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Transportation Finance

Meeting the Funding Challenge Today, Shaping Policies for Tomorrow

Report of the Committee for the Third National Conference on Transportation Finance

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Preface

In October 2002, approximately 350 people assembled in Chicago, Illinois, to participate in the Third National Conference on Transportation Finance. The conference brought together individuals from the transportation, finance, and public policy communities at national, state, and local levels and from both the public and the private sectors. The public sector was represented by federal, state, and local government officials and managers of transportation assets such as airports, seaports, and toll roads. Private-sector participants included investment bankers, financial advisors, design and construction professionals, attorneys, developers, credit analysts, journalists, and consultants in the transportation sector.

As the third in a series of national transportation finance conferences sponsored jointly by the Transportation Research Board of the National Academies and the Federal Highway Administration, the conference continued the dialogue on the challenges of financing the nation's transportation systems and provided a forum to exchange perspectives on what has worked, what has not, and what might be tested. Given the timing of the conference—as proposals were being developed to be part of reauthorization of the nation's surface transportation and aviation programs—special attention was paid to considering new approaches for the future.

The Third National Transportation Finance Conference had two primary objectives:

1. To educate federal, state, and local officials regarding new transportation infrastructure and operations financing mechanisms, their structure, and the benefits and costs of implementing such techniques and
2. To explore the development of additional new funding mechanisms and sources.

Conference Program

The conference program was designed to maximize the exchange of information and perspectives among program participants. In addition to the standard panel sessions—16 organized around four substantive tracks—each panel included a discussant, whose sole function was to energize the question-and-answer period and spur discussion following the panel presentations. Two general sessions were devoted to recapping the highlights of the panel sessions and further stimulating the exchange of views among conference participants.

Four preconference workshops were provided to give participants at all levels a chance to brush up on the state of the practice of transportation finance.

By the close of the conference, participants not only had collected a significant amount of information but also had exchanged perspectives and built a dialogue for the upcoming legislative debates at the national level. As with previous conferences, the Committee for the Third National Conference on Transportation Finance has recommended a continuing round of conferences in the coming years, especially soon after the reauthorization of federal surface and aviation transportation programs. Other recommendations of the committee can be found in the section on committee findings and recommendations.

ACKNOWLEDGMENTS

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purposes of this independent review are to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

The conference committee thanks the following individuals for their review of this report: John Bartle, University of Nebraska at Omaha; Jeremy F. Plant, Pennsylvania State University; Michael A. Vaccari, Nixon Peabody LLP; and Jenifer Wishart, International Finance Corporation.

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations, nor did they see the final draft of the report before its release. The review of this report was overseen by C. Michael Walton, University of Texas at Austin. Appointed by the National Research Council, he was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

The committee thanks Suzanne H. Sale of the Federal Highway Administration for providing the vision and encouragement that made the conference the success that it was and Paul Marx of the Federal Transit Administration for his instrumental participation in the development of the conference program. The committee also thanks Tamar Henkin and Karin DeMoors of TransTech Management, Inc., who prepared this report on behalf of the conference committee and supported the committee in development of the conference program and invitation of selected speakers and participants.

Contents

Committee Findings and Recommendations

Following the final general session, the Committee for the Third National Conference on Transportation Finance convened to develop its findings, primarily on the basis of the information presented and discussions held at the conference. A summary of the committee's findings regarding cross-cutting themes, key issues and observations, and resulting committee recommendations follows and is organized into four areas:

1. Common themes and key observations,
2. Committee recommendations concerning policy-related issues,
3. Committee recommendations for research, and
4. Committee assessment of the conference and recommendations for future events.

With one exception, the committee endorses all findings and recommendations. One committee member, Dennis G. Houlihan, agreed with many elements of the report but dissented from some findings. His statement is presented in its entirety as a footnote to this section. In accordance with the policies of the National Research Council, this addendum provides the opportunity for the expression of views not shared by the majority of the committee.

Common Themes and Key Observations

After reviewing proceedings of past conferences and the literature, the committee worked to identify the broad themes that shaped the third national conference. These themes determined the four tracks of the conference:

1. How to Finance the Next Transportation Program—Reauthorization and Beyond;
2. Tools and Techniques to Deliver More Projects Faster;
3. Structures, Institutions, and Partnerships to Deliver More Projects Faster and Cheaper; and
4. New Transportation Initiatives and Demands on Financing.

The backdrop for the themes and the conference was a broad recognition of the unique opportunity—and challenge—presented by the multiple upcoming transportation program reauthorizations: for surface transportation, the successor to the Transportation Equity Act for the 21st Century (TEA-21); for aviation, the successor to the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century; and for Amtrak, the successor to the Amtrak Reform and Accountability Act of 1997. In an environment charged by an intense focus on addressing security-related needs, these reauthorization initiatives coincide with a strained fiscal situation at federal, state, and local levels of government.

In reviewing the ideas and issues addressed at the conference (and summarized in these proceedings), the committee identified a set of common themes and observations. These are divided into two organizing categories—(*a*) underlying framework and trends and (*b*) possible new directions—summarized below.

Underlying Framework and Trends

Following are a number of observations formulated by the conference committee in synthesizing the conference and its various sessions and themes. These serve as the backdrop for the committee's recommendations introduced later in this section.

- Many observers believe that a critical need exists to address the seemingly inflexible silos that in their view have come to dominate the nation's transportation funding programs and to move toward developing financing approaches on an integrated, multimodal basis. This view holds that transportation funding should be designed to support a national transportation system that is both multimodal and multipurpose.
- There is broad recognition of the looming set of challenges related to the funding of security-related investments and the impact of such demands on the nation's transportation infrastructure and overall economy in both direct costs and indirect costs associated with reduced efficiency and time delays. The full extent—and cost—of the required investments is not yet known. Nor are there answers to the questions, Who will pay for these investments? and What will be the process for establishing priorities among alternative investments and between these investments and traditional infrastructure needs? Answers to these questions are critical to integrating these new demands successfully into existing funding frameworks and to developing new funding approaches that best meet the new demands.
- Transportation needs outstrip the available transportation funding being generated from various sources. This situation has led to a push for innovative finance tools and new policies and approaches to assist in narrowing this gap. These tools and policies generally provide the ability to advance projects, but long-term needs continue to mount at a pace faster than available revenues.
- Revenues from gasoline and other fuel taxes appear insufficient to meet current use and the projected growth in demand for transportation capacity. The growing use of gasohol and the development of hybrid and alternative fueled vehicles are beginning to affect adversely the viability of the gas tax as the primary funding source for transportation. Many observers believe that the transportation industry, therefore, must address the viability of these excise taxes as the primary funding source for transportation investments. This consideration will require both near-term steps in the current reauthorization cycle and, as appropriate, measures to transition to funding approaches that will be sufficient over the long term.[1]
- With the implementation of techniques made possible or supported by the Intermodal Surface Transportation Efficiency Act (ISTEA) and TEA-21, along with state and local initiatives such as public–private partnership legislation, a wide range of transportation financing tools are now known and used selectively across the country. As such, emphasis on the use of the term "innovative finance" has achieved its original purpose and is being increasingly replaced by a need to bring the use of these tools into the mainstream. The term "innovative finance" is essentially out-of-date, and many noted that it should be replaced by a more bundled, flexible approach to financing to enhance the financial management of the nation's transportation systems.
- The use of innovative finance techniques creates some concern regarding the level of reliance on debt finance. In some states, the balance between debt and pay-as-you-go approaches is tipping increasingly toward debt. There is concern that this trend, if it becomes general, could limit transportation investments in the country. Efforts to extract value from the transportation system (as has been accomplished by some transit agencies through joint development programs) could help to offset this trend, provide much-needed revenues, and reduce pressure on taxpayer-supported debt financing.
- Some observers view the nation's reliance on the gas tax as the primary source of funding for surface transportation investments as inconsistent with other national policies, most notably as they relate to energy and air quality. In national and state policy settings, such dependence may encourage the wrong incentives, such as departments of transportation (DOTs) looking for greater consumption of gasoline to increase the yield from each gas tax penny, when they are considering the demands to fund large unmet needs in transportation programs.
- The approach of public–private partnership is growing as a management and financial tool to implement transportation programs. Inconsistencies in the treatment of such partnerships by federal, state, and local governments continue to pose barriers to the implementation of public–private programs. Concerns regarding the quality, performance, and cost-competitiveness of public–private arrangements also need to be addressed.
- Performance measurement and accountability continue to be critical to gaining and maintaining public trust and support for the use of new approaches to project delivery and financing, as they continue to be for traditional approaches. This includes the need for full disclosure of public agencies' financial commitments along with disclosure of associated risks and liabilities. To this end, many see a strong need for the continued development of data resources and tracking techniques relating to program performance and the

[1] This issue is explored in a forthcoming report by the TRB Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance.

interplay with finance to provide the public with the information required to judge overall performance best.

• Budget cuts and personnel caps, along with key members of the transportation workforce reaching retirement age, are depleting state DOT workforces. This reduction in in-house expertise is occurring at the same time that potential reductions in federal assistance require transportation agencies to spend smarter to continue improving services.

• These staff reductions, achieved substantially through early retirement programs, are accelerating a shift in the senior management of state DOTs. One positive aspect of this change has been a shift in organizational culture toward management of transportation assets as an integrated system and application of newer management disciplines to this end. Continuation of these trends is an important factor in cultivating expanded openness to alternative approaches and reaping the maximum benefit from the transportation system.

• Many observers feel that budgetary firewalls, funding guarantees, and related policies such as the revenue-aligned budget authority (RABA) in TEA-21, which strive to ensure that all transportation funding sources are used on transportation investments, have collectively worked well.

Possible New Directions

Following is a set of possible new directions that were discussed at the conference and that inform the committee's recommendations offered later in this section.

• Many participants noted that an important opportunity exists to apply concepts of traditional public finance to the funding challenge and thus to move beyond the application of what they view as an inadequate and incomplete user-pay approach to incorporate a broader beneficiary-pay principle. Some also noted that the transportation community, policy makers, and the public could benefit by gaining a better understanding of the social and distributional implications of the various tax choices as well as how best to capture the value of the existing system to generate funding. Concern was raised about the increasing reliance on sales tax mechanisms that are generally regressive and that incorporate neither a user-pay nor a direct beneficiary-pay approach.

• The focus is shifting from developing new financing techniques to addressing how best to apply these techniques in the most appropriate ways and in securing refinements to enhance their role in meeting transportation investment challenges and ultimately improving the nation's quality of life. An incipient parallel shift is requiring the inclusion of rehabilitation and preservation needs in the development of any new financing tools. To date, the primary focus of innovative finance initiatives has been on new construction.

• Accompanying these shifts in focus is a heightened emphasis on the need for training, education, and continued information exchange on the application of the full range of available finance techniques and assessment of their appropriateness to specific situations. This assessment includes consideration of who will bear the costs associated with the various approaches. Costs to be considered include the social, fiscal, economic, and environmental costs as well as the associated risks of employing alternative financing approaches.

Recommendations Concerning Policy-Related Issues

The conference committee developed a set of recommendations focused on policy-related issues, some entailing possible legislative and administrative changes. Following is a summary of these recommendations.

General

• In the near term, identify ways to use alternative funding sources to begin to lessen the reliance on fuel tax revenues. Such approaches could focus on application of the beneficiary-pay principle and broader definition of beneficiaries than in current user-pay approaches, as well as on generating funding from existing transportation assets and injecting the discipline of equity investing on the part of the public sector.

• To begin addressing longer-term needs, explore options to address the shifting challenges for transportation funding and to identify alternatives to fuel taxes as well as financial tools needed to deploy new funding approaches over the long term.

• Encourage transportation stakeholders to seek more flexibility in making use of available finance tools. Such broad support will likely be critical in achieving expanded eligibilities and new finance tools.

Legislative

• Consider alternative funding mechanisms. A variety of options were discussed at the conference. Following are some potential alternative funding mechanisms and adjustments to existing mechanisms considered:

–Indexing the gas tax to maintain its purchasing power.

–Addressing the problem of fuel tax evasion.

–Facilitating private-sector investment in surface transportation infrastructure.

– Encouraging broader implementation of value pricing and tolling approaches.

– Enhancing the ability of states to capture the value of transportation investments, for instance, retaining a portion of the increase in the value of land and structures around interchanges that can be attributed to transportation investment and allowing sponsors of highway projects to capture benefits that already accrue to transit.

• Maintain and enhance alternative financing initiatives. The subject was widely discussed at the conference, and numerous ways were presented for the initiative to be accomplished. The committee does not endorse any particular approach. Some of the potential options discussed at the conference include the following:

– Reauthorizing the Transportation Infrastructure Finance and Innovation Act (TIFIA) program and making adjustments so that it is accessible to a broader range of borrowers and types of investment.

– Offering bridge financing or credit enhancement opportunities to recipients of full-funding grant agreements to help them deal with funding uncertainty.

– Expanding innovative finance programs for rail and freight, possibly including development of a freight infrastructure bank concept.

– Increasing utilization of the state infrastructure bank (SIB) program and expanding eligibility for federal funding of state-level SIBs, while maintaining federal policy goals.

– Facilitating public–private partnerships that help to develop, finance, and operate transportation facilities. One specific measure that was discussed would revise the tax code to enable public purpose surface transportation projects with significant private participation to access tax-exempt financing (as currently allowed for other transportation modes). These so-called private activity bonds were proposed in past legislation (the Multimodal Transportation Financing Act, S. 870, introduced in the Senate in 2001, as well as previously in the Highway Infrastructure Privatization Act, 1997, and the Highway Innovation and Cost Savings Act, 1999).[2] [Editor's note: They have also been proposed in the current Congress (S. 104, introduced in the Senate on January 24, 2005).]

– Continuing to expand flexibility relating to nonfederal match provisions, including the application of program match alternatives, toll credits, and other soft match provisions.

• Consider taking the first steps to move toward a multimodal, multipurpose transportation program in the current reauthorization cycle, such as expanding opportunities to flex funds between highways and transit investment, broadening eligible uses of surface transportation funds for freight, and broadening eligible uses of Airport Improvement Program funding to embrace surface transportation investments that primarily serve airports (for example, rail and roadway access projects).

• Make adjustments to achieve consistency of federal laws so that transportation decisions are not driven by inconsistencies in the funding processes.

Administrative

• Make adjustments to achieve consistency of federal rules and processes, including but not limited to funding eligibility and related procurement rules and procedures within individual modes and across modes.

• Given the complexity of many innovative finance strategies, provide full public disclosure of the public sector's financial commitment and exposure to risk and liability before approval for projects exceeding a given size threshold (e.g., $100 million).

• Consider possible improvements to the customer service component of the U.S. Department of Transportation's (DOT's) innovative finance programs, including actions to speed the response time of U.S. DOT regarding proposed innovative finance applications and in negotiations of TIFIA transactions.

Recommendations Regarding Future Research

The conference addressed long-term financing issues and needs beyond the upcoming reauthorizations. On the basis of conference discussions, the committee developed suggestions for various potential research initiatives:

• Sponsor research related to the development of comprehensive alternatives to the gasoline tax for surface transportation funding, including the possible creation of a national commission to study the alternatives.

[2] Minority statement of Dennis G. Houlihan: The committee found that innovative financing techniques have become regular tools for transportation finance. As such, projects using innovative finance, including state infrastructure banks and tax credits, should be required to comply with the same federal and state worker protection, environmental, accessibility, and civil rights standards as conventionally financed projects. Worker protection standards include, but are not limited to, Davis-Bacon and Section 13 (c) of the Federal Transit Act provisions. In cases where there are direct and subsequent generations of recipients of funds from an innovative financing, such as with state infrastructure

- Sponsor research to inform the development of guidelines for the appropriate level of financial leverage, including but not limited to the leveraging of federal funding with grant anticipation financing techniques.
- Develop guidance and information on beneficial public-sector and private-sector roles and appropriate risk sharing in project development and finance.
- Sponsor research to explore potential federal roles in developing standards in technology, especially regarding revenue capture.
- Expand research efforts in support of multimodal funding initiatives, including techniques that would eliminate funding silos and identify and address barriers and inconsistencies across modes.
- Sponsor research and forums for information sharing with nontransportation public infrastructure modes regarding alternative methods to access revenue and raise capital.
- Sponsor research regarding the quantification of economic and other long-term benefits of investing in transportation infrastructure.
- Sponsor research on how to capture the value of the existing transportation system fully and to look at the transportation system with an eye toward opportunities to generate funding through value capture techniques. A few transit agencies and toll authorities have successfully used this method whereby increases in land values associated with a transportation investment have been shared at least in part with the transportation project sponsor or whereby funding has been derived from private partners' interests in the transportation investment.
- Expand on the Innovative Finance Clearinghouse initiative and provide an institutional and financial mechanism to ensure its upkeep. In particular, consider expanding the clearinghouse to include a focus on funding initiatives for local and smaller projects and to go beyond the original focus on innovative techniques to include the full range of transportation finance techniques. The clearinghouse also could usefully include sections on the pros and cons of various strategies and the social and distributional implications for different stakeholders.
- Develop objective criteria to capture miles traveled on transit to be able to consider that value in allocation formulas for transportation funding.

Assessment of the Conference and Recommendations for Future Events

Following is a summary of the committee's overall assessment of the Third National Conference on Transportation Finance and recommendations regarding future conferences and gatherings. These findings and recommendations reflect input received informally from conference participants and the observations of the committee itself.

- The overall structure of the conference was successful. Particular highlights included
  - The conference's relative multimodal focus, which was facilitated by more concurrent sessions, the inclusion of presenters from a wider range of disciplines, and outreach to a more diverse group of program participants;
  - The discussant role and other techniques that expanded opportunities for audience participation and spurred discussion of more controversial topics and the reporter role, which facilitated broader sharing of findings from the concurrent sessions and cross-fertilization of ideas across the tracks; and
  - Well-constructed and -delivered general and luncheon sessions and speakers who provided a wide range of perspectives and pulled together the range of topics and perspectives offered in the concurrent sessions.
- Although the conference was generally successful at expanding its reach to nonhighway modes and to a wider range of program participants, it could have gone further in both respects.
- The resource papers prepared before the conference and presented in the opening general session helped frame discussions throughout the conference. Such papers, however, could be more fully integrated with the conference program and committee activities.
- Concurrent sessions that stimulated participants to consider higher-level conclusions or findings were generally favored over case study sessions, although the continued importance of providing a balance of theoretical and real-life experience is recognized.
- The preconference workshops were successful and should be retained. Consideration should be given, however, to the pros and cons of holding these workshops simultaneously. The disadvantage at this conference was forcing participants to choose from among

banks, these standards should cover all recipients. Innovative financing must not be used to undermine worker rights or allow entities to avoid compliance with laws protecting the public interest.

The committee found "concerns regarding the quality, performance and cost competitiveness of public–private arrangements that need to be addressed." We also found that retirements and staffing constraints are hollowing out state department of transportation (DOT) workforces and reducing in-house expertise. Given these concerns and the reduced in-house capacity of DOTs to evaluate and manage private proposals and agreements, I do not support the committee's suggestions for expanding public–private partnerships, including broadening the use of private activity bonds.

equally compelling topics and dividing workshop participants into traditional camps. The benefit was providing both introductory and advanced sessions.

- The breakfast roundtable discussions were seen as a welcome opportunity for more informal discussion among conference participants.
- The participation of members of Congress, congressional committee staff, senior administration officials, and state elected officials was of significant benefit to the conference and to meeting the objective of informing upcoming policy decision-making. To achieve—and expand on—this level of participation, careful consideration of the timing of events is critical. It is important, for instance, to attempt to avoid times when travel is constrained by upcoming elections, administrative transitions, and budget situations.
- A continuing cycle of conferences is desirable. Ideally the next conference would be held shortly after reauthorization. Efforts should also be made to continue the dialogue in the interim with targeted workshops, informal discussion forums, and other methods of information exchange. Some of this discussion could be integrated into the midyear and annual meetings of the Transportation Research Board (TRB).
- Consistent with the effort to make the conference more multimodal, greater involvement of nonhighway modes in planning the conference would be beneficial. To this end, a broad set of organizations should be identified early in the planning process and solicited for suggestions for committee members and program participants.
- Conferences should build on the success of this conference in engaging a greater diversity of participants, including those from local government as well as from nonfinancial disciplines such as urban planning and public management. Users of the system (e.g., shippers, warehousing and distribution firms) should be invited as well as those reflecting community advocacy and environmental perspectives.
- Proceedings of the conference (including CD-ROMs of individual presentations) should be distributed to participants, interested trade associations, and congressional committees. They also should be made available on the TRB website and brought to the attention of relevant TRB committees.
- Plans for future conferences should include a final postconference committee meeting to focus on the dissemination of information from the conference and potential activities.
- The committee or TRB should reassess the status of the committee's findings and recommendations, perhaps most logically shortly after reauthorization and before the next national conference.

Conference Summary

In October 2002, approximately 350 people assembled in Chicago, Illinois, to participate in the Third National Conference on Transportation Finance. The conference brought together individuals from the transportation, finance, and public policy communities at national, state, and local levels and from both the public and private sectors. The public sector was represented by federal, state, and local government officials and managers of transportation assets such as airports, seaports, and toll roads. Private-sector participants included investment bankers, financial advisors, design and construction professionals, attorneys, developers, credit analysts, journalists, and consultants in the transportation sector.

Overview of Conference Agenda

As the third in a series of national transportation finance conferences sponsored jointly by the Transportation Research Board of the National Academies and the Federal Highway Administration, the conference continued the dialogue on the challenges of financing the nation's transportation systems and provided a forum to exchange perspectives on what has worked, what has not, and what might be tested. Given the timing of the conference—as proposals were being developed to be part of the reauthorization of the federal surface transportation and aviation programs—special attention was paid to considering new approaches.

The Third National Transportation Finance Conference had two primary objectives:

1. To educate federal, state, and local officials regarding new financing mechanisms for transportation infrastructure and operations, their structure, and the benefits and costs of implementing such techniques; and
2. To explore the development of new funding mechanisms and sources.

The conference program was designed to maximize the exchange of information and perspectives among conference participants. By the close of the conference, participants not only had collected a significant amount of information but also had exchanged perspectives and built a dialogue for the upcoming legislative debates at the national level.

