Air Traffic Control (ATC) automation tools and providing the potential for reduced aircraft separation standards. ADS-B allows the installation of surveillance capability to areas currently without real-time aircraft tracking, providing increased safety and dramatically increased capacity and efficiency in these areas. The system provides a vehicle for the broadcast of safety services such as Flight Information Service – Broadcast (FIS-B) and Traffic Information Service – Broadcast (TIS-B) to the cockpit. Its capacity for dramatically increasing pilot situational awareness promises significant help to critical safety issues such as runway incursions. Finally, ADS-B is a critical enabler of the improved air traffic control procedures that will provide the increased capacity and efficiency essential to allowing the National Airspace System to service forecast demand. ITT is proud to be the FAA's partner in this vital initiative and welcomes the opportunity to participate in this important forum.

This statement addresses four topics. First, it provides a brief overview of ITT as a company and our experience in ATC technology. Secondly, it covers the FAA's procurement approach and the basis for the contract award to ITT. Then we address the structure of the contract and the features of the contract that we believe make it an ideal vehicle for assuring that ITT delivers, operates and maintains an ADS-B system that meets the nation's needs. Finally, it describes our Succession Plan, which is designed to ensure the vital national infrastructure deployed under our contract remains available for the purpose for which it is to be installed.

ITT Corporation is a global engineering and manufacturing company with leading positions in the markets we serve. ITT is a substantial firm generating $7.8B of sales in company fiscal year 2006. ITT is a global leader in water and fluid transport, treatment and control technology. The company also plays a role in defense and security with communications and electronics products; space surveillance and intelligence systems; and advanced engineering and services. It also serves the growing marine, transportation and electrical markets with a wide range of products. Of direct relevance to the ADS-B Program, the company is a major supplier of sophisticated systems, and provides advanced technical and operational services to a broad range of government agencies. Based in White Plains, New York, ITT employs approximately 35,000 people around the world.

The ADS-B Program will be executed within the Defense group of ITT Corporation. ITT Defense businesses are those that directly serve the military and government agencies with products and services. These include air traffic control systems, jamming devices

that guard military planes against radar-guided weapons, digital combat radios, night vision devices and satellite instruments. Approximately 44 percent of the sales in this segment are generated through contracts for integration, technical and support services that the company provides for the military and other government agencies. Headquartered in McLean, VA, ITT's Defense business employs approximately 16,000 people.

Within ITT's corporate experience base is a 60-year history of work in the air traffic control technology arena. ITT supplied the world's first military ATC surveillance system - the AN/MPN-1. Since that development, ITT has provided more than 1,500 ATC systems to the U.S. military and customers in over 35 nations. As a part of our ATC background, ITT has worked extensively with the FAA conducting research and study activities for advanced ATC concepts, providing engineering services, and developing products in use by the FAA. Contract activities for the FAA include:

- Significant seminal involvement in the application of satellite navigation technology to the National Airspace System (NAS), to include feasibility studies and the development of the test bed against which the Crows Landing flight tests that led to the Wide Area Augmentation System Program were conducted. ITT has manufactured every GPS navigational payload ever flown.

- Provision of thousands of person years of engineering services through support contracts that include our FAA Telecommunications Support Contract and its follow-on Telecommunications Service Management Engineering, Operation and Maintenance Contract, under which ITT has supported the implementation and operations of all FAA operational terrestrial communications.

- Extensive background in air/ground communications, beginning with our provision to the FAA of the VHF and UHF JUMP radios in the mid 1960s and continuing through our current prime Multi-Mode Digital Radio Contract, under which ITT is supplying the FAA's VHF replacement radio. Other air/ground activities include performing as a NEXCOM Design Competition Phase prime contractor and ongoing work in support of the ICAO-sponsored joint FAA/Eurocontrol Future Communications Study.

ITT , along with its teammates AT&T, Thales North America, WSI, SAIC, Sunhillo, PWC, Comsearch, Pragmatics, NCR, MCS of Tampa, Aerospace Engineering, ACSS and the Washington Consulting Group, is honored to have been selected to be the FAA's partner in the ADS-B Program, and through this program we will continue to serve the nation's air traffic control needs.

