

Session 5.3.3 Virginia DOT's New Roadway Network System: An Integrated Approach to Managing and Leveraging GIS and LRS for Enterprise Data Analysis

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Like many other state DOT's, the Virginia Department of Transportation (VDOT) has managed its geometric roadway network and associated location referencing data through disparate legacy, mainframe programs that were not well integrated and cumbersome to use and maintain. This generation of programs and tools did not promote user-friendly interaction for maintaining graphical roadway networks and locational data.

In addition, GIS-based analysis capabilities were difficult to integrate and enable for enterprise access. In 2004, VDOT began a comprehensive project to migrate and upgrade its roadway network management and location referencing systems.

The new system being implemented is called the Roadway Network System (RNS). It is based upon an industry-standard approach to location referencing models and management, relational database systems, and a Web-enabled enterprise approach for supporting and enabling spatial/GIS applications. VDOT is developing a series of support, maintenance, and application modules that share integrated, multipurpose components that are Web-enabled, expandable, and easy to use.

To illustrate how the new RNS is being developed, we will discuss how the overall system architecture supports integration of several new systems, including the Traffic Management System (TMS), Straight Line Diagram (SLD) tool, and the One Map mapping interface. Enabling of Web services is helping to accomplish this integration. Significant benefits are expected to be realized by allowing users to navigate seamlessly across and among business applications, with the RNS framework as the integrating mechanism.