Preconference Workshops

It is important that a conference of this nature meet the needs of all its participants. To address the varied knowledge about transportation finance, conference planners took two actions. First, the Conference Committee commissioned four papers to provide a context for the meeting and made them available before the conference. Second, the committee built on past successes with preconference workshops. Those four workshops gave participants at all levels a chance to brush up on the state of the practice of transportation finance. The two introductory level workshops were

- Highway Finance 101: A Primer on Highway Funding and New Financing Techniques and

- Transit Finance 101: A Primer on Public Transportation Funding and New Financing Techniques.

The two advanced workshops were

- Conversations with Capital Market Experts and
- Advanced Transportation Finance Roundtable.

General Sessions

The general sessions for the Third National Transportation Finance Conference were designed to take full advantage of the breadth of participants at the conference and to home in on financing issues that would be the focus of upcoming reauthorization efforts. To this end the general sessions included formal addresses and informal roundtable discussions by high-level administration officials and a U.S. senator (Senator James Jeffords of Vermont), a panel of key congressional staffers, and a culminating roundtable of individuals from a wide range of transportation organizations.

Together, these general sessions provided conference participants with a tremendous opportunity to hear the most current thinking on finance-related issues from a wide spectrum of perspectives and, just as important, to help shape the debate on these matters.

A more detailed synopsis of the conference general sessions is provided in the subsequent section of this report.

Four Tracks

The agenda for the Third National Conference on Transportation Finance was developed around four substantive tracks. Each of the four tracks featured four sessions, each including three to four presentations.

The format for each of the 16 standard panel sessions included a discussant, whose sole function was to energize the question-and-answer period and to spur discussion following the panel presentations. Two general sessions were devoted to recapping the highlights of the panel sessions and further stimulating the exchange of views among conference participants.

The four tracks and their associated sessions are outlined below and discussed in later sections of these proceedings.

Track 1: How to Finance the Next Transportation Program—Reauthorization and Beyond

Track 1 focused on providing an overview of reauthorization and ideas about how to augment traditional funding with alternative revenue sources and about what is being considered for reauthorization and as a foundation for the future.

Track 1 panel sessions consisted of the following topics:

- Present and Future Core of Federal Funding: Will Trust Fund Revenues Be Enough?
- Examining Current and Potential Use of Tax Incentives in Promoting Surface Transportation Investment,
- Tapping Alternative Revenues at the Regional and Local Level: What Is and What Could Be? and
- User-Pay Techniques: Toll Roads and Beyond.

Track 2: Tools and Techniques to Deliver More Projects Faster

Track 2 focused on providing a macro-level view of the state of innovative finance, including an assessment of what is working, what is not, and what the future holds.

Track 2 panel sessions included the following topics:

- Characteristics of Strong Financial Planning: What It Takes to Have Good Discipline,
- Innovative Financing to Advance State and Local Transportation Programs and Projects,
- Tools and Techniques to Meet Project Funding Challenges, and
- Quantifying and Communicating the Benefits and Costs of Innovative Finance.

Track 3: Structures, Institutions, and Partnerships to Deliver More Projects Faster and Cheaper

Track 3 sessions concentrated on the institutional and structural elements in implementing alternative approaches to project delivery and financing to deliver projects in the most cost-effective and expeditious manner feasible. The sessions in this track addressed the questions, What has worked? What has not? What does the future hold? and, finally, How much of a cultural shift has occurred and how much more is needed?

Sessions in Track 3 were organized around the following topics:

- Public–Private Partnerships: Taking the Mystery Out of the Three Ps,
- Public–Private Partnerships: A Matter of Survival,
- Privatization and Outsourcing of Transportation Functions: Impact on Finances of the Transportation Organization, and
- Innovative Contracting and Implications for Transportation Finance.

Track 4: New Transportation Initiatives and Demands on Financing

The final track, Track 4, centered on the anticipated impacts of new transportation initiatives on the overall demand for financing and considered the question, Will the current tools, techniques, and structures fit the bill? The context for this track included the focus on new security-related transportation investments and mounting concern about the capacity to finance large-scale multimodal transportation projects.

Track 4 panel session topics included the following:

- Challenge of Intermodal Projects: Keeping Them from Falling Through the Cracks of Financing Programs,
- Financing Marine Transportation Systems,
- Intercity Passenger Movements: Degree and Form of Public Subsidy, and
- Emerging Funding Challenges.

Together, the four tracks and related speakers at the general session focused on the most critical finance issues facing transportation stakeholders today and in the future. Collectively the sessions drew particular attention to the mounting realization that new funding structures should be considered to maintain and enhance the nation's transportation infrastructure and that now is the time to evaluate alternative structures and develop new approaches to funding transportation. A synthesis of conference themes appears at the conclusion of this report.

General Sessions

GENERAL SESSION 1
Welcome and Charge to the Conference

William D. Ankner, *Rhode Island Department of Transportation*
Frederick (Bud) Wright, *Federal Highway Administration*
Kirk Brown, *Illinois Department of Transportation*
Miguel d'Escoto, *City of Chicago*
Herbert London, *Hudson Institute*
Geoffrey S. Yarema, *Nossaman, Guthner, Knox, & Elliott LLP*
Sharon Greene, *Sharon Greene and Associates*
James T. Taylor II, *Bear Stearns & Company, Inc.*
Joseph M. Giglio, *Northeastern University*

The Third National Conference on Transportation Finance kicked off with a general session that included welcoming remarks from the conference chair, sponsor, and local officials and a keynote address by Herbert London of the Hudson Institute. The four tracks of the conference were introduced by the authors of four resource papers provided to participants before the conference and included in a separate section of this report.

WELCOME AND CHARGE

William D. Ankner

William D. Ankner, Conference Chair, provided an overview of the structure and objectives of the conference. Ankner charged participants to take ownership of the conference and, through their active participation, to contribute to the success of the sessions and of the conference.

Frederick (Bud) Wright

Following Ankner's remarks, Frederick (Bud) Wright, Executive Director of the Federal Highway Administration, noted that highway safety has become a public health epidemic and that the solution is greater investment in transportation. In focusing on highway safety, Wright stressed that what the conference participants are doing matters and that they had an opportunity to work together to craft transportation solutions as part of reauthorization. He conceded that budgetary constraints will make it more challenging and that innovative finance approaches will have to play a greater role. He pointed out that approaches that were once considered innovative have moved to the mainstream and gave examples of Transportation Infrastructure Finance and Innovation Act (TIFIA), Grant Anticipation Revenue Vehicles (GARVEEs), and state infrastructure banks (SIBs).

Finally, Wright reflected on the important setting and great opportunity provided in this conference, especially given its timing before the reauthorization of federal surface and aviation transportation programs.

Kirk Brown

Kirk Brown, Secretary of the Illinois Department of Transportation, noted that the challenge facing the nation was illustrated with the needs and funding challenges of Illinois.

Miguel d'Escoto

Miguel d'Escoto, Commissioner of Transportation for the City of Chicago, echoed Brown's comments and provided some context from the city that hosted the conference.

Keynote Address

Herbert London

In his keynote address, Herbert London of the Hudson Institute focused on two themes: (*a*) homeland security and (*b*) performance-based pricing. He identified three challenges or barriers: (*a*) political barriers to raising user fees, (*b*) the unpredictability of revenue streams, and (*c*) the ability to link user taxes to specific improvements. He noted the lack of a visible link between the gas tax and specific use of the system and commented on the substantial free-rider problem. London called for the deployment of automatic vehicle identification equipment and the use for innovative finance approaches.

London emphasized the link between transportation security and investment and noted that security demands would drive both the needs and the solutions. He concluded with a famous line, "The future is not what it used to be," offered as inspiration for the conference.

Introduction of Conference Tracks

The conference agenda was buoyed by four resource papers prepared before the conference and updated afterward. The resource paper authors presented their papers as an introduction to the four tracks of the conference agenda. These papers in full follow in a later section of this report.

Track 1: How to Finance the Next Transportation Program—Reauthorization and Beyond

Geoffrey S. Yarema

Geoffrey S. Yarema summarized his paper and focused on four issues:

1. What should the goal of reauthorization be? To address this first question, Yarema highlighted the need to improve safety, maintain system conditions, and maintain current performance levels.
2. What has TEA-21 activity achieved? The author noted that even maintaining system performance is a distant reality. He argued that while conditions have been maintained, performance has not.
3. What does future investment need to be to maintain condition and performance? Referring to Haw's *Conditions and Performance Report* and *Bottom Line Report* (American Association of State Highway and Transportation Officials), Yarema explained that experts varied in their opinions. He continued that unless one assumed a significant reduction in travel, a substantial increase in funding would be needed just to maintain system condition and performance.
4. What are the alternatives? Yarema offered several options, including enhancements to fuel excise taxes, implementation of financing through the tax credit bond approach, and broader use of user tolls and alternative revenue sources.

Track 2: Tools and Techniques to Deliver More Projects Faster

Sharon Greene

Sharon Greene presented the second resource paper, which she wrote with Michael Schneider, and focused on the tools and techniques needed to deliver projects faster. Her presentation concentrated on impediments to project delivery, including environmental, institutional, political, and jurisdictional barriers.

Greene first defined "innovative finance" as "moving the traditional transportation funding process from a single strategy of federal aid through grants to state, regional, and local authorities to a more diversified approach involving increased utilization of capital markets and the private sector." She then highlighted a number of key accomplishments, including

- State infrastructure banks, with 32 participating states and $4.06 billion in loan agreements;
- GARVEE bonds, with six states issuing $2.3 billion in bonds; and
- TIFIA credit assistance, with 11 projects with agreements in place in nine states, for a total of $15.4 billion in investment.

The author described the need for greater certainty about project schedules, costs, and revenue streams when capital market approaches are deployed. She contrasted this need with the current project development process with its attendant uncertainty in the timing and cost of project delivery.

Greene described four attributes of projects that facilitate faster delivery:

- Stability,
- Predictability,
- Continuity, and
- Acceptability.

She then described common impediments to project delivery, including environmental clearance and statutory requirements, institutional issues and stakeholder involvement processes, and political and jurisdictional factors. She concluded by explaining that "the full value of innovation in transportation financing will only be realized when paired with companion innovations in the project definition, development, approval, and implementation processes," including actual streamlining, effective partnering, and interagency coordination and cooperation.

Track 3: Structures, Institutions, and Partnerships to Deliver More Projects Faster and Cheaper

James T. Taylor II

James T. Taylor II explained that the initial focus of innovative finance was on completing projects faster and cheaper but the current focus is on solving problems. He offered mobility as an example of a problem that innovative finance solutions are seeking to address.

Taylor noted that professionals are now steeped in innovative finance techniques that have been in use for the past 10 to 15 years. He highlighted the importance of this cultural change to the broader application of innovative finance approaches and noted the importance of continuing development of innovative solutions and new ideas.

Track 4: New Transportation Initiatives and Demands on Financing

Joseph M. Giglio

Joseph M. Giglio described innovative solutions and new initiatives as supplements to traditional funding, not replacements for it.

Giglio commented that all studies of investment needs falsely assume that technology, demand, and demand management will remain unchanged. He compared the current state of transportation investment to the "tragedy of the commons," with its overuse of public goods perceived to be free and the resulting behavioral patterns. He called special attention to the need to focus on information technology solutions.

LUNCHEON SESSION

Transportation Challenges to the Nation

James Jeffords, *U.S. Senator, Vermont*

Transportation gave rise to the host city, as to so many of our central places in the United States. Chicago is also the birthplace of the modern city planning movement, a school of thought that is central to our national transportation policies. So it is fitting that we meet here to consider the future of the national transportation program.

I have traveled extensively over the past few months, lending my voice to the electoral campaigns under way throughout the nation. As you know, I made a significant personal decision last year to ensure that the perspective of our government was in balance as we confronted so many vexing problems. If anything, the need for balance has increased in the ensuing months.

It is clear from my travels that our economy is in trouble. Business investment is down. Unemployment is on the rise. Unemployment in September 2002 stood at 8.1 million Americans, and this does not count those who have given up hunting for work. That is 1 million more unemployed than a year ago. We know that investment in transportation creates jobs and fuels business.

In the course of my travels, I have sought out local examples of the transportation challenges that confront the nation. I have seen Mississippi River barge traffic, West Coast ports, Louisiana Gulf Coast highways, Northern and Southern border facilities. I have traveled the Northeast corridor, been moved by the damage at Ground Zero, and gone home to Vermont, where historic villages struggle to accommodate ever-growing trucks and truck traffic.

My observations on the road were reinforced by the hearing process that the Environment and Public Works Committee (EPW) has conducted this year. The committee, and the Transportation Subcommittee, under the able leadership of Senator Harry Reid of Nevada, held 11 public hearings and sponsored three roundtable discussions to prepare for renewal of the nation's surface transportation program. We heard from more than 100 witnesses from 30 states representing more than 60 organizations. The process generated a hearing record exceeding 1,000 pages.

In the course of these hearings, I heard a lot about the technical fine points of our program. And these are important matters. But I am most concerned by outcomes. As we renew this program, I want to stay focused on results—on a strong economy, on a clean environment, and on healthy communities. I want to make a difference for families by generating jobs, improving mobility, and enhancing safety. I want to invest in people and their cities and towns. I want a strong America. So I would say to you in this conference and to us all during reauthorization as we fine-tune the policy details, let's keep our eye on the ball.

That being said, and on the basis of what I have seen and heard over the past year, let me set out a blueprint for a renewed transportation program. The next bill must be built on a solid foundation. The bill's many components should be grounded on two fundamental considerations:

- First, it must strive for enhanced safety and security. We must reduce fatalities and increase vigilance.
- The second fundamental is the environment. In both the natural and built environment, our transportation investments should make things better, not merely avoid making them worse.

Once grounded on this foundation, the next bill should feature four pillars:

- Asset management is the first pillar. We must maintain and preserve our infrastructure investment. We cannot allow highways and bridges to deteriorate.
- Access and mobility is the second pillar. Most Americans now live in metropolitan areas, and most metropolitan areas are congested and worsening. We need to focus on this problem.
- The third pillar is freight and trade. The value and tonnage of goods moved in this country is enormous and growing. We need new facilities to accommodate this growth.
- And the fourth pillar is rail. To meet our national freight and passenger demands, we need a modern national rail system, comparable to our highway and aviation systems.

Capping the bill, and the overarching concern for this conference, is finance. By some accounts, the annual level of investment needed just to maintain our transportation system is nearly $110 billion per year. Our current national program falls well short of that figure.

Over the past fifty years, in our successful campaign to develop the Eisenhower Interstate Highway system, we have used federal grants to states in a pay-as-you-go program to build our national system. Today that system is essentially complete.

We are in the post-Interstate era. Our federal aid program is now focused, appropriately, on maintaining, operating, and enhancing the highway asset that we have built. But this federal–state partnership is now being overwhelmed just by its asset management responsibility.

Unless we adapt, I foresee a continuing deterioration of our transportation system. We are a nation with unlimited potential and boundless possibility. That spirit has propelled a range of unparalleled achievements. Our renewal of America's transportation program must reflect this national heritage in meeting the needs of the next generation.

This conference comes at a perfect time to generate ideas for closing our financial gap. And the talent assembled here today is the perfect mix.

One of our EPW hearings was on the topic of finance. A number of the witnesses at the hearing are in attendance today. Let me share a few points that they made at our hearing:

Phyllis Scheinberg of the U.S. Department of Transportation told us that her department would seek to "expand innovative finance programs to encourage private-sector investment."

David Seltzer told us that "public, corporate and union funds represent some $3.6 trillion dollars in investment assets, yet today there is virtually no U.S. transportation project in their portfolios."

Jayetta Hecker of the General Accounting Office told us that there are limitations in federal and state law. There are "state laws that restrict public–private partnerships" and "federal tax policies on private activity bonds" that limit use of finance in transportation. She went on to say, "These financing tools are absolutely the most critical part of reauthorization."

So the will is there, the resources are there, but we face certain impediments.

Jeff Carey of Merrill Lynch talked about new investment vehicles that might make infrastructure investment more attractive. And Los Angeles Commissioner Janice Hahn agreed that a reliable revenue stream is the key to the success of the Alameda Corridor.

My request to you, then, is to help me realize a vision for transportation finance. Every responsible fund manager, both here and globally, will have a fraction of his or her portfolio invested in U.S. transportation infrastructure. They will do so with confidence in the investment and in the bold nation that it will support.

My senior transportation staff is here today and will remain with you to listen for ideas that might help fulfill this vision.

In closing, let me address more near-term financial considerations. Today our federal government is operating month to month under a continuing resolution (CR). We do not have a transportation appropriation law for Fiscal Year 2003. This lack creates doubt about the program and uncertainty for the states and private contractors. The CR limits spending for the year to $27.7 billion. I want to see that increased to $31.8 billion, and I want to see an appropriations bill passed to make that fix permanent.

Every billion dollars that we spend on roadwork leads to jobs for 42,000 Americans and helps millions more Americans commute safely to and from work every day. More transportation funding means that states will let contracts and contractors will hire more workers. When Congress returns after the elections, it must do something to stimulate the economy and create jobs. The American people demand it, and this proposal will deliver it.

On October 18, 2002, the day that Congress recessed, I signed a letter urging the president to include even higher funding levels for highways, transit, and rail in his Fiscal Year 2004 budget. Joining me by signing that letter were Senators Reid, Fritz Hollings, and John Breaux of the Commerce Committee and Chairman Paul Sarbanes and Senator Jack Reed of the Banking Committee. They are the chairs of the Senate committees and subcommittees with jurisdiction for transportation. I hope to see this alliance collaborate throughout reauthorization. My goal is a well-funded bill that promotes a balanced transportation system for the nation.

General Session 2

Summary of Day 1

Reports on Concurrent Sessions

Janet Friedl, *American Association of State Highway and Transportation Officials*
Jennifer Mayer, *Federal Highway Administration, Western Finance Center*
Mary Richards, *Massachusetts Organization of State Engineers and Scientists*
Porter Wheeler and Sasha Page, *Infrastructure Management Group, Inc.*

Following the culmination of the concurrent sessions for Day 1, conference participants reassembled in a general session to discuss key points, common themes, and areas for further research. A synthesizer provided an overview of that day's sessions for each track, as follows:

Track 1. Janet Friedl, American Association of State Highway and Transportation Officials;
Track 2. Jennifer Mayer, Federal Highway Administration, Western Finance Center;
Track 3. Mary Richards, Massachusetts Organization of State Engineers and Scientists; and
Track 4. Porter Wheeler and Sasha Page, Infrastructure Management Group, Inc.

Each presenter provided a summary of the sessions comprising the track for which they were responsible, drawing out common themes, key observations, and opportunities for further research. A detailed review of each track is provided in the following section.

Track 1: How to Finance the Next Transportation Program—Reauthorization and Beyond

Janet Friedl

Friedl provided a summary of the first two sessions of Track 1: How to Finance the Next Transportation Program—Reauthorization and Beyond, focusing on funding options for transportation at the national level. The first session set the stage for consideration of alternative funding approaches. Speakers addressed the challenges to traditional funding approaches, including the question of whether current funding approaches send the right signals to consumers regarding gas consumption relative to environmental protection and energy conservation goals.

The second session in Track 1 addressed the range of tax measures currently under consideration as options to leverage the transportation funding pie. Speakers in this session addressed leveraged leasing, tax-exempt financing (including financing for private sponsors) and tax credit bonds, and the related Transportation Finance Corporation (TFC) proposal.

Friedl concluded that the presentations that composed the first day of Track 1 sessions began to challenge the status quo and to set the stage for rethinking transportation funding in the near and longer term.

Track 2: Tools and Techniques to Deliver More Projects Faster

Jennifer Mayer

Mayer summarized the sessions in Track 2: Tools and Techniques to Delivery More Projects Faster, focusing on tools and techniques to expand the number of projects and to advance the timing of project delivery. She described the two sessions as consisting of presentations by individuals from five states and by two additional practitioners with a common theme of focus on the projects and project elements rather than on only the tools themselves. Tools must be selected on the basis of their link to individual projects and to address specific needs rather than being applied generically to states' overall funding demands.

In Louisiana, for instance, the challenge posed was how to fulfill a decade-old promise to deliver a program of projects. The answer was an innovative public–private partnership for program management coupled with some reality-based financing.

For the Massachusetts Bay Transportation Authority, the question was how to restructure the program's financial management to align with a new revenue and funding approach. The answer was a conscious shift from a debt-based approach with legislative appropriations to a dedicated revenue stream and greater pay-as-you-go funding.

In Michigan the question was how to achieve consensus among stakeholders regarding project selection and funding. Answering this question was critical to being able to tap alternative cash management techniques.

In Ohio the question was how to go beyond simply saying "no" to projects that did not have grant funding and to find a way to help them. The answer was creative use of the state infrastructure bank and nongrant funding tools.

Track 3: Structures, Institutions, and Partnerships to Deliver More Projects Faster and Cheaper

Mary Richards

Richards provided the synopsis of Track 3: Structures, Institutions, and Partnerships to Deliver More Projects Faster and Cheaper, addressing institutional elements of alternative funding and project delivery. She described the well-balanced and diverse set of panelists. She explained that states are starting to see the impacts of lower funding and are rethinking risk sharing among public and private partners.

Describing the range of perspectives of the panelists, Richards noted the different view offered by David Kusnet regarding contracting out as contributing to a brain drain from government.

The afternoon session consisted of a series of case studies highlighting the application of various funding strategies and the role of institutional relationships in shaping the strategies.

Track 4: New Transportation Initiatives and Demands on Financing

Porter Wheeler and Sasha Page

Providing the synopsis of the final track for the first day, Track 4: New Transportation Initiatives and Demands on Financing, Wheeler and Page drew some conclusions regarding the contributors to successful financing of multimodal projects. The reporters noted that success occurs where there are connections (e.g., common bottlenecks) between modes. Summarizing the ideas stemming from the sessions, the reporters focused on

- The existence of silos among modes, evidenced by congressional committee structures;
- The need to do a better job measuring benefits of intermodal projects;
- The need for consistency among tools and better coordination among the modes; and
- The need for intermodal research.

