

**FEDERAL HIGHWAY ADMINISTRATION
FISCAL YEAR 2001
FIVE-YEAR INFORMATION TECHNOLOGY PLAN**

EXECUTIVE SUMMARY

FHWA information technology (IT) initiatives are directed towards meeting the goals, objectives and Corporate Management Strategies outlined in the FHWA National Strategic Plan and annual Performance Plan, as well as the DOT Strategic Plan. These initiatives support the agency's core business areas and two major programs: (1) the Federal-aid Highway Program providing federal assistance to States to construct and improve the National Highway System, urban and rural roads, and bridges; and (2) the Federal Lands Highway Program to provide access to and within national parks, Indian reservations, and other public lands. FHWA continues to provide the new Federal Motor Carrier Safety Administration with administrative and information technology support of the Motor Carrier Safety Program involving regulation and enforcement of Federal requirements for the safety of trucks and buses to reduce commercial vehicle crashes.

FHWA IT initiatives also support:

- Collection and analysis of data on highway performance, motor fuel usage, and vehicle travel;
- Research and technology applications in Intelligent Transportation Systems and other priority program areas;
- Enhancements to human resources and administrative information systems,
- Improvements in electronic data sharing and web-enabled information dissemination to customers, and
- Continuous improvement of the Agency's IT architecture, including participation in the DOT integrated communications flagship initiative.

Accomplishments in FY 2000

Implementation of Strategic IT Architecture for Key Information Systems

FHWA continues to implement its strategic architecture for agency-wide information systems, which employs web-enabled applications, a cost-effective, application server platform, a web-based report writer, and Internet Protocol (IP) data communications. The new architecture is a complete change from the former mainframe architecture (*IDMS* database, running on the mainframe, with SNA data communications) and provides more user-friendly systems, easier access to information, and easy-to-use tools to analyze data and develop ad hoc reports. The new IT architecture will eventually save a significant part of what FHWA now pays for mainframe services and will minimize support requirements because each PC will only need a standard web browser, instead of having to load, maintain, and support special client software for each system on user PCs.

Work is underway on rewriting two key systems supporting the Federal-aid Highway Program: the Fiscal Management Information System and the Rapid Approval State Payment System (replaces the Voucher for Payment [PR-20] system) in the new IT architecture; and the agency is working with its customers to move the National Bridge Inventory and the Motor Carrier Management Information System to the new IT architecture. The first phase of the new Learning and Development System came on line in August 2000, and systems have been established employing the new IT architecture for the Legislative Implementation Plan Tracking System, the Restructuring Employee Survey and the Performance Measurements Information System, which has been opened to all users of FHWA's StaffNet (internal only intranet).

Year 2000 Transition

FHWA completed a highly successful transition to Year 2000 (Y2K) for all its mission critical internal systems. The agency's early efforts (begun as early as 1989) to prepare information systems for the century change have been recognized by Congress. All deadlines and reporting dates for renovation and implementation of Y2K compliant mission-critical information systems were met on schedule. In addition, FHWA conducted End-to-End Y2K testing with selected State DOTs and had a Y2K Independent Validation and Verification conducted of its mission-critical systems.

In planning for Y2K, we were aware that a number of potential Y2K problems existed in the nation's highway transportation systems. For example, traffic signals, toll facilities, movable bridges, traffic management centers. All these systems are operated and managed by State and local governments throughout the country. Over the last two years, FHWA conducted an aggressive outreach campaign to encourage our partners and customers (in particular, State DOTs and MPOs) to become Y2K compliant and to develop contingency plans. The agency's proactive efforts included working with the Office of the Secretary to plan and present the July 1998 Intelligent Transportation Systems Y2K Summit, promoting Y2K compliance at a number of American Association of State Highway & Transportation Officials (AASHTO) conferences, holding Y2K Weeks in FHWA field offices, and establishing a Y2K web site with information on best practices and linkages to other Federal and State Year 2000 program web resources.

Moving Mainframe Processing to a New Data Center

Due to the Congressionally-mandated elimination of the Transportation Computer Center, which supported all of FHWA's mainframe information systems, FHWA moved its mainframe processing from TCC to the Veterans Affairs data center in Austin, TX. The move was successfully carried out following extensive planning and testing in a very compressed timeframe, and involved (1) establishing data lines from Washington to Austin, (2) setting up on-site contract support at FHWA HQ for 24x7 operations, high-speed printing, data communications support, security administration, database administration, capacity planning, etc., and (3) actual migration and testing of FHWA systems. Expected

net savings from the mainframe move will be approximately \$15 million over three years.

IT Infrastructure Upgrades

During FY 2000, FHWA completed a major upgrade to its IT infrastructure effort, including:

- Replacement of the routers that connect the Local Area Network (LAN) in each FHWA field office with the nationwide FHWA Wide Area Network (WAN). The new routers have significantly improved reliability and capacity of our WAN connections.
- Implementation of new network operating system software (Netware 4.11) and upgraded e-mail system (GroupWise 5.5).
- Replacing outdated PCs, laptops, and LAN file servers

Migration to a Common Desktop Software Suite

As part of the Department's Integrated Communications Flagship initiative, FHWA has begun a migration to the Microsoft™ Office 2000 Suite for desktop applications (word processing, spreadsheet, presentations). An agency-wide software site license has been acquired, a migration plan has been developed, and the transition is underway.

Web Site Enhancements

FHWA designed and created a variety of enhancements to its web site resources to assist FHWA staff, customers, and partners, including moving its public internet and intranet (StaffNet) web sites to new Microsoft IIS servers with Cold Fusion "middleware" applications on each server. This has increased the overall performance and interactivity of both sites and will provide a platform for future e-government initiatives in support of FHWA staff, customers, and partners. The web accessible electronic library for Intelligent Transportation Systems now contains over 120,000 pages of ITS documents and reports.

Key IT Goals

FHWA's CORPORATE MANAGEMENT STRATEGY FOR *INFORMATION AND ANALYSIS*

GOAL: Identify and develop key business information systems that meet and track DOT and FHWA strategic goals.

FHWA needs information to support key processes and improve performance. Leaders create an environment in which knowledge, as a key asset of the organization, is managed, shared and used effectively.

Major Initiatives:

- \$ *Improve key business information systems to provide the timely, reliable and accessible information needed.* Substantial progress has been made in reconfiguring FHWA's key systems to meet changing business needs, and several new systems have been or are being developed, including the Air Quality Information System, the Fiscal Management Information System, the Rapid Approval State Payment System, and the Learning and Development System.
- \$ *Develop and implement Knowledge Management and Sharing strategies.* FHWA has developed and implemented communities-of-practice web sites and an expertise locator system under our Knowledge Management program.

Critical IT Investments

Critical IT investments for FY 2001 and beyond include:

- \$ Continued development and prototyping of key information systems in the new FHWA IT architecture, including the Fiscal Management Information System, the Rapid Approval State Payment System, National Bridge inventory, Learning and Development System, Motor Carrier Safety Management Information System, and the Highway Performance Monitoring System.
- \$ Completion of the next phase of upgrading FHWA data communications and PC networks to ensure a reliable, cost effective information technology infrastructure in support of current and future program missions and operations and communications with external partners and customers. This will include a pilot seat management program in five FHWA organizations for enhancement of service levels in the management, operation, support and maintenance of the agency's PC/LAN infrastructure.

- \$ Continued enhancement of FHWA web sites to support e-government initiatives which provide more effective delivery of government information and services to our partners and customers.

- \$ Provide continuing information technology support to on-going transportation research and technology deployment initiatives in pavement, structures, traffic safety, and intelligent transportation systems.