REVIEW, ANALYZE, AND DEVELOP BENEFIT COST/RETURN ON INVESTMENT EQUATIONS, GUIDELINES, AND VARIABLES

PROBLEM STATEMENT

The Florida Department of Transportation (FDOT) has for many years supported an active and aggressive research program. The mission of the research program has been to improve and protect Florida's transportation system through the ethical scientific conduct of research that increases global knowledge of products, processes, and practices; to transfer information; and to encourage the implementation of research results. Research subjects have included a broad range of technical engineering, scientific, and constructability issues. Research results are published as Final Reports and are distributed throughout the FDOT. They are also available to interested individuals and organizations.

There have been many successful projects within the FDOT research program. Many of the research results have been implemented within the FDOT and have also served as a basis for change in other states. For example, FDOT has pioneered the use of nighttime construction to avoid daytime congestion, is recognized for its engineering technology with regard to deep foundations, and, currently, is leading in research related to customer satisfaction and in reducing the impact of construction on adjacent businesses. These and similar successes for which there is ready and ample anecdotal evidence, however, should not serve as surrogates for a systematic performance measurement process.

The ability to determine the value of the research conducted by FDOT is hampered by the lack of an effective, formal performance measurement system. NCHRP Synthesis 300 (2001) points out that the use of performance measures (*where they exist*) by most state DOTs is sporadic, despite a general recognition that they are needed. However, there is no commonly accepted set of performance measures available to state DOTs. In light of the lack of readily available measures, an effective programmatic approach to evaluating the value of FDOT research efforts is needed.

OBJECTIVES

The objective of this study was to develop a means for the FDOT to evaluate the benefits of its research at both the project and the program levels.

FINDINGS AND CONCLUSIONS

The following are among the conclusions drawn from this study:

Research Benefits and Cost Should Be Measured
Assessment provides many advantages, including the following:

- Justification and support for future investment
- Input into research program planning decisions

- Input into project selection decisions
- Motivation for improved research performance on projects
- Assistance with implementation activities

Research Benefits Can Be Measured
Both economic and qualitative benefits can be assessed. A viable assessment document has been developed and is included in the final report.

Qualitative and Economic Benefits Should be Included in the Benefit Assessment
Research projects produce economic benefits and benefits that are not related directly to economic benefit. The best approach is to be inclusive and capture both forms of benefits in the measurement system.

The Initial Assessment of Potential Research Benefit Should be Made by the Research Team
The research team is most familiar with the subject and the specific research product. FDOT may provide oversight and support for this activity, but the research team must take the lead in developing both the initial benefit assessment and the implementation plan. Note that in this context, the FDOT research project coordinator is included in the research team.

Follow-up Assessments Are Required After Implementation
Initial benefit projections can only provide an estimate of the potential benefit. Real benefits can only be measured after implementation. Depending upon available resources, follow-up assessments may be limited to selected projects.

Implementation Remains a Critical Factor in Realizing Research Benefits
Research benefits are achieved through implementation of results. Implementation must remain a key focus.

BENEFITS

Many facets of FDOT's business currently are assessed using performance measurement approaches, and the practice of performance measurement is increasingly being valued as an integral part of responsible and effective management. Performance measurement of research is both quantitative and qualitative, depending on the nature of the project and its application (e.g., highway aesthetics is very important to many travelers and residents in Florida, but improvements cannot be readily be converted into economic value). This study provides the Research Center with a tool that can be used to monitor both individual research projects and the overall research program. Performance measurement efforts can be used to justify program costs, to assist with project selection, to document the implementation and value of research, and to support a wider use of the research product.

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