LUNCHEON SESSION
Roundtable of Transportation Executives

William D. Ankner, *Rhode Island Department of Transportation*
Phyllis Scheinberg, *U.S. Department of Transportation*
Frederick (Bud) Wright, *Federal Highway Administration*
Robert Jamison, *Federal Transit Administration*

A luncheon conference featured a roundtable discussion by a distinguished panel of transportation executives. Roundtable participants included Phyllis Scheinberg, Deputy Assistant Secretary for Budget and Programs for the U.S. Department of Transportation; Frederick (Bud) Wright, Executive Director of the Federal Highway Administration; and Robert Jamison, Deputy Administrator of the Federal Transit Administration. The conference chair, William D. Ankner, moderated the roundtable.

EXPANDING PROGRAMS

Phyllis Scheinberg

Scheinberg described the expansion of the state infrastructure bank program as an opportunity and wanted greater federal involvement in the program. She described the federal credit program for transportation (TIFIA) as having come into its own and the application of grant anticipation borrowing (GARVEEs) as moving from the outer limits to the mainstream. Scheinberg suggested that these programs have worked and that now the need is to expand the programs, leverage them even more, make them more customer-friendly, and expand to other uses such as rail and freight investments.

IDENTIFYING REFINEMENTS

Frederick (Bud) Wright

Wright echoed Scheinberg's assessment that it is time to identify refinements rather than wholesale new programs. He predicted that programs once viewed as innovations would continue to move to the mainstream.

LEVERAGING FEDERAL FUNDING

Robert Jamison

In reviewing the innovative finance approaches most relevant to transit investments, Jamison focused on the benefit of leveraging the predictability of federal funding through the Full Funding Grant Agreement program. He spoke about the dramatic increase in the use of tax-advantaged leases and noted the beginning of seeing benefits of the TIFIA program for transit. As Scheinberg did, Jamison urged an expansion of the state infrastructure bank program and related his general interest in opportunities that will arise as part of reauthorization.

Discussion

William D. Ankner

Following brief introductory remarks by each roundtable participant, Ankner raised some questions with the group. First he asked whether there was concern about the overall level of debt and the extent to which there was a limit to its use. Wright recognized this as a legitimate concern but noted that the saturation point had not yet been reached and that reaping the advantage of transportation investments sooner rather than later was significant. Scheinberg commented that safeguards in the program would keep debt from growing out of control.

Ankner then questioned whether the group envisioned other new tools beyond debt financing as part of reauthorization. Wright highlighted toll credits, soft match, and other cash management mechanisms as programs working to provide flexibility to the states. He suggested that refinements could be made in these programs or similar ones, specifically the possibility of program match rather than a strict match on an individual project-by-project basis. Scheinberg highlighted public–private partnerships as a ripe area but noted that more definition was needed, specifically regarding how risk was shared most appropriately among public and private parties.

Then Ankner asked about the prospects for value–congestion pricing in reauthorization. He noted that there had not been an enthusiastic response to date. Scheinberg responded that the federal government can do only so much and that local interest is critical for these techniques to move forward. She stressed the importance of education and the exchange of information and success stories but recognized the limitations without local buy-in.

The next question related to reauthorization and the identification of focus areas. Jamison noted the importance of building on TEA-21 successes of leveraging future federal funds. He cited the need to leverage private investment, to improve flexibility of the TIFIA program, and to expand the SIB program. He pointed out the importance of extracting more benefits from the transportation system, with the Dulles (Virginia) Corridor as an example of an opportunity to deploy business investment districts. Finally, Jamison mentioned the importance of utilizing the planning process to maximize ridership and encourage transit-oriented development to draw in private interest. Scheinberg remarked, "Sometimes the role of the federal government is to get out of the way" and commented on the opportunity to reap the benefits of innovations and expand programs that work. She cautioned, however, about the importance of ensuring that expectations are not too high: innovative finance cannot solve all problems, and realism about what it can help achieve is necessary. Wright discussed the importance of focusing on core program funding and recognizing that the process will likely be more difficult this reauthorization with the mounting pressures and constraints on federal spending.

Comments

Questions and comments from conference participants focused on public–private partnerships, the prospects for private activity bonds and tax credit bonds for surface transportation, inconsistencies among the modal agencies regarding program implementation and regulations and opportunities for cleaning this up as part of reauthorization (or as an administrative initiative), the need to get serious in the next reauthorization about answering the long-term funding question, and environmental streamlining. Roundtable participants concluded by recognizing the important opportunity but also the challenge of handling multiple reauthorizations simultaneously.

GENERAL SESSION 3
Summary of Day 2
Reports on Concurrent Sessions

Christie Holland, *Florida Department of Transportation*
Laurie Hussey, *Cambridge Systematics*
David Wresinski, *Michigan Department of Transportation*
Paul Marx, *Federal Transit Administration*

Following the concurrent sessions for Day 2, conference participants reassembled in a general session to discuss key discussion points, common themes, and areas for further research. A synthesizer provided an overview of each track, as follows:

Track 1. Christie Holland, Florida Department of Transportation;
Track 2. Laurie Hussey, Cambridge Systematics;
Track 3. David Wresinski, Michigan Department of Transportation; and
Track 4. Paul Marx, Federal Transit Administration.

Each presenter summarized the sessions of the track for which they were responsible and drew out common themes, key observations, and opportunities for further research. Following is a synopsis of these summary reports. A detailed review of each track is provided in the following section.

TRACK 1: HOW TO FINANCE THE NEXT TRANSPORTATION PROGRAM—REAUTHORIZATION AND BEYOND

Christie Holland

Holland provided a summary of the two sessions composing the second day of the conference for Track 1. She described a general presentation on alternative funding options and evaluation given by Tamar Henkin and noted the important evaluation criteria of revenue potential, stability and timing, legal and political feasibility, and administrative feasibility. She then outlined the panel presentations, which focused on funding for metropolitan planning organizations as well as funding for maintenance and renewal.

Reviewing the session on tolls and other user charges in the afternoon, Holland noted the importance of identifying beneficiaries and targeting funding approaches that match up with these beneficiaries. She offered the following points from the session:

- Tolls are acceptable as an alternative to taxes;
- Value pricing has received support of previous opponents, including the environmental community; and
- Equity issues are sometimes overstated in relation to low-income road users.

TRACK 2: TOOLS AND TECHNIQUES TO DELIVER MORE PROJECTS FASTER

Laurie Hussey

Hussey provided the summary of the second day of Track 2. She described the morning "all-star panel" that brought session participants from the underpinnings of the federal credit program to two projects now being supported by TIFIA and concluded with a look to the future and a potential new tool, a freight infrastructure bank.

The second session of Track 2 focused on quantifying and communicating the benefits and costs of innovative finance. Hussey described a diverse panel including an analyst, economist, and elected official.

She linked these sessions to the resource paper presented by Sharon Greene on Day 1 of the conference. The author contended that "without supporting legislative, administrative, and programmatic changes in the overall project development and delivery system, the financial innovations become far less compelling" in supporting the expedient delivery of projects. Hussey reported that the toolbox is apparently equipped not perhaps with all the answers, but with a significant number of financial tools capable of moving projects that have achieved "readiness" into construction and ultimate operation. However, the substantial "everything else" that precedes that state of readiness—environmental approvals received, institutional structures in place, stakeholder backing accomplished—is a key bottleneck in even reaching the point where the considerable financing tools at our disposal can be applied.

Hussey noted that conference participants were hearing about only projects that managed to negotiate the development process and all its pitfalls. But participants were not hearing about good projects that cannot pass the first starting gate to take advantage of the demonstrable acceleration benefits of the financing tools.

She remarked on the many smart people in the room, people who are in a position to help address non-finance-related barriers and make more good projects ready sooner. By shortening the time necessary just to arrive at the finance stage, where we have tools proven to accelerate project delivery from that point on, we will truly be taking best advantage of innovative financing strides to deliver more needed projects sooner.

Track 3: Structures, Institutions, and Partnerships to Deliver More Projects Faster and Cheaper

David Wresinski

Wresinski provided the synopsis of Track 3 and its six case studies. He noted—as others in the conference did—that the innovative financing tools are generally in place at the state and local level, that traditional pay-as-you-go approaches are creating problems, and that the need for alternative techniques has been proven.

Wresinski identified several keys to success:

- Customer focus,
- Involvement of all partners and stakeholders,
- Early identification of roadblocks, and
- Knowledge of the tools and techniques to facilitate thinking beyond the box.

Track 4: New Transportation Initiatives and Demands on Financing

Paul Marx

Offering a summary of the final track, Paul Marx described these sessions as including "everything and the kitchen sink." The first session discussed possible solutions for intercity passenger rail service, such as expansion of eligibility for discretionary and apportionment funding. Marx mentioned the difficulty of some possible approaches because tracks—and funding responsibility—cross state lines. The session also addressed funding for aviation and highlighted similarities and differences between that and passenger rail funding.

The afternoon session emphasized funding for new technologies. Marx related comments by Richard Mudge that we should not be afraid to help private-sector actors make money. Potential directions identified in this session included the elimination of minimum project costs for credit program eligibility for projects introducing new technologies and a focus on developing a wireless network on the Interstate with at least a secondary purpose of enhanced security.

GENERAL SESSION 4

Transportation Finance in the Context of Reauthorization and Beyond

Administration's Perspective

Robert E. Skinner, Jr., *Transportation Research Board*
Emil Frankel, *U.S. Department of Transportation*

Conference participants assembled at the beginning of the third day of the conference for a wrap-up session, which included high-level administration officials and staff from key congressional committees to address the prospects for reauthorization.

Robert E. Skinner, Jr.

Robert E. Skinner, Jr., Executive Director of the Transportation Research Board, offered some introductory remarks and introduced Emil Frankel, Assistant Secretary for Transportation Policy.

Emil Frankel

Frankel referred to testimony provided by Transportation Secretary Norman Mineta before the Senate Environment and Public Works Committee. Mineta had articulated two goals: (*a*) to encourage investment by the private sector and (*b*) to strengthen the efficiency and integration of goods movement, especially intermodal connections. Frankel pointed out that refinements in innovative finance techniques would be key elements in achieving these goals. He explained that, given constrained resources, innovative finance tools would be essential in stretching federal dollars as much as possible. He described reauthorization as an opportunity to expand the options, resources, and expertise available.

Frankel depicted the nation's economy as dependent on the transportation system, especially with industries becoming leaner and leaner. He offered examples of just-in-time delivery and related inventory control as being fully reliant on a well-functioning transportation system.

The speaker described innovative finance, not as a magic cure, but as an important part of an overall strategy to expand and stretch available funds to accelerate new transportation investment. He stated that regions facing the greatest impediments to mobility have paved the way for innovative financing approaches.

Frankel concluded with a few specific program objectives for reauthorization:

- Expand the scope of the TIFIA program and move into the mainstream as a basic component of every state's transportation strategy and
- Refine the GARVEE and SIB tools and make the latter more uniformly available.

He noted that the existence of and reliance on tax-exempt financing for transportation has restricted the use of the private sector in financing transportation projects.

General Session 4

Transportation Finance in the Context of Reauthorization and Beyond

Congressional Viewpoint

Mortimer Downey, *PBConsult, Inc.*
Jonathan Upchurch, *U.S. House of Representatives, Committee on Transportation and Infrastructure*
Joyce Rose, *U.S. House of Representatives, Committee on Transportation and Infrastructure*
Megan Stanley, *U.S. Senate, Environment and Public Works Committee*
Jeff Squires, *U.S. Senate, Environment and Public Works Committee*

Panel of Congressional Staffers

Mortimer Downey

Mortimer Downey moderated the first of two final panels, a panel of congressional staff that included

- Jonathan Upchurch, U.S. House of Representatives, Committee on Transportation and Infrastructure;
- Joyce Rose, U.S. House of Representatives, Committee on Transportation and Infrastructure;
- Megan Stanley, U.S. Senate, Environment and Public Works Committee; and
- Jeff Squires, U.S. Senate, Environment and Public Works Committee.

The Capitol Hill Environment

Jonathan Upchurch

Initiating the panel presentation, Upchurch described the environment on Capitol Hill: the 108th Congress with a full plate with homeland security challenges, war with Iraq, and potential changes in political control. He reported the strains of the federal fiscal situation, the number of new players since TEA-21, and the changes in leadership on the relevant committees.

Upchurch highlighted several areas of focus: smoothing out the Revenue Aligned Budget Authority provision, the donor–donee situation, and Amtrak's financial condition.

Reauthorization and Financing

Joyce Rose

Rose offered her perspective on transit and reauthorization. She related the achievements of TEA-21: in particular, securing guaranteed funding through budgetary and financial firewalls, had never been done before and should be maintained as part of reauthorization. Despite the advances of TEA-21, Rose pointed out that the growth in revenues was still far less than in identified needs.

Rose discussed the potential of indexing the gas tax at the national level and noted that 11 states index their state gas taxes. She offered alternatives to raise revenue:

- Spending down cash balances in the Highway Trust Fund,
- Indexing the gas tax to inflation,
- Crediting the Highway Account of the Trust Fund with ethanol tax revenues currently going to the General Fund and, eliminating the tax subsidy,
- Crediting the Trust Fund with interest earnings,
- Addressing fuel tax evasion, and
- Expanding innovative financing—though different from the other revenue-producing options, this step could help stretch available resources.

Legislative Initiatives

Megan Stanley

Stanley designated possible legislative initiatives as either "losers" or "potential winners in terms of the likelihood of enactment."

The losers included turnback proposals and those aimed at indexing the gas tax. Potential winners included high-occupancy toll lanes and private activity bonds. Stanley discussed the tax credit bond proposal and indicated that not enough was known to indicate the likely success of this proposal.

Stanley saw TIFIA as a potential winner in reauthorization but recognized the need to have congressional staff more educated and involved and for states and local project sponsors to be the drivers of the program.

Programmatic Refinements

Jeff Squires

Squires pointed out that some programmatic refinements were necessary, especially where positive progress on congestion was not being made. He asserted that enhanced flexibility should be targeted toward programmatic improvements.

Open Discussion

The open discussion included how the timing of aviation, Amtrak, and surface transportation reauthorization would affect the prospects for some of these programs. The group also considered the issue of security and recognized that the level of demand for surface transportation resulting from the renewed focus on homeland security was not yet known. The source of necessary financial resources—the trust fund or the general fund, for instance—was not known.

The group also discussed the potential to remove federal restrictions on tolling, in particular tolling on the Interstate system, and opportunities to streamline the environmental process to expedite project delivery without compromising environmental stewardship.

Finally, the group noted that without substantial increases in revenues, it would be best to maximize the flexibility of how funds can be used. Frankel reminded conference participants that Mineta was committed to preserving and enhancing programmatic flexibility.

GENERAL SESSION 4

Transportation Finance in the Context of Reauthorization and Beyond

Roundtable of Transportation Professionals

William D. Ankner, *Rhode Island Department of Transportation*
Phyllis Scheinberg, *U.S. Department of Transportation*
Jacky Grimshaw, *Surface Transportation Policy Project Steering Committee*
Michael Martin, *American Road and Transportation Builders Association*
Janet Friedl, *American Association of State Highway and Transportation Officials*
Judith Espinosa, *Alliance for Transportation Research Institute, University of New Mexico*
Dennis G. Houlihan, *American Federation of State, County, and Municipal Employees*

William D. Ankner moderated the final roundtable, transportation professionals from a range of organizations and interests. The focus of this final panel was on looking ahead: What is on the horizon beyond reauthorization? What major items face transportation finance professionals and policy makers? What can we do now to get ready? Panel participants included

- Phyllis Scheinberg, U.S. Department of Transportation;
- Jacky Grimshaw, Surface Transportation Policy Project Steering Committee;
- Michael Martin, American Road and Transportation Builders Association (ARTBA);
- Janet Friedl, American Association of State Highway and Transportation Officials (AASHTO);
- Judith Espinosa, Alliance for Transportation Research Institute, University of New Mexico; and
- Dennis G. Houlihan, American Federation of State, County, and Municipal Employees (AFSCME).

FUNDING FUTURE PROJECTS

Phyllis Scheinberg

Scheinberg focused on the need to start now to think about how to fund projects in the future and noted that the viability end of the Highway Trust Fund as the sole solution has almost ended. She emphasized the need to start thinking seriously about alternative sources of funding. As discussed throughout the conference, Scheinberg stressed the important role of a potential commission to focus on this issue. She also underscored the importance of projecting an intermodal focus and of getting around the modal stovepipes.

A PUBLIC TRUST

Jacky Grimshaw

Grimshaw stressed the fact that transportation agencies are operating in silos today and not working as part of a broader social agent or steward of the community. She described the provision of transportation services as a vital public trust and a means to a better quality of life, not an end in and of itself.

ARTBA'S PERSPECTIVE

Michael Martin

Martin offered ARTBA's perspective with three observations:

1. ARTBA's consensus is that needs outstrip resources—although the exact extent of the gap is in question, the existence of the gap is not;
2. There may be too much focus on innovative finance, which risks neglecting focus on the core program; and

3. There is a persuasive attitude of "not on my budget."

Martin described ARTBA's "two cents makes sense" proposal, which calls for an increase in the federal excise tax and other programmatic adjustments, including an adjustment to RABA such that inflows are adjusted to match outflows rather than the other way around; an expansion of the SIB and TIFIA programs; and the creation of an escrow account for pay-as-you-go funding. He supported a blue-ribbon panel approach to identify alternatives for the future and stressed the importance of a stable and simple program for the future: it should generate sufficient revenues on a stable basis and in a simple manner.

AASHTO's Look Ahead

Janet Friedl

Speaking for AASHTO, Friedl emphasized the need to look beyond the next six years and offered three specific points:

1. The need to consider what the system will look like—how people and freight will best be moved and what new forces might shape demands on the transportation system.
2. The need to determine how the system will be paid for on a program finance basis, how to extend the overall size of the program, and whether a new funding mechanism is needed—the 1956 answer may not meet 2020 needs and beyond. With this, she focused on the importance of thinking of the concept as project financing, not just innovative financing; calling it innovative creates barriers for some to using it.
3. The need to consider how transportation funding fits into the broader context.

Friedl focused on the need for continued innovation in tools and mechanisms and also on the need for human capital to deal with new challenges and the need to overcome institutional unwillingness to use all tools in the toolbox.

Research and Accountability

Judith Espinosa

Espinosa called for a robust research program and characterized it as critical to future management and financing of the transportation system. She asserted that policy should drive finance, not the other way around, and stressed the importance of ensuring accountability to the public, who is ultimately paying for the investments. She emphasized the need for sound data, sound research, and sound information to set good policy. If the public does not understand policy, skepticism mounts and a breakdown in communication results.

Espinosa emphasized the importance of viewing the public as a partner and the fact that the public wants choices and also wants to know how institutions are performing. The key to successful partnerships is a good understanding between all parties. When such understanding does not exist, communications break down and projects are ultimately delayed.

Labor Protections

Dennis G. Houlihan

Houlihan, representing AFSCME, focused on the importance of labor protections such as Section 13(c), Amtrak employee protections, and Davis-Bacon provisions.

He reported the union as skeptical about innovative finance, particularly as it relates to private activity bonds. His primary concern related to the potential loss of accountability when finance moved from the public to the private sector.

Houlihan concluded with a discussion of the importance of workers' rights and security and safety issues. He noted the importance of whistle blower protection and of civil service protection for individuals caught up in policy debates, such as those relating to environmental regulation. He was concerned about the need to maintain accountability and the need for states to have sufficient staff to provide necessary oversight for outsourced services.

Focusing on the System

William D. Ankner

Stepping in for Bill Millar of the American Public Transportation Association, who was unable to participate, Ankner reported the need to be continually focused on finding solutions to finance an integrated intermodal transportation system rather than its component parts. He pointed out the lack of a level playing field in federal transit and highway investments and called for a correction so that transportation decisions would be based on the best transportation decision, not what was statutorily or financially easier to do.

Track Reports

TRACK 1
How to Finance the Next Transportation Program—Reauthorization and Beyond

This section provides a synthesis of the presentations and discussions from Track 1. This track comprised four panel sessions, during each of which three or four presentations were made; in-depth discussion by the presenters and conference participants followed. The discussions were facilitated by a designated discussant.

SESSION 1: THE PRESENT AND FUTURE OF CORE FEDERAL FUNDING: WILL TRUST FUND REVENUES BE ENOUGH?

Phyllis Scheinberg, *U.S. Department of Transportation* (Moderator)
Michael Martin, *American Road and Transportation Builders Association* (Discussant)
Barry Anderson, *Congressional Budget Office*
Arlee Reno, *Cambridge Systematics. Inc.*
William D. Ankner, *Rhode Island Department of Transportation*
Eva Molnar, *World Bank*

The sufficiency of Highway Trust Fund revenues to meet present and future transportation funding needs was the focus of this session's discussion.

What Is: Reviewing the Status, Trends, and Projections of Current Trust Fund Revenues

Barry Anderson

Barry Anderson pointed out that the existence of balances in the Highway Trust Fund can obscure the real impact of federal taxing and spending decisions. Anderson noted that the fund is unlike a private trust in which funds generally are saved for future use solely for the beneficiary and whose assets are owned and can be transferred. The Highway Trust Fund, rather, is a public trust fund that has no deferred consumption, has balances that are internal IOUs but not enforceable contractual agreements, is used on a pay-as-you-go basis for diverse goals, and has beneficiaries who do not directly own the assets.

According to Anderson, claims on the highway account of the Highway Trust Fund exceed its balances, with $39.8 billion in unpaid commitments from highway programs through the end of fiscal year 2001 and a current highway account balance of $20.4 billion. In addition, according to Congressional Budget Office projections, outlays and receipts will rise through 2012 (reaching between $30 billion and $40 billion by 2006).

What Could Be: Looking Ahead to Alternative Fuels, Taxes, and Other Revenue Sources

Arlee Reno

Arlee Reno first provided some information on various potential threats to Highway Trust Fund revenues and then presented some potential sources of revenues that might assist in mitigating those threats. The potential threats discussed by Reno include fuel efficiency, use of fuels outside current revenue collection processes, fuel subsidies, diversion of transportation revenues for non-transportation purposes, and inflation.

