

1996 ISTEA Report Card: Building on the Foundation

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When the Intermodal Surface Transportation Efficiency Act (ISTEA) legislation became law in 1991, it represented a significant departure from the Surface Transportation Acts of previous decades. Expectations were that ISTEA would become a catalyst that would help usher in a new era with respect to the federal transportation role. It was to be characterized by a focus on intermodalism, flexibility, private sector initiative, and enhanced R&D.

So it was not surprising in 1992 that at our first intermodal meeting in Irvine, California, we spoke of ISTEA in terms of its promise. And of particular interest to those of us here today, were the provisions that promised a wider role for transportation research as the basis for decision making in the new world of transportation that would emerge, both as a result of ISTEA itself and the technological and other changes the industry was and is continuing to undergo.

With several years of experience behind us, we are now able to evaluate how and where ISTEA has either fulfilled or failed to achieve its promises. (And I think it is a critical stage setter for the framework discussion that we are in fact talking about ISTEA's reauthorization.) As we prepare for reauthorization, the dialogue we are going to engage in will become a critical part of all the efforts to be undertaken to forge a transportation bill that will address the challenges of the future while recognizing the realities of our contemporary resources and the changing roles of the various partners in the transportation community.

I listened intently to Secretary Mortimer Downey in his grading of ISTEA implementation efforts and his explanation of the range of efforts the U.S. Department of Transportation (DOT) has undertaken, but I'm giving ISTEA the report card as well. In doing so, I think we should grade it on a number of dimensions. I think for its overall aims it deserves a B+ or maybe even an A, to be really generous. For its overall performance, though, it deserves only a C. Certainly on the performance of individual elements like R&D, I would give it a C+.

I am going to limit my comments to the R&D aspects of ISTEA—the scope of R&D that ISTEA authorized, an assessment of the actual work that has been done so far, and a framework for evaluating future R&D efforts that was developed last year by a joint National Science and Technology Council (NSTC) and Transportation Research Board Forum on Future

Directions in Transportation R&D. I will follow my comments with some thoughts about where we need to go in the future.

What did ISTEA offer? The ISTEA R&D provisions offered us an array of new or enhanced research opportunities, an intermodal approach to transportation research, particularly in studying modal connections, and a greater latitude in what we could study. We added policy as an area of evaluation and study. Technology transfer, the impact of transportation on the environment, and the social and economic impacts of transportation—all of those were new. They freed us in ways that gave us the opportunity to do things differently. The bill also gave us more flexibility in conducting R&D. It gave us the ability to collaboratively conduct research with other public entities, like the U.S. Department of Defense (DOD) and state governments, and with private entities. And it gave us the ability to contract directly with the National Academy of Sciences, the Transportation Research Board, and the American Association of State Highway and Transportation Officials.

Congress mandated a wide range of studies on a variety of topics, including international technology transfer; transportation in urban, suburban and rural areas; the use of recycled material in the transportation infrastructure; seismic research on infrastructure design. Also mandated were key studies on an integrated national surface transportation R&D plan, development of performance indicators to measure productivity, identification of current transportation research and technology development both domestically and abroad, including gaps in existing research and development programs, a long-term pavement performance program, and an Intelligent Vehicle Highway—now called Intelligent Transportation Systems (ITS)—program, designed to move intelligent transportation systems ahead as quickly as possible.

The legislation also required the development of new data bases to include data on intermodal transportation systems. It made provisions for technology transfer very explicit, including transfer from private industry sources, from public entities including military applications, and to and from foreign countries; and it insisted on a new applied research and technology program. Add to all of that new funding for education and training, the establishment of a new transit institute, the addition of five new transportation research centers, the establishment of five university research institutes, the broadening of the National Highway Institute to include private sector trainees and foreign nationals, funding for the training of state and local highway employees and the establishment of a Dwight Eisenhower Fellowship Program.

ISTEA also authorized funding for transportation planning, research, development, and technology transfer activities very specifically. It provided that up to 2 percent of the federal fuel tax be conveyed to the states to carry out these activities. For specific programs, the act authorized more than \$1.1 billion between 1992 and 1997.

