

Implementing an Information Management System in Right-of-Way Offices

An Overview for Executives

Increasing responsiveness and maximizing resources are important factors in how transportation agencies improve their business in today's data-driven, performance-based environment. The ability to deliver projects on time and within budget is one measure of a transportation agency's performance. The effective delivery of real property by the right-of-way office is fundamental to achieving this agency objective. A well designed and implemented information management system can substantially improve this capability. Adding geospatial capabilities (GIS) to the system to replace reliance on hardcopy maps and tabular information and to give additional management and analysis functions can significantly increase its usefulness.

Understanding the critical factors necessary to successfully implement an information management system can ensure the best value for the necessary outlay in resources and can substantially improve the realization of the system's full potential. Obtaining strategic buy-in from agency executive-level decision makers to pursue implementation will provide the necessary foundation for system.

Implementing a System

The process to implement an information management system is well documented and follows standard procedures:

- ◆ Formalize support
- ◆ Assess requirements
- ◆ Assess capabilities
- ◆ Define the system
- ◆ Develop an implementation plan
- ◆ Implement the system
- ◆ Maintain the system

Implementation is typically considered complete at the point when the system being implemented has transitioned to "business as usual" for its users.

Implementation Responsibilities

- **Project champion:** This person is typically known and trusted by agency management and is responsible for marketing and promoting the system both inside and outside the agency.
Without an identified champion, history has shown that projects flounder at the first major challenge.

- **Steering group:** The steering group is responsible for ensuring that there is active and appropriate input and feedback to the system during the implementation process.

Transportation agencies consist of multiple departments and offices responsible for different aspects of doing business. Without representation from each group that will be impacted by the system, the system will face numerous challenges including: a) meeting agency information technology (IT) requirements, b) obtaining buy-in from stakeholders, and c) coordinating data sharing between data owners and users, as well as performing the tasks necessary to support right-of-way activities.

- **Project manager:** The project manager is responsible for the day-to-day management of the process.

This person must have the necessary skills, authority and resources to coordinate sometimes conflicting input from the groups and individuals involved in the process. The project manager must also have the organizational skills to ensure that the process stays on track and within design boundaries and sufficient technical understanding of the right-of-way process and individual functions to reasonably evaluate input during the development process.

- **Development team:** The development team consists of the people who will actually be developing the system.

They can be wholly from within the agency or wholly contracted from outside or a combination of both. The importance, at the proposal stage, is that the skills necessary to the project be clearly identified and articulated.

Implementation Factors

- ***Assessing requirements:*** Any proposal for a new information system should include a clearly stated understanding of the scope and goals of that system. As these requirements are refined, consideration should include the business areas to be included (often referred to as the *enterprise*), the functions that should be performed, the data needed to support these functions, other systems that should interact with the proposed system, security issues, and any legal and regulatory requirements.
- ***Assessing capabilities:*** An understanding of the capabilities in the right-of-way office and across the agency is critical to successfully implementing a system. Considerations include available or required hardware and software, existing applications including database management systems and GIS, datasets along with who is responsible for them, and agency policies and procedures related to IT including application development, data and data standards, and hardware and software acquisition. Knowing who will be responsible for maintaining the system and any corresponding data and output is also necessary. Availability of funding for development and continued maintenance is critical to the project's success.
- ***Defining the system:*** This is the core of the system and will be the basis for the tool that manages the information associated with right-of-way offices. The technical considerations will be included in the detailed implementation plan. An important aspect of this definition is knowing the starting point for system development. Three common starting points include:
 - ◆ The system is being developed from scratch with no existing information management system or GIS.
 - ◆ The system is expanding on an existing information management system to include GIS.
 - ◆ The system is being developed to take advantage of existing GIS capabilities.Knowing this information will ensure that appropriate coordination is considered in the design.

Additional Considerations

The current evolution and expansion of technology is extremely rapid and most transportation agency policies and procedures are not designed to operate at the same rate of change. Innovative and flexible approaches to supporting improved information management tools could save money and time both in their implementation and use.

From concept to operation, a comprehensive information management system can take 12 to 24 months or longer, and, during that time, technology will become more powerful, faster, and more flexible at the same time that the general public will become more technologically sophisticated with fingertip access to information through smart phones and other similar devices. A flexible design can readily take advantage of this changing technology without requiring major modifications. However, waiting for the next advancement before initiating the process can, and often does, result in never starting.

Many transportation agencies are in the process of either designing or building an agency-wide infrastructure for sharing data and/or integrating computer systems. Although, the desire to fold individual systems into this larger initiative is compelling, the reality may be more problematic given the scale, complexity, and cost of the larger effort. With current technologies, consideration should be given to supporting individual systems if they provide the necessary connections to and support for integrating with the larger initiative.

For More Information

This document is part of the National Cooperative Highway Research Project 8-55A "Developing a Logical Model for a Geo-Spatial Right-of-Way Land Management System". The project was managed by Ed Harrigan EHARRIGA@nas.edu and was performed under Kathleen Hancock hancockk@vt.edu at Virginia Tech and was completed in 2/11. A detailed implementation guide was developed as part of this project and will be available through TRB.

Results of the first phase, 8-55 "Integrating Geo-Spatial Technologies into the ROW Data-Management Process", including the documented savings reported here, are available at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_310.pdf and http://www.trb.org/news/blurb_detail.asp?id=7308