According to Reno, fuel efficiency is a real and major threat to Highway Trust Fund revenues over the next reauthorization period. Major opportunities exist for increased fuel efficiency, including the possibility of higher corporate average fuel economy standards, voluntary increases in fuel efficiency, increased use of hybrid vehicles, higher diesel vehicle share, and improved emissions standards. With that said, the hybrid vehicle's impact will be unclear over the next 10 years, but it is anticipated that hybrid market penetration will rise between 4 percent and 6 percent by 2010, with a possibility of up to 30 percent hybrid penetration. In the United States, increased diesel fuel use is not seen as a significant threat, but 40 percent of light duty vehicles sold in Europe are diesel users. Also, new fuel types—those currently not taxed for the Highway Trust Fund—while not a real threat in the next 10 years, may be a more serious threat down the road. According to Reno, subsidies are a major threat. Such funding of nontransportation investments with Highway Trust Fund revenues raises questions among some about the equity principle.

With these threats in mind, Reno suggested some potential future revenue sources for the Highway Trust Fund. Such revenue sources could include taxes on alternative fuels, elimination of subsidies (not a revenue source, but a means for creating additional funds for transportation), enhancement of traditional funding sources (including inflation-responsive taxes), gross domestic product–responsive taxes, price-responsive titling and registration fees, vehicle sales taxes, and new user-based fees (including taxes and fees based on vehicle miles traveled, congestion pricing, and tolls).

No single new source or approach is a panacea, and when people look for new revenue sources, it is important that they consider the following factors: equity, responsiveness to inflation, administrative costs, and technological feasibility. According to Reno, in all likelihood the desirable solution will be a mix of new and refined current sources of revenue.

Conflicts Between the Current Federal Transportation Financing Mechanism and Other Domestic Policies Involving Energy, Land Use, and Environmental Protection

William D. Ankner

William D. Ankner spoke on the conflicts between the current source of transportation revenues (the gasoline tax) and other domestic policies involving energy, land use, and environmental protection. At issue, according to Ankner, is the fact that transportation funding is based on consuming a nonrenewable energy source, which is inconsistent with the nation's energy, environmental, and health policies and puts the nation at risk in foreign affairs. This reliance on consumption means that technologies such as hydrogen fuel cells that improve air quality, health, and productivity are actually threats to transportation funding.

To find a better way, Ankner suggested that the paradigm needs to change. Instead of levying user fees based on the vehicle miles traveled by an individual car, automobiles, for example, could be priced on the bases of their energy and environmental efficiencies. This would align the transportation financing structure with national priorities.

Ankner also offered the idea that transportation should be looked at as a business. The assets the nation has invested in the transportation system are significant and generate value that has not been captured. While it is important that responsibilities to the public are maintained, the value of transportation assets must be accessed and reinvested for the public good. One example is the use of variable message signs (VMSs) to generate advertising revenue. Ankner posed this question to the group: "When a VMS is not displaying a congestion message, why isn't it advertising Coca-Cola?" Another missed opportunity Ankner mentioned is EZPass, which could have been approached by states as a business decision: "Why not partner with the private sector and capture a percentage of every transaction, off the roadways?"

Considering Transportation Finance Approaches Used by Other Governments

Eva Molnar

Eva Molnar completed the panel by discussing the potential to apply transportation finance approaches in the United States that are used by other governments.

Molnar explained that in Europe user fees provide a growing share of transportation funding. There is growth in private-sector funding but not as much as was predicted in the 1990s. She explained that expectations were unrealistic and in most countries the environment is not conducive to public–private partnerships.

The forces of change in European transport funding include public resource scarcity, reduced productivity of existing infrastructure, deregulation, expanding capital markets, and globalization.

She explained that cross-subsidies from freight to passenger rail will diminish and disappear in the future and discussed the range of user contributions currently in place, including fuel taxes, annual vehicle taxes, registration and sales taxes, road tolls (excluding tunnels and bridges), and taxes on vehicle insurance premiums. She described Eurovignette, a toll system that encourages a modal split in freight transport. It provides an incentive to shift long-distance hauls from trucks to rail.

Molnar explained that road funds acknowledge the utility function of transportation but limit the government's fiscal redistribution function and can limit expenditure management. Alternatives to road funds include

- Promoting commercialization of road agencies with revenue from toll collection,
- Application of a commercially managed motorway agency, such as one instituted in Slovenia that received earmarked funding and makes concession contracts for maintenance; and
- Attempts at privatization, which are numerous but small in scope.

Molnar addressed the mix of roles of government, the private sector, and road users today and in the future. She predicted the following mix of roles for the future:

- Government will have bargaining, negotiating, and enabling functions. Its roles will include policy maker, regulator, contract manager, and provider of last resort. There will be increased accountability, with funding being a part of transportation policy.
- The private sector will make a slow transition from its role as contractor–operator to one of investor–operator.
- Users will cover part of the costs.

Discussion

Michael Martin

Michael Martin initiated the discussion period by presenting four myths in transportation funding:

1. "We're raising revenues to maintain a system." According to Martin, systems are not treading water; the real question is how quickly they are sinking. Congestion is more than commuters. Freight should be as much of the story, and we need to think about a needs-based system.
2. "The current system is a user-fee system." Users pay for the amount of fuel they use, not road use. Martin raises the question, do we need a system where the beneficiaries pay?
3. "Spending on roads is an expenditure." According to Martin, it is not. It is an investment: the creation of a capital asset. We do not have good research on the return on those investments.
4. "There is a free-rider problem." According to Martin, from a political perspective, the motor fuels tax has certain advantages. Some other means of generating revenue will have political problems. If there are free riders, they are the beneficiaries that are not required to pay for the capital assets.

Martin then raised the question of what we should think about for the future. What are our long-term goals for the system? He stressed the importance of the following:

- The need to think about equity and how we equitably distribute the cost of investments (e.g., through user fees, beneficiary fees);
- The need for a consistent and reliable stream of revenues; and
- The need for simple and transparent mechanisms.

Discussion topics for this session included the following:

- Current funding is entrenched in the gas tax. It will take 10 years to develop something new, and by that time alternative fuels will be more than a threat. In the next 6 years, we will need to build a framework for and consensus around the future funding and financing mechanisms.
- One could look at the highway network as a utility, with pricing not only a means of raising revenue but also an indicator of where and how much to invest.
- To what extent are variable-rate pricing, tolls, and other user fees publicly acceptable?
- Should we let the public sector earn a profit from its assets?
- How could the system be changed to guarantee that user fees are directed to highways, and spending is associated with performance?
- Should revenue be discussed on a project basis rather than a program basis?
- If moving freight and moving passengers are really the issues, then why not focus on some sort of unified trust fund that acknowledges that people and goods move with multiple modes?

Session 2: Examining Current and Potential Use of Tax Incentives in Promoting Surface Transportation Investment

Bryan Grote, *Mercator Advisors, LLC* (Moderator)
Scott Bernstein, *Center for Neighborhood Technology (*Discussant)
Dennis Anosike, *Chicago Transit Authority*
Karen Hedlund, *Nossaman Guthner Knox & Elliott LLP*
James (Rocky) Query, *Morgan Stanley*
Janet Friedl, *American Association of State Highway and Transportation Officials*

Bryan Grote

Bryan Grote introduced the session by presenting three questions that will figure in the upcoming reauthorizations:

- How big is the pie?
- What are the ingredients?
- How does it get sliced up?

Grote described the provisions of reauthorization as being mostly regulatory but somewhat spending related. He pointed out that tax incentives are generally less common in transportation than in other areas or sectors, noting that transportation advocates are beginning to look to certain tax incentive approaches to increase overall transportation investment.

Use of Tax-Oriented Leasing to Promote Investment in Transit

Dennis Anosike

Dennis Anosike addressed the use of leveraged leasing as a funding mechanism for transit. He described leveraged leasing as a supplemental mechanism to public funding of transit systems and noted that these transactions can be quite complex. As Anosike described it, leveraged leasing provides capital investment through secondary leveraging of assets. The Chicago Transit Authority has leveraged $1.7 billion in assets, generating over $100 million to reinvest in the system.

Anosike described a number of concerns of the transit system asset lessor, one being that the equity investor is looking at the profit motive, issues related to limited use property, and issues of government agency performance risk. He mentioned a number of issues for the transit agency board, including the external perception that public assets are being sold to private investors and internal issues relating to the need to manage expectations about the level of revenue that can be generated from leveraged lease transactions.

He described the ways that the Chicago Transit Authority has managed risk—by capping transaction fees and establishing net present value benefit floors, negotiating incentive and broken deal fees, and using AAA-rated institutions and deposits collateralization for credit downgrades.

Potential Use of Private Activity Bonds for Highways and Multimodal Transportation Facilities

Karen Hedlund

Karen Hedlund spoke about the barriers and opportunities for private investment in transportation. She described the manner in which the federal tax code discourages private investment in highway and transit projects. She posited that this is really a historical accident rather than a deliberate effort.

Hedlund described a limited number of private equity transportation projects, including the Dulles Greenway in Virginia, SR-91 express lanes in California (although they have now been sold to the Orange County Transportation Authority), SR-57 (a franchise since terminated), and SR-125 in Southern California, which goes to financing after a 10-year environmental process.

Hedlund offered as the primary reason that transportation fails to attract more private investment is that the use of tax-exempt financing precludes private investment in highways and transit. She explained that when exemptions were written into federal law, state laws did not allow for private investment in highways and transit. While exemptions exist to varying degrees for airports, solid waste, docks and wharves, water and wastewater, and high-speed rail, no such exemptions exist for highways and transit. In addition, Internal Revenue Service (IRS) rules strictly limit the ability of private companies to enter into long-term management contracts for facilities financed with tax-exempt bonds.

As a result, Hedlund explained, "private" projects have been converted to "63-20" tax-exempt deals implemented by nonprofit organizations. (Such 63-20 corporations are enabled by IRS Ruling 63-20, which allows for the creation of nonprofit financing conduits and use of such entities for an array of public–private projects.) Public investment is necessary to achieve lower interest costs and to access a more favorable bond market with longer maturities and less stringent covenants. There is a general comfort level with government as the bond issuer.

Hedlund suggested that a solution to the current predicament is for Congress to create a level playing field for private investment. She stated that we almost got there through the 1999 Highway Innovation and Cost Savings Act, which was in a tax bill vetoed by President Bill Clinton. Former Senator Bob Smith's Multimodal Transportation Financing Act (May 2001) also contained a provision. As with other transportation finance programs, Davis–Bacon labor provisions could be a stumbling block, according to Hedlund.

Tax Credit Bonds to Finance Infrastructure: Theory and Practice

James (Rocky) Query

Speaking to the topic of tax credit bonds, James (Rocky) Query provided a technical overview of the concept. He explained that tax credit bonds are composed of two components: principal and interest in the form of an income tax credit. The credit quality of such bonds is determined by the source of repayment for the principal component.

Query described an existing tax credit bond program, qualified zone academy bonds, noting that this program was designed to encourage public–private partnerships. Investors and other private parties make investments in cash or in-kind contributions, but the law restricts the range of prospective investors.

From the borrower's perspective, tax credit bonds provide an interest rate subsidy but still require repayment of principal.

Considerations for potential investors in tax credit bonds include

- Having a tax liability at the time credit is available;
- Legislative risk regarding a change in tax law that would affect tax credit payments;
- Credit risk on repayment of principal and original issue discount;
- Risk of program noncompliance by borrower and potential recapture of tax credit; and
- Timing costs of tax credit, with tax credit bonds being less efficient than regular bonds.

From the perspective of the U.S. Treasury, Query noted the need to see significant additional capital investment as a result of an interest rate subsidy and the fact that the manner of budget recognition provides significant budget scoring advantages.

Query explained that while one could make the argument that tax credit bonds are more expensive than tax-exempt bonds, the Treasury should see tax credit bonds as more efficient because the entire subsidy flows to the issuer or project sponsor.

Looking to the future, Query observed that tight budgets will make tax expenditures a more practical method of subsidizing capital investment. He also described recent proposals that allow for the stripping of principal from interest, an important design feature to attract private pension funds as tax credit bond investors.

Tax Credit Bonds for Surface Transportation: Transportation Finance Corporation Proposal

Janet Friedl

Janet Friedl introduced the American Association of State Highway and Transportation Officials' (AASHTO's) Transportation Finance Corporation (TFC) concept to session participants. She described it as one item on AASHTO's menu of revenue options for reauthorization of the Transportation Equity Act for the 21st Century. TFC would be a federally chartered nonprofit corporation that would issue approximately $60 billion in tax credit bonds over the 6-year reauthorization period. TFC would distribute proceeds to the states for highways in the amount of approximately $34.1 billion, for transit in the amount of $8.5 billion, and into a sinking fund to repay the bond principal in the amount of approximately $17 billion.

Friedl described AASHTO's proposal that the scored 10-year tax credit cost (revenue loss of about $19 billion) to the Treasury be reimbursed by some net new source of revenue to the Highway Trust Fund. If structured properly, the tax credit bond proposal could draw a wide range of investors into transportation, including pension funds, others with long-term liabilities who need "long zeroes," corporations, and individuals with tax liabilities to offset.

Friedl described a component of the TFC concept, the $5 billion Capital Revolving Fund with broad project eligibility, including freight and passenger rail, ports and inland waterways, security infrastructure, and others. As conceived by AASHTO, the revolving fund would be capitalized initially by a grant from the General Fund and would offer low-interest loans, credit guarantees, and standby lines of credit to project sponsors.

Discussion

Scott Bernstein

Serving as discussant for this session, Scott Bernstein offered remarks to get the discussion started. He first noted that there was another tax incentive to consider, that of employer-provided parking and transit commute benefits, pointing out that the level of benefits between parking and transit has not been equalized. He noted that a major benefit of tax proposals is that they generally are targeted and do not require large bureaucracies to administer.

With respect to AASHTO's TFC concept, Bernstein offered the following questions:

- What will Congress and the federal government think they are getting out of this proposal?
- What is the overall federal interest that justifies blurring the Highway Trust Fund and General Fund to the extent they are required for the Capital Revolving Fund or are lost due to tax credits? What benefits should the public expect from more investments?
- Given changes in the tax code, how attractive are tax credits and tax credit bonds? What is the marketability and demand for tax credit bonds vis-à-vis other investments?
- Given political realities, should transportation investment emphasize debt or revenues? Are we trying to answer the question, is it too heavy a lift to go after a tax increase? with a TFC?
- How could the TFC benefit innovative intermodal projects, passenger and freight rail, high-speed rail, and other modes?

Bernstein noted that prospects for the private activity tax-exempt provision might be very good, with support for it on both sides of the aisle.

Highlights of the ensuing discussion included the following:

- Private activity bonds for highways could be supported by tolling and could open possibilities for expanding tolls and similar user fee measures.
- Tax-oriented leasing requires knowledgeable staff, legal resources, and the ability to understand private-sector interests and equity rules. The complexity hampers widespread use, but it has provided resources to transit agencies otherwise not available.
- Tax credit bonds for transportation will require some market development. The cost of bonds is primarily associated with the cost of tax credits—or the revenue forgone to the Treasury. AASHTO proposes that the Highway Trust Fund reimburse the Treasury for those "scored" costs. Rail, ports, intermodal, and security projects would be able to access loans and other credit instruments through the Capital Revolving Fund that would be administered by the TFC and would have broader eligibility than the Transportation Infrastructure Finance and Innovation Act or other existing credit programs.

Session 3: Tapping Alternative Revenues at the Regional and Local Levels: What Is and What Could Be

Vicki L. Winston, *Alameda County Public Works Agency* (Moderator)
Stephen Lockwood, *PB Consult (*Discussant)
Tamar Henkin, *TransTech Management, Inc.*
Therese McMillan, *Metropolitan Transportation Commission*
David Goss, *Greater Cleveland Growth Association*

Overview of Innovative Transportation Revenue Sources: What's Been Tried with a View to What Could Be

Tamar Henkin

Tamar Henkin provided an overview of transportation revenues, including a review of relevant statistics. In 2000, 57 percent of state and local highway funding came from highway user fees; of this amount, 60 percent came from fuel taxes and only 8 percent from tolls. On the transit side, 79 percent came from sales taxes.

Henkin explained that, in evaluating potential revenue sources, consideration should be given to revenue potential, stability and timing, legal and political issues, and administration and equity. She also said that, in looking to the future, we need to focus on combining resources, expanded application of value-capture techniques, and the increased importance of overall creditworthiness.

Vicki L. Winston

Vicki L. Winston served as moderator for this session and also offered introductory remarks. She introduced the session as a view from the trenches and contrasted it with the view from the rails, the view from the sea, the view from the Administration, and the view from the Hill that composed the rest of the conference. She stated that the session was intended to focus on the local and regional levels, where the view is often one of "city versus county for what tastes like leftover pie." She commented, "We can't solve our financial problems with money. More money is no guarantee that we will secure the future health of our infrastructure and a quality of life demanded by our communities." Instead, she suggested that we need to solve our financial problems with strategies that may challenge how we do business and how we fund our business.

Mixing It Up in the Metropolitan Area: Examples from the San Francisco Bay Area

Therese McMillan

Therese McMillan gave session participants a feel for funding opportunities from the local perspective. In the San Francisco Bay Area, they have been very successful in getting legislative funding flexibility and voter buy-in on sales tax initiatives. The area's long-range transportation plan is 66 percent funded with local funds. In her presentation, McMillan coined the word "supermatched." She described a creative process of swaps in which the county and metropolitan planning organization (MPO) work together to expedite project delivery through an MPO advance of surface transportation funds to a county for the project. The county pays back the MPO through a local sales tax, creating cash flow that the MPO can use to help advance other projects.

Making Room for Maintenance: The Intelligent Renewal of Our Existing Transportation System

David Goss

David Goss emphasized the importance of maintenance and renewal of our existing transportation system. In Cleveland since 1983, 90 percent of the $5 billion transportation investment has been for preservation and rehabilitation of existing infrastructure. Some of the revenue options Goss described were tax increment financing, sale and leaseback of transit equipment, and shared resource–revenue agreements. He also discussed examples in Cleveland and throughout Ohio of the use of transportation improvement districts, joint economic development districts, and local option sales taxes for transit. Looking to the future, Goss suggested that we need less reliance on gasoline taxes, increased use of intelligent transportation systems, and better materials to reduce maintenance costs. Life cycle costing should be considered in the procurement process.

Throughout his presentation, Goss also stressed the importance of having the business community at the table and, in particular, supporting funding for preservation and rehabilitation efforts.

Discussion

Stephen Lockwood

Serving as the discussant for this session, Steve Lockwood raised a number of discussion points:

- The high value of local option sales taxes, with a 1-cent sales tax generating the revenue value of a 30-cent gas tax;
- The importance of education and public relations in getting legislative flexibility and voter buy-in; and
- A potential area of concern being how projects are or should be prioritized: coming through the planning process in State Transportation Improvement Programs and transportation improvement plans versus "sexy" projects placed directly on the ballot.

Lockwood challenged the group to consider whether it was a problem that, in getting funding initiatives in place, high-profile projects were potentially sidestepping the traditional planning processes. He also noted the "home run" for local transportation funding in California and the fact that this does not seem to be replicated elsewhere in the country. He raised the question of how we knock down the apparent barriers in other jurisdictions.

One idea that came out of the discussion was adding local initiatives to the Innovative Finance website to provide marketing support for such initiatives. Others noted the important role MPOs play in educating local legislators on transportation funding.

Session 4: User-Pay Techniques: Toll Roads and Beyond

Michael A. Pagano, *University of Illinois at Chicago* (Moderator)
Robert Poole, Jr., *Reason Foundation* (Discussant)
Raymond Tillman, *URS Corporation*
Harold W. Worrall, *Orlando-Orange County Expressway Authority*
Mark Muriello, *Port Authority of New York and New Jersey*

Shadow Tolls

Raymond Tillman

Raymond Tillman kicked off the session by explaining that shadow tolls are not a user payment or a new funding source but a good tool that allows you to pool together various funding sources, build a project quickly, and pay for it over time. He explained that it is important to identify who benefits and provide funding proportional to the benefits reaped. According to Tillman, shadow tolls are simple to competitively bid and politically appealing and generate no toll resistance from users.

Concerns relating to toll (and shadow toll) project implementation include

- Politics and the allocation of scarce or limited resources,
- Legal issues regarding what is feasible under current laws and regulations,
- Necessary cooperation among sectors and across agencies,
- Perceptions and the need for public education,
- Lack of projects that are 100 percent financially viable, and
- Longer and more complex (and uncertain) project development procedures.

Case Study: Orlando–Orange County Expressway Authority

Harold W. Worrall

Harold W. Worrall provided a case study of the Orlando–Orange County Expressway Authority. The history of the expansion of the system and the strong revenue growth indicate that Orlando has an environment that is politically and publicly accepting of tolls. According to Worrall, electronic toll collection is key to implementing open road tolling within the next 5 years. He pointed out that people would rather pay tolls than taxes; they just don't want to stop to do it.

Opportunities for Value Capture and Value Pricing

Mark Muriello

Mark Muriello described the Value Pricing Program of the Port Authority of New York and New Jersey. The goals of the program are to reduce congestion, encourage use of electronic toll collection, and shift truck traffic from daytime to nighttime hours. Muriello suggested that value pricing objectives should not be limited to congestion mitigation but also viewed as a potential revenue generator.

Discussion

Robert Poole, Jr.

Key observations by some participants included the following:

- Tolls are an acceptable alternative to taxes.
- Value pricing for congestion mitigation encourages support from previous opponents such as environmental groups.
- Public education and awareness are vital to acceptance. An example was an I-15 public opinion survey in which 88 percent of users and 66 percent of nonusers approved of the tolls.
- Equity concerns regarding tolls and low-income drivers have sometimes been overblown. When advancing a toll increase, a link to transit options may help mitigate opposition.

TRACK 2
Tools and Techniques to Deliver More Projects Faster

This section provides a synthesis of the presentations and discussions that ensued in Track 2. This track comprised four individual panel sessions during each of which three or four presentations were made; in-depth discussion by the presenters and conference participants followed. The discussions were facilitated by a designated discussant.