But where have we been? Well, a number of things have happened. There is a major focus on the long-term pavement performance program, on applied research and technology programs, on highway safety R&D, on the National Transit Institute, and on the new university research institutes. The Urban Fellowship or the Transportation Fellowship Program was enacted and ITS has gotten DOT's attention and financial support.

Congress and DOT recognize the need. At the outset of the ISTEA era, we clearly faced a very ambitious and widely varied agenda. On the positive side, a broad agenda of transportation research is now supported. The government is establishing through BTS the necessary intermodal data bases. Commodity and passenger flow surveys are being undertaken now for the first time since the mid-1970s. They are critical to our understanding of what happens, why it happens, and now how it is happening. And we have moved forward on the development of new technologies like ITS at a faster rate than I believe would have occurred without ISTEA.

There are more opportunities to pick up on some of the themes of the comments that have been made in the past and move forward now while we are going through a strategic initiative to frame the new legislative approach, to deal with the various interests in the community, to begin to generate alliances and support.

Out of that Forum on Future Directions in Transportation R&D that I mentioned earlier, we developed a framework for the evaluation and guidance of federal transportation R&D

efforts. At the outset of the forum, we recognized that the transportation research environment is constantly changing and that there is some uncertainty about the future role of the government in transportation R&D funding and in carrying out responsibilities for program initiatives. The forum's consensus was that we need as a community to take a more strategic view toward transportation research in order to provide guidance for long-term development of R&D programs.

We looked at the federal research agenda, specifically the strategic information plan produced by the NSTC, which had been gathered from every federal agency including DOT. We found that it focused on four areas—physical transportation infrastructure, information infrastructure for transportation, the next generation of vehicles, and system performance. It was our assessment that this scheme fits the way federal transportation R&D is typically authorized, budgeted, and appropriated.

There is a potential problem, however, that we discovered and talked about quite frankly and directly: the scheme places an undue emphasis on monetary inputs to R&D instead of placing emphasis on desired outcomes. In other words, we were not listening enough to what the community of users needs. What is it that the customer requires (if they can articulate it), and how should we fashion that R&D agenda to help accomplish a meeting of those needs?

We said that the strategic planning process for federal R&D should include clear linkage from a vision statement to the goals, objectives, and policies and finally to the federal role; and that those goals, objectives, and policies needed to include not only national objectives but also the objectives of the users. In structuring the strategic planning process, we said the inputs needed to be inventoried and the outputs needed to be defined. We concluded that there is a need for a comprehensive national transportation R&D agenda that should be dynamic, should clearly represent an expectation that the federal role is to help identify areas of focus as well as to contribute to the development of funded research from which the private sector can jump off.

Where do we go from here? At the same forum last year, Secretary Federico Peña presented a paper on the need for federal support for transportation R&D. In it he outlined the major roles that the federal government can and should play.

- It should be a catalyst, a source of seed money and expertise. It should be a standard setter, providing certain measures of uniformity for consumers and transportation providers, while maintaining enough flexibility to support progressive change and new technologies. In other words, to provide incentives.
- It should be a facilitator and promoter, building alliances with the private sector to advance projects that are in the national interest.

As we look ahead to the coming ISTEA reauthorization debate, I think we need to concentrate our efforts at enabling the public sector to fulfill these roles in the most effective ways possible. We should also understand that the legislative process, which is always filled with interesting twists and turns, is likely to be even more complex this time.

I think one of our challenges will be to look at alliances between interests, to help us achieve our objectives, once we are clear about the framework of our agenda. And therefore, I think that DOD and DOT need to be at the table together as both funding partners as well as describers of what the needs are that they are trying to fulfill through the direction of R&D funds.

As transportation professionals in both logistics and defense, as well as in service provision, we know that adequately funded and directed R&D programs are needed to make the nation's transportation system function effectively, efficiently, safely, and intermodally. From our perspective, we need to argue that under the next transportation bill, the following goals should be achieved, either through the legislation itself or through the institutional and regulatory changes that will result from the bill.

