

# TRANSPORTATION SYSTEM PERFORMANCE: Experts Identify Challenges & Expectations



**T**he Federal Highway Administration (FHWA) commissioned nationally recognized transportation experts to develop a series of white papers that identify opportunities to improve the operation and management of our nation's transportation system. The papers promote an exchange of ideas among transportation policy makers and other stakeholders who seek to improve the safety, reliability, and security of our transportation system.

The full text of the papers may be found at [www.ops.fhwa.dot.gov/nat\\_dialogue.htm](http://www.ops.fhwa.dot.gov/nat_dialogue.htm)

**Managing the Urban Transportation System: The Need for a New Operating Paradigm. By Ann Canby** ■ Because of constraints on the supply of new roadways, the changing nature of freight shipments, and the decrease in available highway capacity, America's transportation system is facing a crisis in congestion management. Meeting the demand of transportation customers requires a change in mindset within the industry—from a focus on infrastructure to a concentration on operations and performance. The potential payoff is significant, as measured in reduced travel delays, greater safety and security, improved operating efficiency, and greater customer satisfaction.

**Description of Transportation Systems Operations and Management. By Steve Lockwood** ■ To minimize delays and respond to service interruptions, most transportation agencies routinely conduct construction and maintenance planning, public safety activities, real-time systems management, advanced traveler information systems, and response to weather incidents. These functions often are dispersed and "stove-piped" within agencies. Systems management and operations requires building bridges to develop a synergistic program committed to performance.

**Summary of Transportation Operations Data Issues. By Rick Schuman** ■ As more transportation agencies move aggressively toward system operations and performance measurement, the need for comprehensive data with coverage breadth and depth becomes imperative. Properly collected data, if used effectively, can enable system operators and users to understand how the current system is performing, make more informed decisions, and assess the effectiveness of past decisions.

**Measuring System Performance: The Keys to Establishing Operations as a Core Agency Mission. By Michael D. Meyer** ■ Transportation agencies could improve system management and operations significantly by including the customer perspective when collecting and reporting data. A customer-oriented decision-making structure requires the following performance measures: system reliability, travel time (or speed), safety, average delay at top bottleneck points, physical condition of the infrastructure, traveler costs, and customer satisfaction.

**Transportation Operations: An Organizational and Institutional Perspective. By Joseph M. Sussman** ■ The emphasis in modern surface transportation must be on operations, enabled by new advanced technologies. To be successful, the new mission must incorporate characteristics that can be abbreviated as 3F/3I/3R: The mission must be funded, flexible, and focused; it must be integrated, intermodal, and information-based; and it must be regional, real-time, and routine. Change needs to occur at three levels: (1) the individual transportation professional; (2) the transportation organization; and (3) institutional change through new organizations and connections among organizations.

**Integrating Public Safety and Highway Operations: A Policy Framework and Analysis. By Kevin Dopart ■**

Transportation agencies must ensure that highways are accessible when incidents occur and incident information is conveyed accurately to public safety organizations. Federal transportation policies need to change the willingness and capability of the public safety community to embrace highway mobility objectives. Two options are available. One is to work within the public safety community to gain its "buy-in" by demonstrating that transportation can be a trusted partner. The other option is to impose accountability through external performance mandates, possibly using incentives to help bring about change.

**Operations in the 21st Century. By Steve Lockwood ■** In a fictitious speech given in the year 2025, the president of ITS-America highlights the tremendous changes in surface transportation over the previous 25 years. The speaker notes the increased focus on operations and performance, customer satisfaction, and new regionally based networks of agencies. To achieve these changes, some transportation agencies moved customer service management functions to the top of the organizational pyramid with civil engineering as a support function.

**Highway Funding: It's Time to Think Seriously About Operations – A Policy Framework. By Edith Boyden, Allan DeBlasio, and Eric Plosky ■** Historically, highway operations have never attracted substantial federal funding, while other modes of transportation such as air, rail, and transit have benefited from federal funding and policies focused on operations. Achieving consensus in support of a shift to federal funding for operations will require new partnerships between agencies that play a role in operating the nation's roads, clear guidance about eligibility to receive federal support, and well-defined criteria identifying levels of congestion that merit federal attention.

**Traffic Congestion and Travel Reliability: How Bad Is the Situation and What Is Being Done About It? By Tim Lomax, Shawn Turner, Mark Hallenbeck, Catherine Boon, Rich Margiotta, and Amy O'Brien ■** Current congestion, as evident in the growing peak period and the unpredictable nature of delay, is a major source of frustration among travelers. No single strategy is sufficient to achieve acceptable reliability in a system that is consistently at or near capacity. Recognizing that new construction has serious drawbacks, transportation agencies are improving roadway operations successfully by using advanced travel management systems, incident management systems, traveler information, and lane management techniques.

**Institutions for Transportation Operations, with Recommendations for Reauthorization. By D. Craig Roberts**

■ Most of the dozen or so existing Regional Operating Organizations (ROOs) share a number of common traits, including their partnership and management structure, plus strong state leadership. Expanding the role of ROOs and establishing them in areas where they do not currently exist will depend on predictable funding and institutional frameworks that acknowledge a future for these agencies. The next Federal Transportation Reauthorization bill should provide policy support for ROOs, create operations set-asides, and fund demonstration projects that focus on operations optimization.

**Development of an Intellectual Foundation to Support the Establishment of Transportation Operations as a Transportation Agency Core Mission: Developing the Concept of Planning for Operations. By John Mason**

■ The current framework for transportation planning and implementation fails to incorporate operations planning beyond basic recurring maintenance tasks. Improved planning for operations can yield substantial benefits in terms of performance and broader social goals (e.g., community livability, economic development, improved safety and equity). To achieve this, operations must mature from a tactical perspective aimed at day-to-day activities to a strategic level aimed at enhanced performance.

**For more information:**

**John Harding, Office of Operations Technology Services, Federal Highway Administration,  
400 7th St., SW, Washington, DC 20590, (202) 366-0640.**



U.S. Department of Transportation  
**Federal Highway Administration**

Publication No. FHWA-OP-02-039