SESSION 1: CHARACTERISTICS OF STRONG FINANCIAL PLANNING: WHAT IT TAKES TO HAVE GOOD DISCIPLINE

Susan P. Mortel, *Michigan Department of Transportation* (Moderator)
Barbara Bych, *Ambac Financial Group* (Discussant)
John Basilica, *Louisiana Department of Transportation and Development*
Dane Ismart, *Louis Berger & Associates*
Jonathan Davis, *Massachusetts Bay Transportation Authority*

Integrating Innovate Financing into the Transportation Planning Process

John Basilica

John Basilica initiated this session with an overview of Louisiana's TIMED Program: Transportation Improvement Model for Economic Development. The program comprises 16 major projects that are constitutionally enumerated and passed by the state legislature. This includes 11 highway corridors, 3 major bridges, and a project to improve New Orleans airport access. Basilica described how the program was stalled until the Louisiana Department of Transportation and Development adopted an innovative project management plan, hiring a private-sector program manager to help deliver the projects. This program is now under way, and the early results are promising.

Basilica described a number of lessons learned from the early phases of the TIMED program:

- The original program was oversold to the public.
- The department and the legislature were relying on unrealistic project estimates and schedules.
- There was an inappropriate use of debt early in the program.
- The program was plagued by inadequate planning.

From this bleak history, the Louisiana Department of Transportation and Development developed a comprehensive plan that included three components:

- A legislative plan by which the department would not proceed until enabling legislation was in place,
- A management plan that called for a program manager approach, and
- A finance plan that incorporated sustainable revenue bonds and an annual financial feasibility review.

In conclusion, Basilica noted the importance of detailed planning, a creative management team with finance expertise, and top-level leadership throughout the process.

What Are the Ingredients of Good Financial Planning?

Dane Ismart

Dane Ismart provided an overview of the characteristics of a strong financial plan, focusing on

- Assessment of financial condition,
- Assessment of financing capability, and
- Preparation of a financial plan.

Ismart described factors that may affect the ability to operate, maintain, and make needed investments in existing systems:

- Economic vitality of the state or region,
- Debt management history,
- Historical financial burden of transportation expenditures, and
- Analysis of financing burden of transportation compared with nontransportation investments.

Ismart described a comprehensive financial plan as including consideration of financing alternatives through the use of cash flow analysis, risk and sensitivity analyses, and funding flexibility—with a good financial plan allowing quick response to changing conditions. He described financial plans as being continuously evolving tools—with short- and long-term components—and requiring coordination among state, local, and federal actors.

Balancing Debt and Pay-as-You-Go Financing

Jonathan Davis

Jonathan Davis addressed the issue of balancing debt and pay-as-you-go financing in a major transit system. First, he described the Massachusetts Bay Transportation Authority (MBTA) system, noting that 60 percent of people commuting to the financial district take "the T" (Boston's subway system) and that it is vital to the economy of the city.

Second, Davis described the past funding structure for the T as being through a state appropriation, provided in arrears. MBTA would spend the money first and then deliver the invoice to the legislature, which would in turn appropriate the funds.

MBTA is engaging in financial reform and, as described by Davis, now deploying a balanced operating budget and a sustainable capital program. The $4 billion of debt on the balance sheet currently consumes about one-third of the system's operating budget. The system has a dedicated new source of funding: 20 percent of the state sales tax, which generates approximately $645 million, plus assessments from cities and towns served by MBTA.

With this new funding system, MBTA will need to maximize its own revenues. There was no incentive to do this before financial reform. Since financial reform, the agency has successfully enacted a fare increase. MBTA also will seek nonfare revenue from sources such as advertising, concessions, and parking. The agency will attempt to meet its operating cash flow needs, maintain a reasonable level of cash reserves, and minimize its reliance on debt.

Davis explained that MBTA now has control of the capital program and recognizes that some projects are not affordable through existing revenue sources. MBTA has been able to communicate this message to proponents of potential new projects, such as the new Fall River/New Bedford commuter rail line; therefore, the project has secured separate funding from the legislature and other sources.

Discussion

Barbara Bych

Barbara Bych kicked off the discussion for this session by opening the floor to the audience. The group discussed the benefits of joint development and public–private partnerships. Jonathan Davis noted that MBTA would look to these techniques where they make sense. He also noted the importance of good communication to good financial planning, including telling the public when a project is simply unaffordable.

Session 2: Innovative Financing to Advance State and Local Transportation Programs and Projects

Lowell R. Clary, *Florida Department of Transportation* (Moderator)
John Horsley, *American Association of State Highway and Transportation Officials* (Discussant)
Wendy Franklin, *Goldman Sachs*
Thomas McPherson, *Ohio Department of Transportation*
Denise Jackson, *Michigan Department of Transportation*

Grant Anticipation Mechanisms Move into the Mainstream

Wendy Franklin

Speaking to the topic of grant-backed debt mechanisms, Wendy Franklin described grant anticipation revenue vehicles (GARVEEs) as having entered the mainstream. The high ratings that recent issues have received and an agency's ability to borrow on a long-term basis (across authorizations) indicate the market's comfort level with these borrowings. Franklin described how 11 states have issued over $6 billion in GARVEE debt financings, with the bulk of the ratings in the AA category. These ratings reflect "double barrel" security (i.e., a second revenue source for backstop repayment) and conservative leveraging.

Role of State Infrastructure Banks in Advancing State and Local Projects: What More Can Be Done?

Thomas McPherson

Thomas McPherson addressed the role of state infrastructure banks (SIBs) in advancing state and local projects. Describing the Ohio SIB, McPherson discussed the importance of having a variety of revenue sources to facilitate a multimodal SIB. The Ohio SIB has benefited from $40 million in general revenue funds. The program has had one default—from a private-sector borrower.

McPherson described the goal of the program as attracting local revenues to transportation. Job creation has been a secondary benefit but not a primary focus. When a project does not score high enough for direct grant funding, then the department looks to the viability of a SIB loan.

Offering examples of success, McPherson noted that the SIB has developed a tremendous amount of good will through speedy loan closings and by providing an alternative when the department is unable to provide grant funding. He described a $1,500 loan to a small community to improve traffic signals. While the community was hoping for grant funding, being offered a loan was a better alternative than simply being told no to the request.

McPherson described the state's wish list for reauthorization:

- Federal legislation that makes SIBs available to all states,
- Revisions to the payout provisions, and
- Consent for SIB capitalization to be used for intermodal projects.

Success in Using Federal Flexible Finance Programs: A Policy Focus

Denise Jackson

Speaking to the subject of federal flexible funding provisions, Denise Jackson described their use in Michigan, which was initiated in 1994 with the TE-045 program. The relevant provisions include tapering, flexible match, phased funding, advance construction and partial conversion of advance construction, toll credits, and the SIB program.

Giving a little history on transportation funding in Michigan, Jackson described the upcoming transition from a long-term governor and a relatively stable political climate to a new governor. She described how in the early 1990s then-Governor John Engler wanted to improve the transportation system with the ultimate goal of improving the overall economy. The state did not, however, want to raise transportation costs, so set out to streamline the Michigan Department of Transportation (MDOT) administration and use the state's borrowing capacity to obtain funds at relatively low rates.

Jackson described MDOT's programmatic strategy as being the prioritization of preconstruction activities so that the agency has projects that are ready to go when funding becomes available. By borrowing funds, the state could go a bit ahead with projects before the state–local match was available.

MDOT developed a 5-year capital program that the public and industry look forward to each year. The program focuses on managing investments and communicating to the public what will be done during the specified time period. The department is committed to accelerating program delivery and improving customer relations. It recognized the need to communicate to contractors that by borrowing into future funding (i.e., continuing to use future funds for debt service rather than new projects), smaller programs would result in later years. This communication allowed contractors to plan their businesses and to consider impacts on the construction industry and the workforce.

Discussion

John Horsley

The discussion period focused on the reasons that states have been slow to use the available tools, including a lack of understanding and problems with underlying legitimacy of the techniques.

In addition, during the discussion period, McPherson noted that innovative finance should not be treated as "a solution in search of a problem." First, the projects have to be identified; then the tools to make them happen are developed. McPherson also described a philosophical evolution: from a pure financing perspective, bonding for a project costs more. From a DOT perspective, an investment is made to reap some of the increased value. The challenge is to identify the projects and communicate the benefits that really need to be communicated. Once the focus centers on the goal to be achieved, the leadership will understand it and the politicians will support it.

In discussing the potential for longer GARVEEs (20 to 30 years, for instance), it was noted that the fear related to reauthorization is growing smaller and that the prospects for longer GARVEE financings are improving.

Session 3: Tools and Techniques to Meet Project Funding Challenges

Suzanne H. Sale, *Federal Highway Administration* (Moderator)
Ron Marino, *Salomon Smith Barney* (Discussant)
David Seltzer, *Mercator Advisors LLC*
Phillip E. Russell, *Texas Turnpike Authority*
Charles McNeely, *City of Reno, Nevada*
James Preusch, *Infra-Trans, LLC*

Suzanne H. Sale

Suzanne H. Sale served as moderator for this session and began by describing the backlog of needs against shrinking resources and the competition for those resources. She described a decade of success turning concepts into tools that are in use. She also noted the importance of having flexible tools to meet state-specific needs.

Role of Federal Credit: Transportation Infrastructure Finance and Innovation Act and Beyond

David Seltzer

David Seltzer began with a discussion of the role of federal credit assistance in funding large projects. He described a finance "stool"—which he hopes will someday replace the by-now-familiar finance pyramid—with three balanced legs. These legs represent the perspectives of the project sponsor, federal policy, and investors in determining which form of federal credit assistance is best matched to the specific financing needs of a project.

Seltzer described four basic forms of federal credit:

- Securitizing federal receivables, including GARVEEs and grant anticipation notes,
- Direct federal credit, most notably the Transportation Infrastructure Finance and Innovation Act (TIFIA),
- Federal revolving loan funds, the most common of which are SIBs, and
- Tax code incentives.

Seltzer's discussion of the advantages and disadvantages of each of these forms of federal credit assistance from the perspective of the three legs of the finance stool set the stage for a showcasing of two TIFIA projects by the subsequent speakers.

Central Texas Turnpike Project

Phillip E. Russell

Phillip E. Russell discussed the Central Texas Turnpike Project, a massive $3.6 billion toll project that is being supported by a $916 million direct TIFIA loan, the largest awarded to date under the TIFIA program. The project as described by Russell actually represents four projects in one. The financial plan incorporates a mix of tools and approaches, including revenue bonds and bond anticipation notes, as well as a substantial contribution from the cities and counties that will enjoy the project's benefits. The project is the single largest toll road project in the nation, the majority of which is being delivered through an exclusive development agreement.

Reno Transportation Rail Access Corridor Project

Charles McNeely

Charles McNeely followed with a description of the Reno Transportation Rail Access Corridor (ReTRAC) project in Reno, Nevada. In contrast to the TIFIA project in Texas, ReTRAC is being supported by the smallest TIFIA loan awarded to date. The project, which involves dropping an existing freight rail right-of-way into a trench under downtown Reno, is the result of an extraordinary effort to build a partnership among some seemingly unlikely allies: the city of Reno, the state of Nevada, the federal government, and, perhaps most critically, the business community, including Union Pacific Railroad.

Freight Infrastructure Bank Proposal

James Preusch

The final speaker for this session was James Preusch, who addressed an emerging concept that would help fund freight and intermodal needs currently facing substantial hurdles in assembling a plan of finance.

The National Freight Security Infrastructure Bank, as described by Preusch, would create a new revenue source for these projects through a national fee on freight cargo. A stand-alone agency would be created for the freight bank, with the fees administered by U.S. Customs. Eligible projects could include seaports handling international import cargo, border crossings, inland cargo interchange projects, and other projects designated by metropolitan planning organizations. The projects would need to respond to security issues, environmental concerns, or the need for expedited shipments.

Preusch noted that this national program would generate needed revenues for freight and intermodal projects, address inadequate local infrastructure in terms of moving more goods that "last mile" to their final destinations, and incorporate the principle that all consumers should pay for the benefits of improved freight infrastructure.

Discussion

Ron Marino

Ron Marino led the discussion for this session. He described how complex projects today require different revenue sources and different levels to get the projects done. In discussing projects with private benefit, he noted that private businesses will need to step up and help pay.

The discussion also addressed the question of how to convince people to pay for something they perceive they already have. Participants noted the importance of defining value to affected communities and structuring tolls or other user charges that capture that value.

Session 4: Quantifying and Communicating the Benefits and Costs of Innovative Finance

Robert Rich, *Public Financial Management, Inc.* (Moderator)
Hank Dittmar, *Great American Station Foundation* (Discussant)
Miriam Roskin, *Roskin Consulting*
George Erickcek, *W. E. Upjohn Institute for Employment Research*
Fred Jarrett, *Washington State Representative*

Quantify and Qualify: Strategies for Assessing the Impacts of Innovative Finance

Miriam Roskin

As the first speaker on this panel, Miriam Roskin offered a reasoned approach for not only quantifying but also qualifying the benefits of innovative finance. She explained that we need to be able and want to attach some numbers to the benefits of using these tools to make the case to decision makers and stakeholders that the benefits of using the alternative tools are worth the costs. She described the challenges of coming up with these numbers as threefold:

- There is an absence of a control case, that is, one of not using innovative finance.
- It is difficult to isolate the impacts of innovative finance from the myriad other factors at play.
- You need to be careful that you understand when benefits are being redistributed versus enjoying a net gain, that is, simply divvying up the pie versus making the pie bigger.

Roskin pointed out that there is a "lunar landscape of pitfalls" associated with quantifying the benefits of innovative finance and cautioned against losing sight of the fundamental value of the project to the customers it will serve.

Roskin noted a number of relevant evaluation reports:

- TE-045 Innovative Finance Initiative (1996),
- State Infrastructure Bank Pilot Program (1997),
- TIFIA Federal Credit Program (2002), and
- Innovative Highway Finance "Capstone" Retrospective (2002).

Innovative Financing, an Economist's View

George Erickcek

Following Roskin, George Erickcek offered the economist's view on quantifying benefits of innovative finance. Erickcek highlighted the economic considerations in assessing whether innovative finance is a good thing. He cautioned that if we are shifting the costs of today's infrastructure to future users and even nonusers, then we must be more scrupulous in forecasting future revenues.

Communicating Innovative Finance to the Public

Representative Fred Jarrett

Finally, Representative Fred Jarrett recounted the saga of the Tacoma Narrows Bridge project, constructed next to an existing bridge. He offered a cautionary tale and reminded the session participants that (*a*) it is nearly impossible to convince people to pay for something they perceive they already have and (*b*) if tolls—or any fees, for that matter—are going to be used to finance a project, we need to understand better what is valued by an affected community and to communicate clearly the value of the project to that community. He also asserted that the toll or fee must be structured in alignment with the project's value.

Discussion

Hank Dittmar

During the discussion period, there was some focus on the fact that financing tools can be used to achieve policy objectives, such as shifting payment to future generations and value pricing. Use of innovative finance also forces a longer-term orientation and greater transparency.

There also was some discussion about the level of program that is reasonable to borrow for and recognition that there is no standard to follow. States need help figuring out the right balance of debt and pay-as-you-go funding and in doing a better job of forecasting both future revenues and future demands for funding.

TRACK 3
Structures, Institutions, and Partnerships to Deliver More Projects Faster and Cheaper

This section provides a synthesis of the presentations and discussions that ensued in Track 3. This track comprised four individual panel sessions during each of which three or four presentations were made; in-depth discussion by the presenters and conference participants followed. The discussions were facilitated by a designated discussant.

SESSION 1: PUBLIC–PRIVATE PARTNERSHIPS: TAKING THE MYSTERY OUT OF THE THREE PS

John Flora, *World Bank* (Moderator and Discussant)
David Kusnet, *Economic Policy Institute*
Barbara Reese, *Virginia Department of Transportation*
Worth Blackwell, *Raymond James & Associates, Inc.*

John Flora

John Flora kicked off this session with an introduction to the role of public–private partnerships in project delivery. He suggested that the term "privatization" has a bad connotation. It, however, is not being imposed but rather has grown up in response to a particular need: the fact that the public sector cannot meet all needs. He also reflected on the fact that local governments need to be more involved in the process. Flora then introduced the three panelists for the session.

Setting the Stage: Public-Sector Perspective on Roles and Risk Sharing

Barbara Reese

Barbara Reese introduced the Virginia Department of Transportation's public–private partnership [Public-Private Transportation Act (PPTA)] program and the metamorphoses that the program and associated risk sharing have undergone. The original intent of the PPTA legislation was to generate projects faster and cheaper, but according to Reese, the objectives have broadened to a more complex set of objectives to manage.

Reese described the attitude shifts over the course of the program and individual project implementation. She noted that, from the public-sector perspective, the most costly risk is often shifted to the public sector and there must be a true commitment for sharing risks among the parties.

Reese concluded by explaining that Virginia started the PPTA with a clear commitment to risk allocation, somewhere along the way the most costly risks were shifted to the public sector, and the state is now working diligently to bring the partnership to an equitable balance.

Setting the Stage: Private-Sector Perspective on Roles and Risk Sharing

Worth Blackwell

In his presentation of the private-sector perspective on public–private partnerships, Worth Blackwell described how the transportation sector has lagged behind other infrastructure sectors and noted that there are numerous arrangements in other sectors, such as the water and wastewater management arena. He drew attention to the prohibition of tax-exempt debt by private owners of highways.

Blackwell observed that private parties are involved for profit and they must consider how much profit is necessary, how it compares with other investment opportunities, and how it compares with the associated risks. In describing the risks to be considered, Blackwell highlighted risks in the following categories:

- Construction and operations,
- Payment and liability,
- Environmental and permitting,
- Legal,
- Political, and
- Right-of-way acquisition.

In conclusion, Blackwell noted that private-sector players are willing to take on risks that they can quantify and manage.

Highway Robbery

David Kusnet

Speaking from a recent article, "Highway Robbery: How Contracting-out the Design, Engineering, Inspection and Management of Federally Funded Transportation Projects Produces Problems with Cost, Quality, Safety & Accountability," David Kusnet described a danger that the public sector will not be able to protect public interests. He described a situation where increased contracting out is leading to more expensive projects as well as quality and safety issues. He also described a "brain drain" that resulted from contracting out whereby agencies are losing experienced and dedicated staff to the private sector. Ultimately, according to Kusnet, agencies could lose the capacity to oversee work of consultants. In his remarks, Kusnet stressed the need for greater accountability and the need to maintain the capacity to conduct required oversight functions.

Discussion

John Flora

John Flora led the group through a discussion that focused on risks associated with compliance with environmental laws and on identifying who takes on associated risks. The group also addressed the pitfalls associated with the public sector's retrospectively compensating private partners for added costs that are theoretically already built into the private-sector bids for a job. The public–private partnership model of risk sharing can fall apart when the terms of the original agreement are altered midcourse.

The group also had an in-depth discussion comparing partnership projects in different states and some of the advantages and disadvantages of the various approaches. Both the public-sector agencies and private-sector firms are still learning from these early experiments and adjusting the form of new partnership projects.

Session 2: Public–Private Partnerships: A Matter of Survival

Mario Marsano, *Raymond James & Associates, Inc.* (Moderator)
Gordon Linton, *WageWorks, Inc.* (Discussant)
Ron Marino, *Salomon Smith Barney*
Susan Sanchez, *Seattle Department of Transportation*
Monica Conyngham, *Foley Hoag LLP*

Mario Marsano

Mario Marsano introduced this case study session, noting that the projects presented may serve as potential models for future partnership projects.

Las Vegas Monorail

Ron Marino

Ron Marino provided the participants with an overview of the Las Vegas monorail project, focusing on the public–private partnership elements. He described it as one of the few transit projects that have a sole pledge of fare box revenues supporting the debt. He described how the next phase of the project would depend on the following innovative finance tools:

Transportation Infrastructure Finance and Innovation Act (TIFIA) financing and acceleration of full-funding grant agreement funds through the use of grant anticipation financing.

Marino described three benefits of TIFIA financing:

- Low interest costs,
- Willingness of government to be a patient lender, and
- Willingness of government to accept coverage ratios as low as 1.10 times, which facilitates additional borrowing capacity for the project.

Seattle Rail

Susan Sanchez

Following Marino, Susan Sanchez provided an overview of the Sound Transit regional transit project and the monorail project, two projects at different stages of development. Sanchez described the role of the public in initiating these projects, the impact of design–build on project costs, and various elements of project control that are based on the specific construct of the public–private partnership.

Greenbush Commuter Rail and Environmental Issues

Monica Conyngham

Monica Conyngham offered insights into the environmental issues associated with delivery of the Greenbush Commuter Rail project, the Massachusetts Bay Transportation Authority's (MBTA's) first design–build project that runs through five communities and has significant environmental and historic preservation issues.

Conyngham focused on the allocation of risks and described how the MBTA maintained risk through the major permitting stage. She noted the importance of having the design–build team at the table throughout the process.

Discussion

Gordon Linton

Gordon Linton, former administrator for the Federal Transit Administration (FTA), led the discussion for this session. He noted the importance of education about the environmental process, in particular for design–build projects. The group discussed how the switch from private to public funding in the Las Vegas monorail project from one phase to the next required the introduction of federal requirements midcourse and the "tricky thicket" this presented to project managers.

The group also addressed the importance of an expedited review process in advancing projects. Conyngham pointed out that without such an expedited process, a vicious cycle with outdated data and new hurdles results. She stressed to public managers the need to "make the process as tough as you like, make a decision, and live with the consequences." She asserted that it is imperative to stop continually revisiting the review and introducing new hurdles and costs.

Session 3: Privatization and Outsourcing of Transportation Functions: Impact on Finances of the Transportation Organization

Elizabeth Pinkston, *Congressional Budget Office* (Moderator)
Mary Richards, *Massachusetts Organization of State Engineers and Scientists* (Discussant)
Shirley J. Ybarra, *Ybarra Group, Ltd.*
Heather Dugan, *Stifel Nicolaus, Hanifen Imhoff Division*
Edward J. Corcoran II, *Foley Hoag LLP*

Virginia's Privatization Initiative: Outcome-Based Highway Asset Management

Shirley J. Ybarra

Shirley J. Ybarra provided the first case study presentation in this session on Virginia's privatization initiative. She described the program that was passed and signed into law in 1994 and how the state sought both solicited and unsolicited proposals for construction, operations, and maintenance. The initiative was driven, at least in part, by the loss of approximately 15 percent of the transportation department staff. The state was looking for both cost savings and project innovations.