First, research efforts should not be kept in modal cubbyholes. Our strategic R&D efforts need to be aimed at producing practical results and disseminating them rapidly. We can extrapolate lessons from the ways that the commercial sector has in the past converted military research and transportation systems into commercial use. And there should be flexibility in

practices regarding the contracting for transportation research. We are still too restrictive, and it takes too long.

We need to do more evaluation and feedback at strategic points in the R&D process, looking specifically at the program delivery and how it matches up to policy objectives in infrastructure, in vehicle, in technology, and in new quality of life or economic strategy areas. We should also be cognizant of the importance of information technology as we move ahead with the national research agenda, particularly the role that information technology will play in the development of ITS.

A number of questions that need to be answered include:

- What will be the components of our future intermodal system?
- Are they sized and linked appropriately?
- What is the information flow of the logistics system of the future likely to be?
- How can information be captured to effectively address traffic safety and security issues?
- What emerging technologies (like the Internet or electronic warfare) are likely to have an effect on the industry?
- How can we employ ideas and system approaches that exist in the private or public commercial sectors to meet defense community needs? For example, what is it that already works in the commercial sector on in-transit visibility that is applicable and appropriate from the defense community's point of view? But also, what is it that the defense community has already developed that we may or may not know about that could foster greater value in the commercial community and therefore better product for the defense community?

In times of constrained resources, we have got to achieve multiple national goals—strengthening both our economy and our defense—by achieving the effectiveness that mutual efforts can obtain for us.

Most important, we have to come back to some basic questions about the expectations of users. The air passenger and the shipper in the commercial system are fairly clear about what their needs are. We have to talk about what the expectations are and assume that those from the defense side may be very similar.

We also need to talk about change and cost. Jeff Crowe talked about the free market and about the free market directing how infrastructure investments—or how those who fail to make the appropriate investments—will fall out of the system until only the strongest remain, whether it is strongest port system or the strongest air system. We need to examine that thinking and talk about it because, from a public port perspective, we believe the system should allow that all participants in funding gain some return on the use of the system. The private operator operating the truck or the ship or the rail car; the port and others who are in the system; the forwarder, broker, and the shipper all deserve to gain some return.

The debate taking place with the shipper community suggests that that may not be the case, that not all of us will be able to get a fair share return. It is a very critical component that needs to be looked at, particularly as the defense community is going to rely more and more on the commercial sector. And as more and more resource constraints are imposed, we need to decide and talk through who pays and how much.

A discussion of economic policy needs to also take place. It will happen, both in this legislative round on ISTEA and on shipping act reform and on the discussions about whether the Federal Maritime Commission survives.

As we consider all of these points, we should be reminded of the executive summary from last year's R&D forum, in which it was noted that emphasis should be placed on building consensus, developing a collective national vision to guide system development and transportation policy. With austere federal funding, an understanding of public values and a common vision are essential to strategically setting affordable priorities and keeping them current. Self-interest and intersections among those interests need to be defined.

The key to making our efforts work today and tomorrow is to remember that our nation's transportation R&D efforts will work most effectively when we involve collaborations, identify alliances, and understand the policy. We will further enhance R&D efforts when we de-

velop structures that will bring about our willingness to work together, and when those structures help us to support and fashion the next generation of legislation. We must get to the point where we are not fighting the mode that has the paramount interest, but rather finding that that mode understands that the other modes' dependencies work because their interests are being sufficiently financed.

Whether it is the highway community or the transit community or the aviation community or the ocean or rail carrier communities, we need to get everybody at the table talking about how the system needs to work more effectively and what it will take to make that happen. All of this means that we have to be practical, we have to be rooted philosophically and politically, and we have to understand how it is possible to make change. And most of all, we have to assure adequate information flow. DOT and DOD can have wonderful conversations with all of us, but if we are not really sharing with each other what is going on, what it is that we want to accomplish, and how we are going to accomplish it, we will not achieve the change that is realistic and possible that is still ahead of us.