ITT was awarded the FAA's ADS-B Contract on August 30, 2007 after more than two years of preparation, which included more than one year of active participation in the procurement process. During our preparatory work, ITT conducted detailed analyses of the FAA's preliminary program requirements, developed a top-level architecture for meeting these requirements, and developed our strategic approach to the development or

acquisition of key system components. Additionally, ITT synthesized an Engineering Development Model (EDM) that validated our proposed approach. The EDM consisted of a radar system and ADS-B radios in California, an ADS-B radio in Herndon, VA, a weather data interface to our chosen weather provider WSI, a wide-area network provided by our partner AT&T, processing software and equipment in Herndon performing processing functions essential to meeting the FAA's requirements, and avionics equipment to validate system interoperability with airborne equipment. In addition to validating ITT's ADS-B design approach, the EDM provided an environment within which ITT performed pre-contract development as a measure to mitigate schedule risk should we be awarded the contract. All described pre-contract award activities were conducted at ITT's expense.

ITT believes the FAA is to be commended for the efficient and professional manner in which this procurement was conducted. Salient elements of this effort were the open and frequent communications that were facilitated with industry, the FAA's adherence to the process and schedule promulgated early in procurement activities, and the effective statement of government requirements.

The award to ITT was based on our offering to the government a cost-effective superior technical solution with no evaluated technical risk. Cost effectiveness in our solution has involved three principal factors. The first of these is our extensive use of existing facilities where feasible. This includes the hosting of our four control stations in existing AT&T data centers, the hosting of system monitoring equipment in existing AT&T network operations centers, and extensive use of existing tower infrastructure. The second cost effectiveness factor is an optimized system-siting approach. Finally, our innovative proposal for value-added services and the sharing of revenues for these services with the FAA will act to reduce FAA costs for system operation. Salient elements of our superior technical solution include:

- A flexible, scalable, safe and secure system architecture,
- Technical features to include multi-channel radios with power control features, sectorized antennas, data distribution algorithms, and system-siting to ensure the ability to operate within the current and future spectrum environment,
- Systems, processes and personnel to ensure very high system availability, and
- A large number of radio stations assuring system radio frequency coverage are provided where required.

We believe the awarded contract represents an optimum balance between allowing ITT the freedom to efficiently deliver a cost-effective system that meets the government's needs while providing the mechanisms for the government to exercise its responsibility for oversight and control of program implementation, operations, and maintenance.

The contract is divided into Contract Line Item Numbers (CLINs). CLIN 1 was awarded with the base contract. Under CLIN 1, ITT is required to design, develop, test and conduct limited field deployment of the system. The majority of the remaining CLINs are fixed-price contract options for nationwide deployment of the system and for

operations and maintenance of deployed infrastructure through 2025. These CLINs are to be exercised at the FAA's discretion.

CLIN 1 is a Cost Plus Incentive Fee (CPIF) contract element with cost-sharing provisions. The value of this contract is $207M. CPIF contracting is highly appropriate for a developmental effort allowing flexibility to ensure that the developed system will meet overall system requirements. It will maximize adherence to the FAA's special needs for safety, security and operation within the FAA's radio frequency spectrum environment. Under CLIN 1, ITT will be required to conduct a Preliminary Design Review (PDR) which will review our subsystem architecture in detail with the government. It includes a Critical Design Review (CDR) which will review the details of our product baseline reflected in software and hardware design specifications and in the supporting detail required to build, operate, and maintain the ADS-B system. This process will allow full FAA visibility into the details of the system to be implemented. During CLIN 1, performance extensive system testing will be conducted. This testing will include factory acceptance testing to verify all detailed functional and performance requirements. It also includes key site acceptance testing (SAT), to verify all system functional and performance requirements, but in this case, in a field operational environment. This testing will ensure that ITT has delivered the system that the FAA has specified, i.e., the one that will meet the needs of the National Airspace System. The work of CLIN 1 will be completed in September of 2010. At this point in the program, the FAA will have achieved the in-service decision for all Surveillance and Broadcast Services and ITT will have under CLIN 1 installed 20 of the service volumes involving 340 radio stations.

The FAA has combined very strong financial incentive provisions with detailed government oversight through earned value management (EVM) reporting. This cost-plus-incentive-fee contract type, as combined with cost-sharing provisions, is an innovative contracting approach that provides very substantial incentive to ITT to perform the contract under or within budget. If ITT performs the contract under the target cost, this contract works like a normal CPIF contract with a 50-percent share ratio. Specifically, for every dollar that ITT performs under target (proposed) cost, we receive a 50-cent increase in target fee (profit) to a maximum allowable profit. If we perform at target cost, ITT will receive a modest incentive. The uniqueness of the contract is that for performance above target cost before the fee reduction associated with a normal CPIF contract occurs, ITT will be required to share in the cost overrun. Under this approach, ITT's profit is reduced very quickly, and ultimately ITT will incur monetary loss. In support of EVM reporting ITT has undergone an FAA-conducted Integrated Baseline Review (IBR) on Monday and Tuesday of this week. Additionally, in Segments 1 and 2 the FAA will employ a program control board (PCB) for active program control.