Ybarra described two projects near Richmond for which public–private partnerships allowed the projects' accelerated completion. She also described a successful partnership entered into for Interstate maintenance. The partnership, an outcome-based agreement, did not dictate to the private partner how to do it but rather the required outcomes. Managing 250 miles of Interstate, the partnership saved the state $22 million over 5 years.

Denver I-25: Combining Highway and Rail Financing in a Single Initiative

Heather Dugan

Heather Dugan used the Denver I-25 project to address the combination of highway and rail financing in a single multimodal project. The Colorado legislature passed a bill to provide needed funding and project-delivery mechanisms, and state and federal agencies signed agreements to work together to accomplish the project.

Dugan used the project as an example of how multimodal projects can create difficulties because of the lack of a standard process across modes and modal agencies (i.e., between the Federal Highway Administration and FTA). Dugan then enumerated a number of lessons learned from this project:

- Multiple funding sources can work together, but there are challenges that must be overcome.
- To do so, financial staff must be involved early in the project development process.
- Federal agencies also must be involved early on.

Massachusetts Route 3 North: Resolving Labor Issues in a Design–Build–Operate–Maintain Project

Edward J. Corcoran II

Edward J. Corcoran II presented the third case study—that of the Massachusetts Route 3 North project—that focused on the resolution of labor issues in a design–build–operate–maintain project. Corcoran identified the following key labor questions:

- Does innovative project delivery displace state jobs?
- Does innovative project delivery create labor agreement issues?
- Does the magnitude of the project preclude smaller contractors from competition?

Corcoran noted that this project required significant negotiation with labor unions to resolve the various labor concerns.

Discussion

Mary Richards

Mary Richards led the group through a wide-ranging question-and-answer period about the three showcased projects and the lessons learned from each.

Session 4: Innovative Contracting and Implications for Transportation Finance

Max Inman, *Federal Highway Administration* (Moderator)
Greg Henk, *HBG Constructors, Inc.* (Discussant)
Pete K. Rahn, *New Mexico State Highway and Transportation Department*
John Walsh, *South Carolina Department of Transportation*
Kirk Wineland, *Baltimore/Washington International Airport*

New Mexico

Pete K. Rahn

Pete K. Rahn provided the first case study presentation in this session, on the NM-44 project. The state had an aggressive plan to build a significant number of four-lane facilities for economic development. The legislature, however, did not approve the highway plan. The state faced two unattractive options:

- Remove $214 million from the State Transportation Improvement Program (STIP) for NM-44 or
- Build 5-mile increments for the next 27 years.

The solution that the state arrived at was to use a combination of traditional and nontraditional mechanisms to advance the project. Tools considered by the state for this project included the following:

- Advance construction,
- Developer financing via a "63-20" corporation (enabled by Internal Revenue Service Ruling 63-20, which allows for the creation of nonprofit financing conduits and use of such entities for an array of public–private projects),
- Pledge of future federal revenue,
- Soft match provisions, and
- A federal lands match waiver.

Innovative contracting components included the following:

- Extremely fast design and construction,
- Construction management,
- Long-term warranty, and
- A combination of low bid criteria with qualification-based request for proposals.

The project was a remarkable 15 months from concept to contract. Through the contracting and financing methods chosen, the state built four lanes of highway for the cost it would have taken to build only two lanes.

Construction would be completed in 28 months, with an estimated $89 million in savings through the warranty arrangement. This was accomplished without adding staff or disrupting other projects already in the STIP.

South Carolina

John Walsh

John Walsh presented the second case study, South Carolina's 27 in 7 Program, by which the state is implementing a $5.3-billion work program through a construction and resource management (CRM) approach. Through this program, the state aims to complete 27 years of projects in only 7 years.

Walsh described a variety of financing mechanisms that accompany the outsourced CRM approach. These include the following:

- Use of the South Carolina State Infrastructure Bank,
- Issuance of state highway bonds, and
- Maximized federal share.

Walsh described how through this approach the state would deliver a vastly accelerated program. Through the use of outsourced managers, the state has in essence extended its staff resources without replacing agency decision making.

Aviation and Homeland Security

Kirk Wineland

Presenting the third case study, Kirk Wineland of Baltimore/Washington International (BWI) Airport focused on the new challenges of homeland security in the aviation sector. He described for session participants the challenges of implementing congressionally legislated security measures on an aggressive schedule and the requisite need to use alternative methods to accomplish this. BWI, like other airports all over the country, is struggling to meet this challenge and looking for new approaches to help with this seemingly daunting mission.

Wineland described his as the "case study that wasn't." He doesn't know how the airport—or others like it—will meet the legislated requirements and is concerned about the economic implications for BWI, for the region, and for the country.

Discussion

Greg Henk

The discussion for this session, facilitated by Greg Henk, focused on the facts that innovative financing tools are now in place at the state and federal levels but that there continue to be issues associated with the implementation of these tools that must be resolved locally and up front before they can be used to maximum benefit.

It was noted that the traditional pay-as-you-go method for financing projects is creating difficulties for states with large capital needs. Reviewing innovative techniques and thinking creatively to resolve individual project needs as well as program needs are becoming more essential as states address their extensive infrastructure needs. Examples of some of the issues that the group identified as needing to be addressed include these:

- Establishing partnerships for funding, oversight, and reporting;
- Labor issues;
- The need for local buy-in to utilize available techniques;
- Interagency coordination among state, local, and federal players; and
- A variety of legislative barriers.

Keys to success identified in this session include the following:

- Maintaining a customer focus when identifying innovative financing techniques,
- Involving all appropriate parties and doing so at an early stage of the process,
- Identifying constraints and roadblocks early in an attempt to overcome issues,
- Seeking flexibility with partners, and
- Knowing the tools and techniques available and being willing to think outside the box.

TRACK 4
New Transportation Initiatives and Demands on Financing

This section provides a synthesis of the presentations and discussions that ensued in Track 4. This track comprised four individual panel sessions during each of which three or four presentations were made; in-depth discussion by the presenters and conference participants followed. The discussions were facilitated by a designated discussant.

SESSION 1: CHALLENGE OF INTERMODAL PROJECTS: KEEPING THEM FROM FALLING THROUGH THE CRACKS OF FINANCING PROGRAMS

Anne P. Canby, *Cambridge Systematics, Inc.* (Moderator)
Christine Speer, *Florida Department of Transportation*
John Gibson, *CSX Transportation*
Mortimer Downey, *PB Consult*

Financing Intermodal Centers: What Are the Barriers and How Do We Knock Them Down?

Christine Speer

Using the Miami Intermodal Center (MIC) project as an example, Christine Speer addressed the issue of financing intermodal centers and how to knock down barriers to such projects. She described a public–private partnership, including federal, state, local, and private funding partners, to get the project on its way. She noted that large projects such as MIC will have ebbs and flows during implementation and offered as an example the large ebb that resulted from September 11, 2001 (9/11), for this particular project.

In identifying elements of success, Speer offered the following keys:

- Strong state leadership and commitment,
- Backing from the U.S. Department of Transportation, and
- Solid commitment from project sponsors, in writing.

Financing Intermodal Connections: Bringing Down the Funding Silos for the I-95 Rail Study

John Gibson

John Gibson addressed the issue of financing intermodal projects and the need to bring down the funding silos across modes. The basis of his presentation was the Mid-Atlantic I-95 Rail Study.

Gibson began his talk with a discussion of the relative advantages of rail transport, including environmental, cost, and traffic flow. Then he addressed the specifics of the Mid-Atlantic I-95 Rail Study, which consisted of 71 infrastructure projects with an estimated total cost of $6.2 billion. He described a three-phase program over 20 years.

He noted his view that the 4.3-cent per gallon tax on diesel fuel for railroads should be repealed and addressed what he saw as the discriminatory nature of state property taxes.

Gibson introduced the various proposals currently under consideration. First, he discussed the concept of the Transportation Finance Corporation with a revolving fund repaid by grants and tolls. An alternative is a regional rail finance component capitalized with federal funds, tax credit bonds, or other sources. A further option, according to Gibson, would be a national rail network program, a grant program akin to the highway program. He warned against the Alameda Corridor approach unless other fundamental charges and taxes are in place.

Importance of a Multimodal Perspective in Developing Finance Approaches: Putting an End to Modal Stovepiping

Mortimer Downey

Mortimer Downey spoke to the importance of linking all modes in the planning process. He noted that the existent of three or four Senate committees with relevant jurisdiction helped to create funding silos. He also addressed the need to research, develop, and provide new tools to multimodal stakeholders and organizations. Another key component is the development of performance-based solutions.

Downey also discussed the potential for interstate compacts for individual projects and program financing. Recognizing the obstacles to regional approaches, Downey emphasized their potential to contribute to solving multimodal project financing challenges.

He noted the opportunity to look at everything all at once, with reauthorization of surface transportation, aviation, and Amtrak programs on the table. He cited four areas that need to be addressed:

- There should be a review of the various existing and proposed federally sponsored financing vehicles [e.g., full funding grant agreements, the Railroad Rehabilitation and Improvement Financing Program, passenger facility charges, the Transportation Infrastructure Finance and Innovation Act (TIFIA), and state infrastructure banks (SIBs)] to overcome some of the patchwork, create more consistency, and link these sources better to normal financing.
- All of the modes ought to take a lesson from the Federal Highway Administration pyramid of project finance tools and look at their types of projects in that light; that is, don't waste grant resources on projects that may have potential financing.
- Integrate the modal planning and project development process more effectively, including the use of all the policy tools—operations, demand management, intermodal development—not just project investment.
- Create the effective institutions and individuals who can contribute, and avoid duplicating these scarce human resources in each mode and each agency at each governmental level.

Session 2: Financing Marine Transportation Systems

William Dryer, *Summit Partners, LLC* (Moderator)
Robert James, *Port Authority of New York and New Jersey* (Discussant)
Theodore Prince, *Optimization Alternatives Limited, Inc.*
M. John Vickerman, *Transystems Corporation*
Anthony J. Taormina, *OmniTRAX, Inc.*

Alameda Corridor: A Case Study

Theodore Prince

Using the Alameda Corridor as a case example, Theodore Prince addressed the challenges of implementing and financing a multimodal project of substantial scale and impact. He discussed what worked well and what did not, including impacts on other facilities.

Prince noted the impact of larger vessel throughput and discussed the fact that, to maximize corridor benefit, short-haul service from San Pedro ports to inland distribution centers—and return of empties—may be necessary. The question, according to Prince, will be, Who builds it and how is it funded?

Productivity in Marine Terminals: A Financing Challenge

M. John Vickerman

M. John Vickerman addressed the challenge of financing increased capacity in marine terminals. Complementing the remarks of Prince, Vickerman also drew attention to the need for port and intermodal research.

Short-Line Rail: Private Investments in the Marine Transportation System

Anthony J. Taormina

Anthony J. Taormina discussed private investment in short-line rail and the role of ports in the logistical chain. In the course of his remarks, he also addressed the need for public investment as seed money for port–maritime research.

Discussion

Robert James

Robert James facilitated the discussion for this session. Key observations by some participants included the following:

- As projects rely more on taxable and equity financing, there is a greater need for them to make economic sense.
- Container growth through ports will outstrip current capacity and create severe congestion.
- We can no longer have business as usual, nor can we expect to simply build our way out of capacity constraints.

The Alameda Corridor was discussed as a successful megaproject, but its weak points were recognized. The importance of port and intermodal research was noted as was a mechanism for public investment to serve as seed money to draw in private investment.

Session 3: Intercity Passenger Movements: Degree and Form of Public Subsidy

Yuval Cohen, *Parsons Brinckerhoff* (Moderator)
John Bennett, *Amtrak* (Discussant)
Donald Itzkoff, *Foley & Lardner LLP*
Charles Quandel, *HNTB*
Thomas Walker, *Department of Aviation, City of Chicago*

Future of Intercity Passenger Rail

Donald Itzkoff

In his remarks, Donald Itzkoff addressed the prospects for high-speed and intercity rail. Itzkoff reviewed the current administration's principles for Amtrak reform, including the following:

- Creating a system driven by sound economics,
- Transitioning Amtrak to a pure operating company,
- Introducing managed competition,
- Establishing a long-term federal–state partnership, and
- Building a new public–private partnership to manage the East Coast corridor.

He addressed the investment–policy balance for long-distance service and for high-speed rail, reflecting on the differences for capital and operating investment.

Itzkoff then reviewed some of the pending legislation, focusing on those components that relate to intercity rail initiatives, high-speed rail initiatives, or both. In conclusion, Itzkoff noted the growing demand for rail alternatives, reflected on the interplay with decisions relating to Amtrak's future, and highlighted the need for net new investment for high-speed rail deployment. As other speakers, Itzkhoff spoke to the need for a specific rail title in the bill reauthorizing the surface transportation program.

Has the Time Arrived for High-Speed Passenger Rail?

Charles Quandel

Charles Quandel spoke about the prospects for high-speed rail. He shared with the group the current status of Florida High Speed Rail and also addressed the Midwest Regional Rail Initiative. He described this initiative as changing the basis of intercity planning by coordinating parallel activities in multiple states.

In answering the question of what puts Florida so far ahead, Quandel pointed to the critical role of a champion for the initiative as well as the fact that there is a public referendum in support of it.

Aviation Infrastructure and Airports

Thomas Walker

Thomas Walker, Commissioner of Aviation in Chicago, focused his remarks on the infrastructure needs for airports and, in particular, for O'Hare International Airport and Midway Airport in Chicago. He provided the audience with a number of privatization examples, including ones for airport parking and the Airport Transit System, airport concessions, maintenance, construction management, and design and engineering.

In the course of his remarks, Walker described the important role of the airports as intermodal gateways to the region, including for transit and intercity rail movements. He also stated that Chicago is recovering somewhat faster than other airports from 9/11.

Discussion

John Bennett

John Bennett of Amtrak led the discussion for this session. The discussion focused on

- Issues of funding equity between modes, including passenger and freight rail;
- The importance of a rail title in the Transportation Equity Act for the 21st Century authorization;

- Opposition to the regional investment bank concept and funding from the 4.3-cent diesel tax;
- The role of rail as an alternative to free up air capacity; and
- The possible use of train stations as community centers to attract grassroots support.

SESSION 4: EMERGING FUNDING CHALLENGES

Frederick (Bud) Wright, *Federal Highway Administration* (Moderator)
Robert C. Brown, *Federal Highway Administration* (Discussant)
Pat Goff, *Missouri Department of Transportation*
Richard Mudge, *Delcan Inc.*
Joseph M. Giglio, *Northeastern University*

Homeland Security and Impact on Transportation Funding

Pat Goff

Pat Goff addressed the cost of homeland security and its impact on transportation funding. He discussed four homeland security components: prevention, detection, restoration, and training.

He described a new sense of urgency to what was already under way and focused on the need to identify collective needs by all states to make the case for more funding overall. There needs to be net new money, he argued, rather than attempts to fund security-related costs with traditional transportation funding resources.

Intelligent Transportation Systems: Funding Challenges and Innovations

Richard Mudge

Richard Mudge addressed the funding challenge that has been facing investment in intelligent transportation systems and reviewed some of the progress that has been made to date as well as some of the potential opportunities in the future. He cited a need for better understanding of who gains and for translating abstract benefits into funding. He offered the Alameda Corridor Project as an example of how this translation was accomplished and of a willingness to provide funding created from an understanding—and even quantification—of the benefits.

Mudge suggested that we need not be so afraid of helping the private sector make money. He offered examples of the flexible repayment provisions of TIFIA and SIBs as well as sole-source procurement and tax incentives aimed at safety investments.

Mudge shared his ideas for possible next steps, including these:

- New—and diminished—rules for the TIFIA program (i.e., no TIFIA minimum for new technology);
- Off-budget Technology Finance Corporation; and
- Links to other tools, including tax credits for safety enhancement or purchase of technology in vehicles.

He suggested to the group that we need to "think big" and that networks drive economic change and productivity. He provided examples of the Interstate, the transcontinental railroad, and the Internet as evidence for his case.

The Other Side of the Technology Coin: The Vital Role of Technology in Implementing User-Pay Mechanisms

Joseph M. Giglio

As the final speaker in this session, Joseph M. Giglio addressed the role of technology in implementing revenue collection mechanisms. He told the group that there are simply two true revenue sources: user fees and taxes; it's that simple. He also raised concern about the pendulum swinging in the other direction vis-à-vis the level of debt issuance.

Giglio focused the rest of his remarks on the thesis that there are a number of technologies that lend themselves to performance pricing and gave a description of the product life cycle of technology investment. Giglio offered the following questions regarding technology:

- Will technology generate stable, predictable revenue streams?
- What is the cost of collection, and is it less expensive than an alternative approach?
- Does the technology impose a higher charge on those who generate a higher cost?
- Does it contribute to the reduction of evasion?
- Does it help provide better customer service, which in turn can generate value and facilitate premium-pricing techniques?

Discussion

Robert C. Brown

Robert C. Brown led the discussion for this session. He focused it on the questions of how to share costs when the private sector is involved and the impact of having multiple uses for infrastructure to help justify the cost. Wrapped up in the question of appropriate cost-sharing are the questions of how much profit is acceptable for private-sector partners and when they should be able to take this profit out of the partnership vis-à-vis the public side of the partnership.

The group discussed the appropriate federal role in developing standards for technology deployment. In the course of the discussion, Giglio noted that privacy is fading away as a constraint on the applications of technology.

SYNTHESIS

Conference Themes

Conference participants recognized the unique opportunity—and challenge—presented by the multiple upcoming transportation program reauthorizations: for surface transportation, the successor to the Transportation Equity Act for the 21st Century (TEA-21); for aviation, the successor to the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century; and for Amtrak, the successor to the Amtrak Reform and Accountability Act of 1997. Conference participants also recognized that these reauthorization initiatives would take place under the shadow of a strained fiscal situation at federal, state, and local levels of government and in an environment charged by the intense focus on addressing security-related needs. With this base, conference participants utilized the four tracks of the conference program to flesh out some key issues. Following is a review of the central issues addressed in each of the four tracks.

TRACK 1

The four sessions of Track 1 focused on near-future funding options and potential new funding paradigms for transportation at the national and local levels. These sessions focused on

- The various ways that states and localities are taking the initiative, resulting in more players in funding and financing and the need for new creativity and programmatic approaches and
- The increasing emphasis on linking beneficiaries—both direct users and other beneficiaries—to funding and on recognition of a general willingness to pay more for the right purposes and under the right circumstances.

Conference participants also addressed at length the future of the gas tax, with a common theme that the current structure is unfair or unsustainable or both. The concept of transparency is ever important and gets to the concepts of intergovernmentalism and the link between payers and users or beneficiaries.

In thinking abut how to structure transportation funding for the future, conference participants recognized the need to bring the dialogue to a higher-level framework, one that integrates important underlying principles. Such principles include the traditional ones of

- Equity,
- Predictability and stability,
- Adequacy of the collection function and structure,
- Ease of collection administration,
- Efficiency, and
- Transparency.

In addition to these more traditional principles, conference presenters and participants focused new attention on the importance of having consistency with other public policies, such as those related to energy conservation and environmental protection.

It was noted that when the gas tax was created, the nation was funding highways. With the focus now on building intermodal centers and a wide range of nonhighway or multimodal facilities, such investments may call for a new alignment of supporting funding structures and greater integration across modes.

Track 2

Track 2 sessions focused on the specific tools and techniques currently available or envisioned to deliver more projects at a faster pace. A common theme from this set of sessions was the need to move away from considering such tools as innovative and toward thinking of them as simply additional tools in the toolbox, without the fanfare and sometimes the stigma of thinking of these alternatives as innovative or outside the mainstream.

Key observations by some participants focused on

- The role and importance of strong financial planning;
- Mounting concerns about potential overleveraging and the need to make borrowing decisions at the local level and to base them on particular underlying circumstances;
- A recognition that decisions about using particular techniques are best made at the local level;
- A perceived need for a better connection between financial planning, pure planning, and project priority setting;
- The view that quantifying costs and benefits of the various tools is an important element to good decision making; and
- An overarching recognition of the importance of accountability—over both the short- and longer-term horizons.

With broad recognition that tools once considered innovative are gradually becoming mainstream, there is a strong interest in disbanding the term "innovative" for approaches that are not so. With this, many participants felt that such tools—and new ones—could be applied in the most effective manner. There continues to be a search for better planning approaches and analytical frameworks to choose among the various approaches and to decide when they are appropriate—and when they are not—and how to best communicate the costs and benefits to decision makers and to the public at large.

Track 3

Track 3, with its focus on the structures and institutions needed to work in concert with the funding and finance tools that were the focus of Tracks 1 and 2, drew special attention to potentially missed opportunities and how to capture these in the future. Some of the common themes from this track are

- Recognition that most innovation is local and that, while the Intermodal Surface Transportation Efficiency Act and TEA-21 provided good tools, in many instances they simultaneously hamstrung the ability of states and local project sponsors to take advantage of those tools via limitations of pilot programs and other narrowing requirements;
- Recognition that, in the context of public–private partnerships, critical issues remain regarding how to share the work and the risks and how to properly compensate those taking risks and not compensate those who are not;
- Concern about the interplay of partnership structures and the appropriate level of staffing and expertise in departments of transportation to oversee private implementation;
- An expressed need for full disclosure on public–private partnerships—on who is doing what and how costs and returns are allocated; and
- A view that forecasting results need to be better scrutinized, given their essential role in underlying decisions abut entering into major project commitments.

Through a wide-ranging set of case studies, this track drew out these common themes and sought solutions to the recognized impediments to utilizing public–private partnerships and new institutional relationships to carry out the mounting transportation infrastructure funding challenges.

Track 4

Track 4, with its focus on new transportation initiatives and related demands on financing, brought attention to multimodal projects, to mounting security-related demands, and to the continued challenges of funding and delivering new technologies to the transportation arena. Key observations by some participants in this track included the following:

- Recognition of the need for leadership and the importance of a champion for multimodal—and multipurpose—projects;
- A sense that agreements and partnerships should cross administrations, especially for large multimodal projects;
- Recognition that intelligent transportation systems and other technology innovations are still evolving and would benefit from better integration with other

programs but some concern that, in this integration, the core concepts could lose their push;

- Recognition of the need for a strong federal role in setting standards for technology;
- A concern that the challenge of increased throughput without system expansion is not tenable, for instance, in the areas of marine terminals and railways; and
- A perceived need for better coordination in relation to the impacts of particular projects and funding solutions across modes.

