



# Capacity Project Brief

## Reaching Decisions that Deliver Capacity

Elected officials and the public are demanding that highway projects be delivered both faster and in a more environmentally friendly manner. If we are going to meet both expectations, our profession will need to change the way we develop projects. The SHRP 2 Capacity Program is developing a collaborative decision-making process that is based on sound research and will serve as the new way of doing business in highway project development in the twenty-first century.

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Over the next four decades, the U.S. population is expected to grow by 40 percent to 420 million in 2050 (1). Between 1985 and 2005, vehicle miles traveled increased 80 percent but lane miles increased only 4 percent (1), thus consuming much of the highway capacity built during the Interstate construction period. It is estimated that an 80 percent expansion – an additional 173,000 Interstate lane-miles – will be needed to meet the demand for car and freight travel to the middle of the century (2). In addition, the population is not expected to grow evenly, but to cluster in megaregions, with 60 percent of the growth in six southern and western states (1). The demands on highway capacity in these states will be particularly great.

Even though much of the projected expansion of highways involves only widenings and upgrades, the public demands that we get the most out of our existing highways through better operations management before they



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will consider supporting expansion. There is also an expectation to do more than just mitigate impacts. Transportation agencies are expected to be stewards of the environment with respect to natural habitats, wetlands, air quality, and greenhouse gas emissions. The agencies are also expected to serve as stewards of the community, delivering transportation capacity that people want. Because many interests are represented, finding the most appropriate solutions only gets harder. The price for failure to work together is endless redo loops in the planning and design process, lawsuits, delays, and cost escalation.

With all this in mind, Congress's charge to the SHRP 2 Capacity program is to:

Develop approaches and tools for **systematically** integrating environmental, economic, and community requirements into the analysis, planning, and design of new highway capacity. (*emphasis added*)

Many of the strategies involved are familiar: consultation, ecological approaches to mitigation, practical or context-sensitive design, broad-based performance measurement, environmental justice, integrated corridor management, right-sizing, integrating planning and the requirements of National Environmental Policy Act, commitment tracking, and others. "Systematically" is emphasized because these strategies are not yet woven into the planning and programming processes.

How do we translate the most successful of these practices into business as usual? How can 50 states and more than 350 metropolitan planning organizations, at least six federal agencies and their many districts, and hundreds of state environmental organizations do this efficiently and repeatedly? And should they? What is the business case for this approach from all perspectives? SHRP 2 Capacity research is delivering the answers to these questions.

### **The Case for Change**

Transportation agencies today are charged with quicker delivery of the right transportation solutions. To speed project delivery and have the flexibility to consider nontraditional solutions, the entire organization needs a systematic approach to collaboration, ensuring that the right people are engaged at the right time with the right information. The Collaborative Decision-Making Framework provides this systematic approach. It is delivered as a web-based resource that can be used as a troubleshooting guide or a road map to changing a business process.

Will a transportation agency be better off if these strategies are adopted? The case studies on which the Framework is based suggest yes. As a next step state departments of transportation, metropolitan planning organizations, and their partners will be asked to pilot test the first release of the Framework to answer that question. SHRP 2 will issue a request for proposals in March 2010 for interested agencies partnered with consultants or universities.



### **The Collaborative Decision-Making Framework**

The Framework is an integrated web-based resource designed primarily for practitioners. It identifies key decision points in four phases of transportation decision making: long-range transportation planning, corridor planning, programming, and environmental review and permitting. Key decisions are those that require review and approval from higher levels of authority or a consensus among diverse decision makers before the project can advance. Occurring most often at the policy level, they effectively link the many steps of planning and project development. Many key decision points are common to most transportation agencies. Some are defined by law; others follow established practice.

The Framework offers detailed information for each key decision point, such as the following:

- The resulting outcomes;
- The decisions;
- Roles and responsibilities of the formal decision makers;
- Stakeholders or project-champion roles and relationships;
- Supporting data, tools, and technology;
- Planning processes other than transportation;
- Primary products; and
- Associated case studies of effective practices.

An Executive Guide to Collaborative Decision Making will be a companion resource, indicating when senior transportation and environmental officials need to be personally involved and providing successful examples.

### **The Basis for Decisions that Stick**

The products and outcomes of other SHRP 2 research will be integrated into the Framework or will otherwise be made available to strengthen the basis for decisions about when, where, and how much capacity is needed; what the economic impacts will be; and how to build capacity in ways that enhance communities and the environment. Those products include the following:

- A customizable performance measurement framework with links to key decision points; case studies of expedited decision making;
- Guides for integrating into transportation planning and programming: freight demand, greenhouse gas emissions, land use issues, travel time reliability performance measures;
- Tools for estimating the economic impact of new capacity; for implementing an ecosystem approach to environmental review and permitting; for determining driver responses to congestion and pricing; for analyzing the effect of operations, technology, and design on highway capacity;



- Strategies for linking community vision to transportation decision making; for minimizing disruption by managing construction at corridor and network levels; and for improving freight demand models and data; and
- Major advances in travel demand modeling that will be sensitive to policies such as pricing, telecommuting, time and route choices, and mode selection.

These research outcomes collectively map a route to decisions that deliver highway capacity.

### What's Ahead

A prototype version of the Framework will be demonstrated at conferences in the fall of 2009. At the 2010 TRB Annual Meeting, a workshop will provide opportunity for researchers to collect feedback from participants who test the prototype. A web seminar is planned for February 2010. It will provide information useful to transportation agencies that may propose in March to participate in the pilot tests. The funded (\$1.25 M) pilot tests will likely begin in the fall of 2010 and end in 2012, at which point the participants will assess whether they are better off for having used the strategies and practices included in the Framework. Following the tests, the Framework will be revised to respond to the pilot test findings, and steps for implementing the revised version will be formulated.

### References

1. Transportation for Tomorrow: Report of the National Surface Transportation Policy and Revenue Study Commission. December 2007. [http://transportationfortomorrow.org/final\\_report/](http://transportationfortomorrow.org/final_report/).
2. PB Consult, Inc., Cambridge Systematics, Inc., A. E. Pisarski, and K. E. Heanue. Future Options for the National System of Interstate and Defense Highways: Task 10 Final Report. Prepared for National Cooperative Highway Research Program Project 20-24(52), May 2007. [http://onlinepubs.trb.org/onlinepubs/trbnet/acl/NCHRP\\_20-24\\_52task10\\_NCHRPFinal.pdf](http://onlinepubs.trb.org/onlinepubs/trbnet/acl/NCHRP_20-24_52task10_NCHRPFinal.pdf).

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