The PCB is a joint FAA/ITT body that functions to maintain system configuration management. It will monitor ITT performance against metrics and incentives and review and agree upon on, any safety and security changes that need to be incorporated into the system. It will review and agree upon proposed value-added services and mutually resolve any disagreements regarding responsibilities of the parties and their respective

programmatic issues. ITT believes the PCB construct to be a vehicle for ITT to work with the FAA and outside groups as true partners in the provision of the valuable ADS-B service. A charter for the PCB is being prepared currently and we hope to move toward its establishment in the near future.

CLINs 3 through 17 of the contract provide for the nationwide rollout of radio stations and the operation and maintenance of the deployed infrastructure. These are fixed-price contract elements. As for CLIN 1, the contract provides for significant FAA oversight and control of contractor behavior during ITT performance of these contract options. FAA oversight of contract performance during the system deployment process is facilitated by the PCB. ITT performance will be controlled through required ITT testing and independent FAA testing of each service volume installed. Under our contract, nationwide deployment will be complete in 2013. Government oversight during the system operational phase is provided through two primary mechanisms. These are ITT continuous monitoring and reporting of technical performance measures (TPMs) and FAA monitoring and certification of system data. Government control during this phase is exercised through the PCB, a system of financial incentives and disincentives tied to the TPMs and the operational phase, and ultimately the division of the contract into a series of options that the government can choose not to exercise.

Technical performance measures represent an innovative element on the part of the FAA in program and contract definition. For each required service, (TIS-B, FIS-B, ADS-B, and ADS-R) high-level parameters have been defined that set the standard as to whether the system is operating to needs in a given service volume. This innovation creates two tiers of requirements – the detailed tier reflected in the system specifications and interface control documentation and a higher-level tier reflected in the TPMs that has a view above the details of bits and bytes to the quality of the overall service. TPM requirements are established for each service in each service volume for update rate, latency, and availability. ITT has proposed, and will implement in our architecture, features to measure and report to the FAA on an ongoing basis these parameters for each service volume.

In addition to ITT proposed monitoring and reporting of TPMs, the FAA has required that ITT provide regular reporting of system performance via periodic, near real-time (less than 1 second old) delivery of system status messages to the FAA service delivery points. These status messages allow the FAA to independently evaluate system performance and allow the certification of data for air traffic control use. This separate mechanism is entirely under FAA control and provides an independent check of ITT reported performance.

During the procurement phase, the FAA encouraged vendors to propose incentives and penalties for the operational portion of the program. ITT proposed and the government included into the contract incentives and penalties tied to the technical performance measures. If defined technical performance parameters are met or exceeded, ITT will receive an incentive for each service volume in which they are met or exceeded. If required TPM parameters are not met, ITT will forfeit a portion of the service volume

charge for the service volume(s) in which requirements are not met. As an example, if the ADS-B update interval parameter meets contract requirements for a month at a given service volume, that will result in a 2% incentive. Failure to meet required performance will result in either a 5, 10 or 20% penalty in proportion to the degree of shortfall during the period.

To summarize remarks about the contract – it allows, during the initial development and limited deployment phase - a period to ensure that the developed service fully meets defined requirements to include safety, security, and radio frequency spectrum constraints and provides significant financial incentives for contractor team performance to cost and schedule. During the full-scale deployment and operational phases it provides for continuous government monitoring and, again, significant financial incentives for performance. Finally, the Performance Control Board allows continuous involvement of the FAA in system development, deployment and operation.

There is also a mechanism established to ensure continuity of the service for which ADS-B assets are deployed. The FAA required vendors to submit succession plans as a part of their proposals. ITT's succession plan appoints AT&T as a successor to ITT. Under the plan, with the occurrence of a triggering event, action will be taken to transfer the asset base and novate the prime and subcontracts to AT&T. Our plan is supported by a Memorandum of Understanding entered into by ITT and AT&T committing the parties to required actions to effectuate the succession plan in the very unlikely event that action should be required.

In closing, I would like to reiterate that ITT and its industry team are proud to have been chosen to be the FAA's partner in this vital initiative. ITT and its contractor team are fully committed to the success of this program. We recognize the critical role of this committee in exercising program oversight and in authorizing the necessary taxpayer dollars to make the program viable.

Thank you again for the opportunity to appear before you today. I would be pleased to respond to any questions you may have.