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# Telecommunications and Information Technology Planning

The telecommunications and information technology planning function represents the highest-level system or network perspective of the Institute. This work can be characterized generally as planning and analyzing existing, new, and proposed telecommunications and information technology systems, especially networks, for the purpose of improving efficiency and enhancing the technical performance and reliability of those systems. In many cases, ITS performs this work for both wireline and wireless applications. This portion of the ITS technical program encompasses work that is frequently referred to in industry as “systems engineering.”

All phases of strategic and tactical planning are conducted under this work area; problem solving and actual implementation engineering also are done. ITS engineers identify or derive users’ functional requirements and translate them into technical specifications. Telecommunication system designs, network services, and access technologies are analyzed, as well as information technologies (including Internet and Internet-related schemes). Associated issues, such as network management and control and network protection and privacy, also are addressed. Integration of individual services and technologies is a common task in many projects, along with the application of new and emerging technologies to existing applications.

## Areas of Emphasis

### **Interoperability Efforts for Justice/Public Safety/Homeland Security**

The Institute conducts a broad-based technical program aimed at facilitating effective telecommunications interoperability and information-sharing among dissimilar wireless and information technology systems within the justice/public safety/homeland security community. ITS activities are sponsored by a number of Federal agencies and programs, and are planned and performed only after close coordination with local, state, tribal, and Federal practitioners. Technical thrusts within the program, which are described in separate sections below, include: **Engineering Support and Coordination**, **Information Technology Interoperability Standardization**, and **Wireless Telecommunications Interoperability Standardization**.

### **Emergency Telecommunications Service (ETS)**

The Institute develops and verifies ETS Recommendations for ITU-T Study Group 9. A second project provides ETS expertise relating to network survivability for Technical Subcommittee T1A1. These projects are funded by the National Communications System (NCS).

### **Networking Technology/Interoperability**

The Institute characterizes and analyzes the fundamental aspects of networks, and network interoperability. Methodologies and tools are developed to address discovery, monitoring/measurement, simulation, management, and security/protection issues. This project is funded by NTIA.

### **Railroad Telecommunication Planning**

The Institute performs radio infrastructure system planning in support of a high-speed rail pilot program, and demonstrates digital land mobile radio technology and infrastructure, compliant with TIA-102 standards. The Federal Railroad Administration funds this project.

### **Voice Over IP**

The Institute develops technical contributions related to Internet Protocol (IP) telephony gateways and their supporting infrastructure for the TIA TR41 Standards Formulating Group. This project is funded by NCS.