Resource Papers

RESOURCE PAPER

Meeting the Challenge to Reauthorize the Transportation Equity Act for the 21st Century

Will System Performance Continue to Be "Gone with the Wind"?

Geoffrey S. Yarema, *Nossaman Guthner Knox & Elliott, LLP*

For the Second National Conference on Transportation Finance in Scottsdale, Arizona, August 20–23, 2000, the team of Bryan Grote, Jeffrey Parker, and David Seltzer prepared an excellent paper on reauthorization opportunities.[1] As the touchstone for their examination, they looked to the madcap, though ultimately frustrating, comedy film *Planes, Trains and Automobiles*. They saw this comedy as representative of a haphazard U.S. transportation system in need of serious fixing.

In my effort to follow in their footsteps, the movie theme I draw on is the classic *Gone with the Wind*. That triumph of cinematic effort left little room for comedy in portraying an economic system at a crossroads, flawed in its goals and struggling to rebuild a new economic base. At this point in the history of our surface transportation network, the United States may be at its own crossroads, struggling to maintain system condition and performance, with goals not clearly stated and needed resources yet to be identified.

This resource paper is intended to spur discussion for the Third National Conference on Transportation Finance. To that end it gathers together material generated from numerous congressional hearings, actual experience in project delivery at the state and local levels, and important academic and economic analyses completed since the 2000 conference. The issues raised here include the following:

1. What should be the goal of reauthorization?
2. Has the Transportation Equity Act for the 21st Century (TEA-21) met the goals of maintaining system condition and performance and improving safety?
3. What funding level will reauthorization need to establish to maintain condition and performance?
4. What measures can reasonably be taken to achieve the goals?

It is hoped that this background, together with the presentations and discussions the conference will foster, will help participants come to a consensus on these issues and become effective advocates for the solutions.

WHAT SHOULD BE THE GOAL OF REAUTHORIZATION?

Prior to TEA-21, congressional funding decisions for the federal highway and mass transit programs[2] were driven by the budget. Both programs were part of the domestic discretionary budget category, and the annual investment level was set by what the overall domestic discre-

[1] Grote, B., J. Parker, and D. Seltzer. Planes, Trains, and Automobiles: Multimodal Reauthorization Opportunities. In *Conference Proceedings 24: Second National Conference on Transportation Finance*, TRB, National Research Council, Washington, D.C., 2001, pp. 179–189.

[2] This paper focuses primarily on highways and bridges and does not specifically address mass transit, except as noted. The analysis of cost to maintain condition and performance applies equally to transit, however.

tionary cap could afford. This approach left no link to the revenues coming into the Highway Trust Fund and no link to what the nation needed. As a result, into the early 1990s, road and bridge conditions in the United States deteriorated, and traffic congestion grew worse.

Pete Ruane, President of the American Road and Transportation Builders Association (ARTBA), reminded Congress that TEA-21 fundamentally improved on this process by ensuring that all Highway Trust Fund revenues would be spent on transportation investment.[3] In effect, highway and mass transit investment levels under TEA-21 became revenue driven. Thus, as Highway Trust Fund revenues grew during the late 1990s, federal transportation investment experienced strong growth. What TEA-21 did not achieve is the establishment of a direct correlation between need and investment levels.

That could well be the key challenge that TEA-21 reauthorization presents to Congress. What goal should drive the establishment of funding levels for surface transportation?

In March 2001 ARTBA published *A Blueprint for 2003 Reauthorization of the Federal-Aid Highway and Mass Transit Programs*. After over a year of effort involving numerous committees, including one I cochaired, ARTBA submitted for consideration the following goals for the 2004–2009 authorization program:

1. Cutting the number of deaths and injuries on America's highways through targeted capital investments;
2. Ensuring that traffic congestion for the American public and business community does not get materially worse; and
3. Ensuring that the structural condition of federal-aid highways, bridges, and transit systems does not get materially worse.

These goals do not go so far as to seek improvement in the performance of the transportation network. They seek improved safety and maintenance of the existing condition and performance.

Soon after ARTBA threw down this gauntlet in August 2001, the American Association of State Highway and Transportation Officials (AASHTO)–Associated General Contractors of America (AGC)–ARTBA Joint Committee, of which I was a member, held its annual meeting. An important cooperative effort since the 1920s, the committee offered its support for an increase in annual federal investment in highway and transit programs sufficient to maintain not only existing conditions but system performance as well.[4]

I submit the ARTBA goals for the consideration of the conference participants. Let us now examine the extent to which we are currently meeting these goals.

Has TEA-21 Met the Goals of Maintaining System Condition and Performance and Improving Safety?

During the last week of September 2002, the public got its first peek at two long-awaited assessments of the condition and performance of the U.S. transportation system: the U.S. Department of Transportation's (USDOT's) biennial *Conditions and Performance Report* and AASHTO's *Bottom Line Report*. Mary Peters, Administrator of the Federal Highway Administration (FHWA), offered a summary of the USDOT report's conclusions on September 30, 2002, in testimony before the Senate Environment and Public Works Committee.[5] AASHTO issued its *Bottom Line Report* on September 26, 2002. The two reports use virtually the same data and modeling techniques. The differences in their conclusions reflect only variations in base years, time spans, and modeling assumptions.[6]

At the heart of the *Conditions and Performance Report* are three measures for highways and bridges: the cost to maintain in current condition; the cost to maintain at current performance levels; and the cost to improve to the point where investment would no longer be cost-effective, assuming the availability of funds.

In her testimony, Administrator Peters reported that TEA-21 has achieved some notable successes. Between FY 1998 and FY 2002, annual federal highway spending increased by a whopping 48 percent. With this influx of new federal dollars, state and local governments resisted the temptation to redirect their discretionary resources elsewhere and actually increased their transportation spending as well. In fact, the state share of highway capital investment from 1997 through 2000 increased to more than 60 percent of the total for the first time since 1959 and remained above that level through 2002. Thus, under TEA-21 combined investment in highway infrastructure by all levels of government increased sharply—by 14 percent in constant

[3] *Two Cents Makes Sense*. Testimony of ARTBA before the Subcommittee on Highways and Transit, House Committee on Transportation and Infrastructure, July 16, 2002.

[4] Recommendations of the AASHTO–AGC–ARTBA Joint Committee (2001).

[5] Statement of Mary Peters, Federal Highway Administrator, before Subcommittee on Transportation Infrastructure and Nuclear Safety, Senate Committee on Environment and Public Works, Sept. 30, 2002.

[6] General Accounting Office. *U.S. Infrastructure: Federal Agencies' Approaches to Developing Investment Estimates Vary*. Washington, D.C., July 2001.

dollars between 1997 and 2000 and by an even larger percentage in pure capital spending on highways.

What has this money bought? As they have become leaner, meaner, and more efficient, state departments of transportation have directed their investments primarily toward maintenance of the existing system, possibly because system preservation projects frequently have shorter lead times and are less controversial than system expansion projects.[7] The increase in system preservation investment, Administrator Peters notes, has had a profound effect on the overall physical condition of the nation's highway and bridge infrastructure. The federal–state partnership during TEA-21 has generally provided the resources necessary to meet the cost to maintain the system network. Similarly, the 2002 *Conditions and Performance Report*, Administrator Peters tells us, will document continued improvement in the area of highway safety. She reports that highways have become safer even as travel has sharply increased, with the fatality rate per 100 million vehicle miles traveled (VMT) decreasing from 3.3 in 1980 to 1.5 in 2000.

Despite these gains in system maintenance and highway safety, one of the three goals we have set forth above for discussion clearly has not been met. Operational performance of infrastructure has steadily deteriorated during the past decade.

While we have no statistical means of monitoring highway performance,[8] AASHTO recently testified that increasing congestion and declining performance are common. The Texas Transportation Institute's 2002 *Urban Mobility Study* was published earlier this year. The report examines congestion in 75 metropolitan areas and concludes that in metropolitan areas of all sizes, congestion lasts for longer periods and affects more of the transportation network in 2000 than in 1982. During that period, average annual delay per peak road traveler climbed from 16 to 62 hours. Delay more than quadrupled in areas of less than 1 million people.

Increasing congestion of this magnitude is not difficult to understand. At the same time, as states focused spending on the important job of condition maintenance, with little system expansion, between 1990 and 2000 VMT increased from 2.1 trillion to 2.7 trillion. AASHTO predicts another 600 billion in VMT growth between 2000 and 2010.

Thus, we should credit the TEA-21 era with important, hard-fought gains—maintained condition and improved safety. Yet the third leg of the performance goal—maintained performance—remains a more distant accomplishment. In fact, in Cape Canaveral, where I grew up as a child of the space program, we would respond to a situation like this by saying, "Houston, we have a problem."

What Funding Level Will Reauthorization Need to Establish to Maintain Condition and Performance?

According to Administrator Peters, the forthcoming *Conditions and Performance Report* will project that covering the cost to maintain highways and bridges will require average annual investment levels at $75.9 billion for the 2001–2020 period, a 17.5 percent increase over the $64.6 billion of capital spending in 2000. AASHTO's *Bottom Line Report*, on the basis of the same data but with variances mentioned earlier, projects the need for an annual capital investment of $92 billion by all levels of government to cover the cost to maintain current conditions and performance.

ARTBA believes that the $75.9 billion investment figure mentioned by Administrator Peters is understated for three reasons.[9] First, it points out that the figure is stated in constant dollars for 2000 and recommends that the report provide the estimate in inflation-adjusted dollars. Second, the $75.9 billion figure, while potentially covering the cost to maintain existing conditions, will not cover the cost to maintain performance. Third, it explains that the report findings are based on an assumption that traffic growth will decline from 3 percent annually over the past 20 years to 2 percent annually over the next 20 years. Because less traffic means fewer highway and bridge repairs and less need for new capacity, understating travel growth is dangerous. ARTBA argues that every *Conditions and Performance Report* has underestimated travel growth and submits data suggesting that traditional travel growth would increase annual investment needs by almost 50 percent to $120 billion per year.

AASHTO's *Bottom Line Report* does not assign a federal share to its estimate of $92 billion required in annual capital investment over the next 20 years by all levels of government, nor does it factor in future price inflation. ARTBA points out in its recent testimony that, on the basis of the assumptions that the federal share of total highway capital investment during the 2004–2009 period will continue to be about 47 percent (the average share of the past 20 years) and that annual inflation will be 2.4 percent (the estimate used in the President's FY 2003 budget), the *Bottom Line Report*

[7] AASHTO. *The Changing State DOT*, 1998.

[8] Testimony of Joseph Perkins, AASHTO, before the Subcommittee on Transportation, Infrastructure, and Nuclear Safety, Senate Committee on Environment and Public Works, Sept. 30, 2002.

[9] Testimony of ARTBA before the Subcommittee on Transportation, Infrastructure, and Nuclear Safety, Senate Committee on Environment and Public Works, Sept. 30, 2002.

suggests that the federal share of the investment needed just to maintain safety, structural, and traffic congestion conditions at the 2000 level would be $47.7 billion in FY 2004 and would rise to $53.6 billion in FY 2009.

According to current projections of the Congressional Budget Office, the Highway Account of the Highway Trust Fund, which took in $30.3 billion in FY 2000, will only support a program that spends $35 billion to $36 billion annually. Moreover, Administrator Peters states that if investment were to remain at anticipated levels through 2003, recent trends observed in the condition and performance of the highway system would continue—physical conditions and safety performance would improve, but the operational performance of the highway system would deteriorate further. Average speeds would decline, the amount of delay experienced by drivers would increase, and the average length of congested periods on the nation's urban principal arteries would increase.

What Measures Can Reasonably Be Taken to Achieve the Goals?

If we stick to the goals of covering the cost to maintain system condition and performance and improved safety, FHWA, AASHTO, and ARTBA would all agree that performance will not be maintained without reauthorization funding at levels greater than those of TEA-21. Where might this money come from?

While there is no single panacea, this paper addresses four categories of revenue sources: enhancements to the fuel excise tax, tax credit bonds, alternative revenue sources, and tolling.

Enhancements to the Fuel Excise Tax

Currently, fuel taxes provide approximately 90 percent of the revenues deposited in the Highway Trust Fund. Any moves to increase the gas tax are certainly fraught with political difficulty. Congress has raised the tax levels on motor fuels on five occasions, but in only two of those instances (1959 and 1982) was the need for more infrastructure the reason for the increase. So where is the "low-hanging fruit"? In a recent article, *Transportation Weekly* summarized three sources that have received significant attention in the run-up to reauthorization: indexing the tax for inflation, capturing interest on the Highway Trust Fund, and changing the federal tax structure on gasohol sales.[10]

Indexing the tax to compensate for inflation would reverse its eroding buying power and eventually would provide significant revenue benefits. The tax-writing committees are, however, famously hesitant to cede any of their revenue-raising authority to some kind of automatic formula, such as a link to the Consumer Price Index (CPI).

According to the General Accounting Office, the federal tax treatment of gasohol sales has lost the Highway Trust Fund $6 billion during TEA-21, a loss that will grow to $20 billion over the next 10 years unless corrective action is taken. Gasohol (gasoline mixed with ethanol) tax policy has two effects on the Highway Trust Fund. First, the tax rate on gasohol is lower than the tax on gasoline or diesel (up to 5.1 cents per gallon lower, depending on how much ethanol is in the mix). As the article points out, this encourages consumers to purchase gasohol and keeps corn growers happy. Second, of the remaining gasohol tax, 2.5 cents per gallon goes to the general fund for deficit reduction (a holdover from the 1990 budget summit) rather than being put into the trust fund. Highway advocates have sought the transfer of the 2.5 cents from the general fund to the Highway Trust Fund for some time, and implementing legislation (S. 1306/H.R. 2808), unopposed by the corn growers, has been introduced in Congress. The issue of either eliminating the ethanol subsidy or requiring the general fund to reimburse the trust fund for the subsidized amount is slightly more controversial. Recent legislation would mandate that at least 5 billion gallons of gasohol be sold in the United States each year, a number that would cause a significant reduction in Highway Trust Fund receipts if the subsidy is not eliminated or reimbursed.

So far as interest on the Highway Trust Fund is concerned, all federal trust fund accounts other than the Highway Trust Fund are credited with interest on their unexpended balances. The Highway Trust Fund, *Transportation Weekly* recalls, gave up its interest in 1998 as part of the deal to ensure that all of the money is actually spent. The crediting of the Highway Trust Fund with interest would add revenue to the fund that, if revenue-aligned budget authority (RABA) is reenacted, would then be spent. That would, however, also move the program away from the principle of 100 percent user financing, since those interest payments, were they to be spent in the real world, would have to come from somewhere, probably the general fund, which would create a sort of general fund subsidy for the highway program. The crediting of interest (along with RABA) would, however, still bring in real money and would be politically easier to accomplish than a gas tax increase.

Senate Finance Chairman Max Baucus has prepared his Maximum Economic Growth for America Through the Highway Trust Fund (MEGA Trust Act) for reauthorizing the Highway Trust Fund next year. This legis-

[10] *Transportation Weekly*, Vol. 3, No. 42, Aug. 19, 2002.

lation includes the above low-hanging fruit except for indexing. *Transportation Weekly* calculates that the measure, if enacted, would bring in about $3 billion in FY 2004 and perhaps $7 billion in FY 2009. These numbers are difficult to predict since the unobligated balance, on which interest would be predicated, is an enigma within a riddle.

Together, these measures would get us to between $33 billion in 2004 and perhaps $42 billion in 2009. A significant gap would still need to be filled to reach a $50 billion target (to meet the cost to maintain condition) or a $60 billion target (to meet the cost to maintain performance).

ARTBA and the American Society of Civil Engineers (ASCE) propose to tackle this gap head-on, albeit in different ways. ARTBA became the first major group to advocate publicly a gas tax increase beyond indexing inflation. Its "Two Cents Makes Sense" plan incorporates all the low-hanging fruit mentioned earlier and proposes other measures:

- Assessing six annual $0.02 increases in the fuel excise tax over the reauthorization period;
- Providing automatic adjustments in the fuel tax rate if the Highway Trust Fund experiences deficits during any fiscal year;
- Adopting true pay-as-you-go funding, which would replace TEA-21's current requirements that revenues be deposited in the Highway Trust Fund and "warehoused" a year before apportionment to the states; and
- Including a "maintenance of effort" provision that would make state access to increased apportioned federal funds contingent on state investment levels consistent with prior investment.

ASCE recently joined ARTBA in calling for a fuel tax increase.[11] Its proposal recommends

- Indexing the gas tax to the CPI,
- Raising the gas tax by $0.06 per gallon at the onset of reauthorization, and
- Decreasing the volatility of RABA adjustments.

Many even discount the possibility of serious consideration, much less passage, of gas tax increases next year. Some would respond that President Reagan could support a significant gas tax increase in the economic environment of 1982, and the justification today may be equivalent or better. Moreover, experience at the state level is a useful reference. Since 1997, 15 states increased their motor vehicle excise tax, with 10 legislatures expressly voting to raise taxes (between 2.6 cents per gallon in Maine and 5 cents per gallon in Utah) and five states increasing their excise annually (through automatic indexing, without legislative action).

Tax Credit Bonds

As John Horsley recently outlined for Congress,[12] AASHTO is exploring the feasibility of leveraging new revenues through a Transportation Finance Corporation (TFC), which, among other things, would issue approximately $60 billion in bonds between 2004 and 2009. TFC would distribute approximately $35 billion of the bond proceeds to the highway program through FHWA according to an apportionment formula determined by Congress (perhaps similar to the current federal-aid highway funding formula), and approximately $8.5 billion would be distributed to transit agencies on a basis to be determined. From the recipients' perspective, these funds would essentially be indistinguishable from regular federal-aid apportionments. The states would not be liable for the repayment of the bonds.

TFC would set aside at issuance and deposit into a sinking fund approximately $17 billion of the bond proceeds, which would be invested in federal agency or other high-grade instruments. According to Horsley, at maturity the sinking fund would have grown sufficiently to repay the bond principal.

In lieu of interest, the bondholders would receive tax credits that could be applied against the holder's federal income tax liability. Such tax credits would themselves represent taxable income to the holders. Horsley suggests that a new source of income be found to produce additional Highway Trust Fund receipts that would reimburse the Treasury for the budgetary cost of the tax expenditures associated with the tax credits.

AASHTO is still investigating the strengths and weaknesses of this proposal. Moreover, the General Accounting Office, at the request of the Senate Committee on Finance and the Senate Committee on Environment and Public Works, is including the tax credit bond proposal in its examination of a range of alternative financing approaches for surface transportation.[13] In the meantime, Senator Baucus is acting. On October 10, 2002, he introduced the MEGA Trust Act,

[11] Testimony of Thomas Jackson, ASCE, before the Subcommittee on Transportation, Infrastructure, and Nuclear Safety, Senate Committee on Environment and Public Works, Sept. 30, 2002.

[12] Testimony of John Horsley, AASHTO, before a Joint Hearing of the Senate Committee on Finance and the Senate Committee on Environment and Public Works, Sept. 25, 2002.

[13] Statement of Jayetta Hecker, General Accounting Office, before a joint hearing of the Senate Committee on Finance and the Senate Committee on Environment and Public Works, Sept. 25, 2002.

which would allow the Treasury to issue $3 billion per year in tax credit bonds.

Alternative Revenue Sources

In the past several years several papers and studies have been prepared on the potential for generating alternative sources of transportation revenue to replace, over time, revenues lost as the revenues derived from the current method of taxation based on motor fuels decline. A thorough recitation of these alternatives is beyond the scope of this paper. Instead, refer to *NCHRP Report 377*[14] and two resource papers prepared for the Second National Conference on Transportation Finance.[15, 16] These analyses summarize numerous alternative revenue sources and evaluate them in accordance with a variety of criteria.

On the basis of this work and the policy analyses of others, the AASHTO–AGC–ARTBA Joint Committee advocated the creation of a blue ribbon task force to recommend to Congress alternative motor vehicle fuels and new user fees to be levied to ensure that Highway Trust Fund revenues are sufficient to maintain system performance. This conference is an opportunity to push this recommendation further toward reality during reauthorization.

Tolling

If Congress fails to adopt maintaining system performance as a goal, state departments of transportation and regional transportation authorities may nevertheless pursue the resources they need to cover such costs. In recent years new state and local sources of revenue for transportation have proliferated. One of them, which varies widely in acceptability from region to region, is the use of toll revenues to cover at least a portion of the costs of the development of new capacity.

In both the Intermodal Surface Transportation Efficient Act of 1991 and TEA-21, Congress opened the door to limited tolling of the Interstate system. While a few states have placed a tentative toe in the water, most toll projects have focused on new bridge spans and greenfield projects off the Interstate system. Acceptance of new toll road financing tools has varied. In delivering these projects, sponsors have used a range of tools, which are discussed in more detail elsewhere.[17] They include the following:

- The franchise or concession financed with equity and taxable debt;
- The 63-20 nonprofit corporation as the obligor on tax-exempt debt, with private involvement maximized under the Internal Revenue Service management contract rules;
- A state or regional toll authority's issuance of tax-exempt revenue bonds, with award of a design–build or a design–build–maintain contract to manage project cost and schedule risk; and
- A state agency's issuance of general obligation bonds to finance a new toll facility, which in effect retains toll revenue risk.

Each of these approaches has strengths, weaknesses, and suitability criteria. The following are examples of toll road developments since the Second National Conference on Transportation Finance:

- The Tacoma Narrows Toll Bridge is being developed through a design–build contract awarded to a Bechtel-Kiewit team and financed by the state of Washington through the issuance of general obligation bonds.
- The Central Texas Turnpike Project, a network of new toll roads near Austin, is being developed in part by an enhanced form of design–build–maintain contract awarded to Fluor Daniel and Balfour Beatty[18] and financed by a combination of tax-exempt revenue bonds issued by the Texas Transportation Commission, general obligation bonds issued by localities, a Transportation Infrastructure Finace and Innovation Act (TIFIA) loan backed by toll revenues, and gas tax funding commitments by the state.
- The Las Vegas Monorail is being developed by a design–build–operate–maintain contract awarded to a Granite/Bombardier team and financed with fare box/adver-

[14] Reno, A. T., and J. R. Stowers. *NCHRP Report 377: Alternatives to Motor Fuel Taxes for Financing Surface Transportation Improvements*. TRB, National Research Council, Washington, D.C., 1995.

