

Document Summary

SHRP 2 L06: Institutional Architectures to Improve Systems Operations and Management

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Summary of the Work

SHRP 2 L06—Institutional Architectures to Improve Systems Operations and Management—combines both research and guidance relating to the institutional preconditions within state DOTs for effective management of non-recurring congestion. In addition, the concepts developed in the work have been validated via 13 state DOT and regional workshops sponsored by SHRP 2 and FHWA. The objective of the project was to identify the preconditions to “institutionalizing” SO&M as a continuously-improving formal agency program. The key features of this project included:

- Evaluation of the current range of SO&M program effectiveness among state DOTs and the key process and institutional features that are associated with the more effective programs
- Analysis of the apparent relationships and interactions among three dimensions: program effectiveness, required technical and business processes, and supportive institutional and organizational arrangements
- Development of a “capability maturity model” to systematically relate increasing “levels” of technical and business process maturity and the key institutional changes that support those levels
- Provision of self-evaluation-based guidance for agencies to guide managed changes in their institutional architecture that will support more effective SO&M programs

Two volumes comprise the products of this project:

- Report S2-L06-RR-1 provides the basis for the guidance, including an examination of current state DOT practice and insights from other sectors with strong operational orientations. It establishes a systematic guidance framework based on the traceable relationships between the technical and business process features most supportive of effective SO&M and institutional architecture that supports such processes.

- Report S2-L06-RR-2 provides guidance in the form of an incremental set of interrelated improvement steps to support continuous progress towards an organized, mainstreamed, continuously improving, and sustainable system-wide SO&M program. The focus is on the institutional characteristics most supportive of effective SO&M and the strategies to transition through levels of increasingly supportive architecture. The guidance is detailed and broken down into 19 key areas related to process and institutional capabilities. To maximize its utility, it permits flexible entry points for users depending on status within an agency relative to SO&M programs, technical and business processes, and current institutional architecture.
- The guidance is built around the reality that effective SO&M programs (as measured in terms of performance) require business and technical processes specific to the application of key SO&M strategies. These processes, in turn, require the support of an institutional structure in terms of culture/leadership; organization and staffing; resource allocation; and partnerships. Both the process and institutional dimensions can be represented on a spectrum of maturity as determined through an analysis of current state DOT practices. The three defined levels are ad hoc (Level 1), rationalized (Levels 2), and mainstreamed (Level 3). The project research provides considerable detail regarding the criteria for the three levels of institutional maturity.



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Applied to Practice

The findings of the SHRP 2 L06 project have been applied in practice in three primary ways: 1) as the basis for expanding and making more accessible the guidance embodied in the second research report via an online, customizable self-evaluation and guidance tool developed through the National Cooperative Highway Research Program; and 2) at workshops for state DOTs and regional partnerships seeking to improve their SO&M capabilities that apply the project's findings and guidance in practice; and 3) as part of the curriculum at the Operations Academy.

Related Work

Related work includes the three main applications to practice cited above:

1. After the guide was submitted for publication, the American Association of State Highway and Transportation Officials (AASHTO) converted the SHRP 2 L06 guidance into a web-based tool. This research added additional detail to the guidance. The format of the tool is designed to be user-friendly, easy to access, and updatable. The web tool, Systems Operations and Management Guidance, is available on the AASHTO website at <http://www.aashtosomguidance.org>.
2. A second phase of the L06 project has validated and applied the research findings in a series of FHWA-sponsored workshops for state DOTs and regional partnerships seeking to improve their SO&M program capability. Key managers associated with the agency and/or region's SO&M activities meet in a facilitated roundtable format and develop a self-evaluation-based consensus about their current SO&M activities in terms of levels of capability. They then develop strategies suitable for their context to move up to the next level, which in turn, can be developed into a formal action plan.
3. The structure of the guidance is utilized in the Operations Academy curriculum in the form of team assessments of a fictional state DOT.

Reports

Report S2-L06-RR-1 (2012): Institutional Architectures to Improve Systems Operations and Management

Report S2-L06-RR-2 (2011): Guide to Improving Capability for Systems Operations and Management