



Project Summary

Texas Department of Transportation

0-5478: Optimizing the Identification of Right-of-Way Requirements during the Project Development Process

Background

The identification of right-of-way requirements during the project development process depends on many factors including proposed alignment, typical sections, access control, drainage, accessible pedestrian design, and environmental mitigation, among others. This identification requires input from several disciplines. In most cases, right-of-way acquisition cannot begin until a design schematic has been completed and approved, and an approved environmental document has been received giving authority for TxDOT to release the project for acquisition. However, a sufficient level of preliminary work must be accomplished to make an adequate right-of-way needs determination. The purpose of this research project was to review critical elements in relation to the project development process in order to assure the accurate and timely analysis of the impact of these factors on the determination of right-of-way requirements. One of the main objectives of this study was to develop a best practices method to improve the right-of-way requirements identification process. The Advance Planning Risk Analysis (APRA) is the method developed and tested during this research to meet this need. The APRA covers all functions of the project development process. It is an excellent method to assist project teams in cross-functional coordination and cooperation. It can serve as a complementary method to the system and procedures currently maintained by Texas Department of Transportation.

What the Researchers Did

In order to achieve the research objectives, a sound research methodology was used and many research activities were performed. The researchers:

- Performed the review of relevant processes and sources, not only from TxDOT but also from other DOTs, federal agencies, and research institutions.
- Conducted interviews with TxDOT experts to gain insight into the project development process as well as to seek input for the requirements of the method that was to be developed.
- Identified, synthesized, and categorized 59 project elements, also called critical risk elements, which need to be addressed during the project development process. These elements were then grouped into 12 categories and further grouped into 3 sections.
- Conducted 6 weighting workshops across Texas to obtain expert knowledge from 51 experienced TxDOT personnel in order to assess the relative importance of the critical risk elements. The experts also provided insight in the proposed method and how it could better meet TxDOT's needs.

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Project Completed:

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- Developed the APRA method. The major components of this method are the critical risk elements and their respective weights, which were calculated using the input from the weighting workshops mentioned above.
- Developed a computer tool to implement the method and facilitate its implementation. The tool is easy to use and self-contained.
- Tested the APRA method and the computer tool on 17 projects across Texas.
- Developed an implementation guide and a user manual. These two documents are essential for the successful use of the method and the tool.
- Finalized the method and the tool based on the feedback gained from the testing process and then demonstrated the APRA and its computer tool to the Project Monitoring Committee.

What They Found

These are the major findings in this research: 1) critical risk elements impacting the project development process and the identification of right-of-way requirements were identified and categorized; 2) the relative importance of these critical risk elements was determined; 3) a structured method to identify these critical risk elements was developed; and 4) the proposed method was tested on real projects and its potential benefits were documented.

What This Means

From the research effort, the following recommendations are made to TxDOT:

- The APRA method should be used during the project development process of all transportation infrastructure construction projects in Texas.
- The results from the use of the APRA should be recorded for benchmarking purposes.
- TxDOT should develop a database to store the data and results obtained from the use of the APRA on projects. This database will allow for an eventual analysis of the project performance and the predictability of future projects' performance.
- The APRA method should be formally incorporated into the project development process. In order to do so, strong support from top management is needed, and proper training should be planned and implemented for new users.

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