[15] Clary, L., C. Hand, R. Creamer, and G. Branagan. Alternative Transportation Revenue Sources. In *Conference Proceedings 24: Second National Conference on Transportation Finance*, TRB, National Research Council, Washington, D.C., 2001, pp. 137–144.

[16] Bemis, G. Expected Future Availability and Cost of California Gasoline and California Excise Tax Revenue Projections. In *Conference Proceedings 24: Second National Conference on Transportation Finance*, TRB, National Research Council, Washington, D.C., 2001, pp. 157–167.

[17] For descriptions of the many forms public–private partnerships can take, see the following: Hedlund, K., Public–Private Partnerships: The Public Owner's Perspective, in *Design–Build for the Public Sector* (M. C. Loulakis, ed.), Aspen Publishers, 2002; Allison, B., C. Boock, K. Hedlund, B. Papernik, N. Smith, and G. Yarema, Surface Transportation: Tools in the Privatization Tool Box, in *Privatizing Governmental Functions*, Law Journal Press, 2001; and Yarema, G. S., Transportation Project Delivery: Options, Public–Private Roles and Suitability Criteria, in *AASHTO Project Finance Institute Proceedings*, 2002.

[18] Russell, P. E., and J. Curren. The Texas SH 130 Procurement. *Public Works Financing*, Vol. 165, Oct. 2002, pp. 28–33.

tising revenue bonds, interested-party subordinate debt, and private-sector donations.[19]

- Macquarie purchased California Transportation Ventures' Caltrans franchise to develop and operate the SR-125 toll road, with construction planned to be financed later this year through the placement of equity and taxable debt supported by a TIFIA loan.
- Legislative approval has been obtained for the Orange County Transportation Authority to acquire in early 2003 the already operating SR-91 express lanes, assuming the taxable nonrecourse debt with a likely tax-exempt refinancing later in 2003.
- The Transportation Corridor Agency recently announced plans to combine the credit of the San Joaquin, Foothill, and Eastern toll roads.

Any generalizations about trends these transactions suggest is dangerous, but allow me a little risk-taking. Absent any change in federal law or policy, we might expect the following:

- Some jurisdictions will drive financing outcomes toward the lowest cost of money, even if that diminishes private-sector innovation and risk shifting.
- TIFIA, Grant Anticipation Revenue Vehicle bonds, and state infrastructure banks have proved to be valuable tools in highway financings.
- The requirement that all debt senior to TIFIA be investment grade inhibits the use of developer equity or subdebt, which in and of themselves are valuable tools in financial structuring.
- TIFIA's springing lien provision will drive projects into the hands of insolvency-proof borrowers (i.e., public agencies with significant tax revenues) and away from single-purpose private or nonprofit borrowers, which again are valuable structuring tools.
- The cost and schedule certainty that the Federal Transit Administration requires in full funding grant agreements for new-start transit projects, that rating agencies require for start-up toll bonds, and that owners are requiring to avoid all-too-common "sticker shock" differences between estimated and actual construction costs[20] will continue to drive issuers toward design–build and design–build–operate–maintain contracts,[21] important procurement tools that have gained wide commercial acceptance.
- Traffic and revenue consultants, rating agencies, and bond insurers will continue trending toward more conservative projections.
- In many jurisdictions (Texas and Florida being notable exceptions) tolling will remain a tough sell for several reasons. First, where the need is greatest—rehabilitation and improvement of existing "free" facilities—there is little precedent nationally and indeed a broad perception among the public that they have already paid for the facilities—they should not have to pay for the facilities again. Second, localities, on the basis of campaign promises of some candidates for local and state office, often wrongly believe that plenty of money is available, and if they only push hard enough, they can out-politic their neighbors for gas tax allocations and avoid tolling. Third, as Grote et al. have pointed out, communities generally underestimate the consequences of waiting for public funding: construction cost escalation, costs of congestion and accidents, and missed economic gain from early project completion. Fourth, where courageous leaders do crop up to campaign for tolls as the best means to grow the pie, federal policy offers little incentive to rebut local interests with a stake in the status quo, antiacceleration, "keep it in the slow pipeline" philosophy.
- The tax-exempt credit markets have proved to be highly efficient in pricing project risk. The advantage to toll road sponsors of this market, unique in the world, will continue to drive financing and project delivery structures away, with an exception here and there, from the taxable debt/private equity model.
- Few tolled facilities will produce borrowing capacity sufficient to cover all of their costs. This will drive finance plans for a single project quite logically and efficiently toward combining state and federal gas taxes, local government contributions, revenue bonds, and, if available, TIFIA.

If we assume these observations to be true and assume further that tolling would be a desirable outcome, what can we do to encourage more tolled capacity? I hope this conference can offer a concrete list of suggestions, but the following will serve as food for thought:

- Toll road financings would benefit from the combination of tax-exempt debt, private equity, and incentive-based service contracts, an end that can be accomplished by changes to the Internal Revenue Code. Legislation to do just that passed both houses since TEA-21, but President Clinton vetoed the larger bill for other reasons.
- While other states have struggled, we need to understand what Texas and Florida have done right in

[19] Testimony of Robert Broadbent, Las Vegas Monorail Company, before the Subcommittee on Housing and Transportation, Senate Committee on Banking, Housing, and Urban Affairs, June 26, 2002.

[20] Flyvbjerg, B., M. S. Holm, and S. Buhl. Underestimating Costs in Public Works Projects: Error or Lie? *APA Journal*, Vol. 68, No. 3, Summer 2002, pp. 279–295.

[21] For excellent discussions of design–build contracting, see Smith, N., and C. D. Ryan, Design-Build for Highways, Bridges, Rail, Mass Transit and Airports, in *Design–Build for the Public Sector* (M. C. Loulakis, ed.), Aspen Publishers, 2002; and Boock, C., B. Papernik, and N. Smith, Design–Build Contracting and State and Local Agencies, in *Design–Build Handbook*, Aspen Publishers, 2001.

securing state leadership and local acceptance sufficient to "sell" tolling for new projects.

- We should not force policy makers to choose between tax-exempt financing on the one hand or private-sector innovation and equity on the other. My partner, Karen J. Hedlund, has written an excellent piece on this issue,[22] and she will be speaking later in the conference about it.
- Federal policy should provide states and regional authorities with a greater incentive to create new toll revenues than the existing toll credit mechanism, akin to the original state infrastructure bank program. Access to a small amount of new grant funds will provide much-needed support for making politically difficult decisions.
- TIFIA is worthy of reauthorization.[23] Nevertheless, existing and prospective borrowers have suggested a number of revisions, and TIFIA supporters will need to respond thoughtfully to those resisting funding TIFIA "off the top" when it has proved difficult to estimate annual program demand.

Conclusion

While FHWA, AASHTO, and ARTBA may quibble about how to calculate the exact cost of maintaining system condition and performance, they would all agree on certain key findings. Despite significant increases in funding at all levels of government since 1997, we are not covering the cost of maintaining system performance. As a result, congestion is increasing.

This conference has a unique opportunity to send a clear message—that the goal of reauthorization must be to avoid this degradation in critical mobility for goods and people. Achieving this standard will require difficult decisions by elected and appointed officials at all levels of government: federal gas tax revenue enhancement, continued and wider use of innovative financing tools, and more extensive use of tolling and planning for alternative dedicated funding to supplement the gas tax by 2010, among many others.

The prospect of maintaining system performance may not yet be "gone with the wind," but it is certainly, in Bob Dylan's words, "blowing in the wind."

[22] Hedlund, K. J. *The Case for Tax-Exempt Financing of Public–Private Partnerships*. Reason Public Policy Institute, 1998.
[23] *Transportation Infrastructure Finance and Innovation Act: Report to Congress*. U.S. Department of Transportation, 2002.

RESOURCE PAPER

Accelerating Project Development

Approaches and Techniques for Expedient Project Delivery

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Despite a number of recently developed tools and techniques for innovative financing of surface transportation projects, relatively few such projects have experienced substantial acceleration in actual delivery to the public. States, municipalities, and special-purpose authorities have used new methods to leverage traditional sources of funds, which in many cases have allowed the delivery of projects that would have had to wait for pay-as-you-go financing. However, the value of such innovation in the more rapid delivery of transportation projects is often lost because of factors that substantially inhibit their effective use.

The purpose of this resource paper is to encourage and stimulate discussion about methods by which more projects may be delivered more expediently. Not surprisingly, many nonfinancial factors interact in project delivery, which in combination reduce the value of new methods for generating and utilizing funds for capital project development. This paper will explore such factors and their relationship to innovative finance, with the principal objective of defining more effective approaches for consideration in the "Next TEA" reauthorization process. Succinctly stated, the full value of innovations in financing methods for surface transportation programs will only be realized when they are paired with companion innovations in the project definition, development, approval, and implementation processes.

INNOVATIVE FINANCE FRAMEWORK

According to the Federal Highway Administration (FHWA), "innovative finance" is a broad term that refers to moving the traditional federal-aid transportation process from a single strategy of federal funding on a "grants reimbursement" basis to a diversified approach that includes innovative financing concepts developed from both the public and the private sectors. As is well known to conference participants, the federal government has traditionally financed transportation infrastructure primarily through outright 80 percent grants. With the Intermodal Surface Transportation Efficiency Act of 1991, the National Highway System Designation Act of 1995, and the Transportation Equity Act for the 21st Century (TEA-21), the U.S. Department of Transportation (USDOT) began providing alternative or "innovative" forms of nongrant assistance, as well as means by which the traditional federal grants process could be made more flexible. This definition conveys a rather large playing field for innovation, which encompasses virtually all programs that utilize borrowing, guarantees, and other means of leveraging funds. By this definition, a significant number of transportation projects in the past 12 to 15 years have taken advantage of innovative financing. Many are now in operation; others are in the final stages of development, environmental clearance, and preliminary and final design.

As paraphrased by the U.S. General Accounting Office in its September 25, 2002, testimony before the Committee on Finance and the Committee on Environment and Public Works, the goals for the FHWA Innovative Finance Program are as follows:[1]

[1] Statement of JayEtta Z. Hecker, Director, Physical Infrastructure Issues, United States General Accounting Office, testimony before the Senate Committee on Finance and the Committee on Environment and Public Works, Sept. 25, 2002.

• Accelerate projects by reducing inefficient and unnecessary constraints on states' management of federal highway funds;

• Expand investment by removing barriers to private investment;

• Encourage the introduction of new revenue streams, particularly for the purpose of retiring debt obligations; and

• Reduce financing and related costs, thus freeing the savings for investment into the transportation system itself.

FHWA's familiar diagram (Figure 1) summarizes the various federal innovative financing mechanisms and illustrates how these mechanisms fit with different types of transportation projects.

Within this basic framework, mechanisms in transportation finance continue to evolve. TEA-21 provided important new mechanisms that have supported innovative solutions to fund transportation improvements. Many of these began as pilot programs that have been shaped into more formalized federal and state programs and an increasingly common language of acronyms, such as TIFIA (Transportation Infrastructure Finance and Innovation Act), SIB (state infrastructure bank), and GARVEE (Grant Anticipation Revenue Vehicle). In preparation for the reauthorization of TEA-21, conferences such as this will provide significant input to further refine, broaden, and expand innovative finance concepts for the remainder of the decade and beyond.

Innovative Finance: The Broader Context

This paper will not review the frequently cited and well-known projects throughout the United States and abroad that have achieved success and notoriety through their use of unique and innovative financial mechanisms. Indeed, the program for this conference focuses through its many sessions on just such specific examples and issues. The statistics are impressive: as of June 2002, 32 states with established SIB programs with about $4.06 billion in the dollar value of loan agreements, six states with $2.3 billion in GARVEE bonds outstanding and more states with enabling legislation contemplated, and nine states under agreement for TIFIA credit assistance for 11 projects with $15.4 billion in transportation investment.[2] And the list of successes continues to grow.

Rather than focus on the financial aspects, this paper will focus primarily on the *nonfinancial* aspects of these innovative projects and promote dialogue throughout the various conference sessions on the plethora of developmental factors that must also be improved through innovation, together with financing innovations. It is our contention that without supporting legislative, administrative, and programmatic changes in the overall project development and delivery system, the financial innovations become far less compelling.

A review of projects that have been completed and are now in service reveals certain predictable patterns. First, it is clear that projects that do not require full environmental documentation and that do not have jurisdictional opposition from local governments or special-interest groups can be brought online significantly more rapidly than projects requiring full environmental clearance or having even modest political or public opposition. Second, projects that do not require direct use of federal funds or funding programs and thereby avoid the federal environmental impact study process generally can be completed several years sooner than otherwise. And finally, the morass of clearances and regulatory issues that must be considered as a prerequisite for project development adds significantly to the average time necessary to bring a project online.

While none of us here would advocate that environmental, permitting, and public involvement processes should be eliminated to expedite project delivery, it is clear that the hurdles that must be overcome in the public works delivery process today have become enormously complex, costly, and in many cases virtually insurmountable. While sound planning requires that political, institutional, environmental, and financial factors all be taken into consideration together with technical factors in the project development process, many understandably believe that by so doing we have provided tools used solely and consciously to delay and inhibit project delivery.

To make use of many of the financial engineering innovations that have been put into play, it would be highly advantageous to be able to estimate more effectively the time, cost, and degree of difficulty associated with the development process for specific projects. As a small but marginally influential industry, we should be willing to broaden our focus to aspects of project delivery not directly related to innovative finance, precisely in order to take greater advantage of the available funding and financing tools that have become available.

Impediments to Project Delivery

In addition to technology, cost, and financial capacity, the obstacles to expedient project delivery tend to fall generally into three broad categories:

[2] Statement of JayEtta Z. Hecker, testimony before the Senate Committee on Finance and the Committee on Environment and Public Works, Sept. 25, 2002.

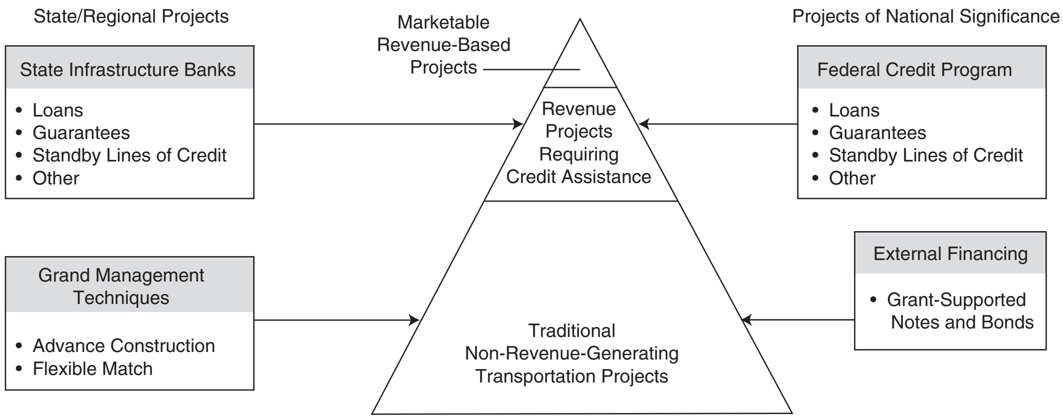

FIGURE 1 Innovative finance: FHWA perspective.

- Environmental clearance and statutory requirements,
- Political and institutional factors, and
- Community involvement and sustainability issues.

There have been countless edicts, administrative orders, and academic studies aimed at streamlining and increasing the effectiveness of the planning and development process. However, with the increased consciousness concerning the impacts and sustainability of the built environment, the sheer number of requirements and processes that must be incorporated has grown exponentially, and the term "streamlining" appears oxymoronic to many.

Particularly germane to our agenda at this conference is the irony that to take greatest advantage of many of the tools and techniques available in the financial sector to deliver projects faster, the capital markets seek increased certainty at the same time that the project delivery process is experiencing increased uncertainty. This paradox is highly relevant, since the reauthorization process will almost certainly recommend methods for increased participation of the private sector and partnerships between government and business for transportation project development. For private enterprise to become integrally involved in the transportation project finance and development process, third party–related project development risk must be substantially eliminated. Even within the public sector, increasingly common project delivery systems, including design–build and design–build–operate–maintain, require reliance on principles of project finance that in turn demand greater certainty in the budgeting and scheduling of project development and delivery. However, the various requirements and measures associated with project delivery have the combined effect of moving the development process in exactly the opposite direction.

The dichotomy is evident. Solutions must evolve that meet the often competing but equally legitimate objectives of prudent and sustainable project development and practical and expedient project delivery. This conference is the right setting to focus on the definition and recommendation of such solutions.

Environmental Clearance and Statutory Requirements

About a month ago, on September 18, President Bush issued Executive Order 13274, "Environmental Stewardship and Transportation Infrastructure Project Reviews." Similar to the war powers resolution recently adopted by Congress, this order presumably provides the administration with unfettered capability to declare war on environmental regulations and redundancies in project review. Among other provisions, the newest edict on environmental streamlining provides for the following:[3]

- Each agency required by law to conduct environmental reviews "shall ensure completion of such reviews in a timely and environmentally responsible manner."
- USDOT shall establish the "interagency 'Transportation Infrastructure Streamlining Task Force' to (1) monitor and assist agencies . . . to expedite reviews, issue permits, or similar actions, as necessary; (2) identify and promote policies aimed at streamlining the process of approvals for transportation infrastructure projects; and (3) review a list of '*priority projects*' for addition or amendment at least quarterly."
- The membership of the task force includes the secretaries of agriculture, commerce, interior, defense, and

[3] Executive Order 13274, "Environmental Stewardship and Transportation Infrastructure Project Reviews." *Federal Register*, Vol. 67, No. 184, Sept. 23, 2002, p. 59449. From the Federal Register Online via GPO Access, wais.access.gpo.gov.

transportation (task force chair); administrator of the Environmental Protection Agency; and the chairs of the Council on Environmental Quality and the Advisory Council on Historic Preservation.

Perhaps most important with respect to expediting projects that make use of innovative financing, Section 2(a) of Executive Order 13274 requires the secretary of transportation to "designate . . . a list of high priority transportation infrastructure projects that should receive expedited agency reviews, and . . . amend such list from time to time as the Secretary deems appropriate." For projects on the secretary's list, "agencies shall to the maximum extent practicable expedite their reviews for relevant permits or other approvals, and take related actions as necessary, consistent with available resources and applicable laws."

Over the past several years, many of us here have been working with various members of Congress and the Clinton and Bush administrations to develop a process designating projects as high priority. Such prioritization is particularly important with respect to projects in which development risk is shifted wholly or partially to the private sector or in which financing is being arranged nontraditionally through project financing or a capital markets approach. Section 2(a) of the executive order appears to respond to that body of requests by giving discretionary authority to the secretary to designate projects of his choosing for such prioritization, with no particular criteria for "discretion" provided in the executive order. While the concept of streamlining the environmental approval process is certainly not new, the president's declaration is the first time that a special class of "environmentally expedited" projects has been provided for by law or executive order. One might imagine a typical question among attendees at next year's transportation finance conference to be, "Where is your project on the 2(a) list?"

Despite the obvious intention of Executive Order 13274, it remains to be seen how well certain of the federal resource agencies—notably the U.S. Environmental Protection Agency—will respond to the order's intent, or whether such agencies will continue to do environmental business as usual, particularly in the review and approval process for projects designated "high priority" by the secretary of transportation. You may recall that some years ago, Section 1309 of the TEA-21 legislation also called for significant environmental streamlining and laid out an extensive process by which a "coordinated environmental review process" would expedite review of federal highway and transit projects. A detailed memorandum of understanding was entered into by the transportation and resource agencies, and there was much excited talk about finally clearing the logjam from the clearance process. After watching and actively participating in this new "cooperative spirit" among the agencies, I believe many of us fully understand why the administration thought it necessary to issue an executive order.

Furthermore, an important issue to be resolved is how the USDOT modal administrations respond to the presidential initiative to expedite high-priority projects. Many believe that FHWA and Federal Transit Administration (FTA) staff typically bend over backwards to cooperate with the resource agencies, despite what sometimes seems like an intent by many midlevel staffers within these agencies to slow the environmental review process. Much of the delay encountered with respect to highway projects, in particular, results from deliberate inaction by resource agency staff, who allow project approvals to languish and then request the opinion of those close to the situation concerning "additional time" for review or ask for lengthy written responses from project sponsors to nonpertinent or redundant questions.

The USDOT policies must change to reflect a more proactive approach in dealing with sister agencies, despite the commendable efforts of many in FHWA and FTA to cooperate in interagency reviews and appropriate planning processes in accordance with the Section 1309 mandate. The good news is that many in the government sector appear to be gaining understanding of the critical differences in the degree of certainty and expediency necessary for projects that make use of financing mechanisms other than traditional federal grants and pay-as-you-go approaches. It will be our job to further this educational process if we are to continue to benefit from existing and new programs to better find and leverage sources of funds for transportation projects.

Over the next few months, USDOT will develop general guidelines, criteria, and rules for projects to be designated in the high-priority list as provided in the executive order. This sounds like a marvelous opportunity for some modest lobbying by those of us within the innovative finance community.

Political and Institutional Factors

There is a clear and unequivocal rule of public works: large-scale projects that are nontraditional in virtually any respect—technologically, institutionally, or financially—gain significant exposure in the political arena. (This could be considered the infrastructure corollary to Tip O'Neill's long-standing observation that "all politics is local.") In some cases, of course, such exposure is helpful to project development, while in other cases political forces are highly destructive to infrastructure delivery. Often, however, infrastructure projects are delayed, maimed, and occasionally killed by political issues only tangentially related to the project's attributes with respect to improving mobility and safety with minimum impact on the environment.

Political and institutional factors in infrastructure development often appear most acute for transportation projects and stem, of course, from the very nature of transportation. Unlike most other public works programs, transportation projects generally transcend political and jurisdictional lines, often at multiple levels involving local governments, regional authorities, and state and federal districts. In those frequent cases when adjacent local governments or political districts differ with respect to any of a host of growth, development, and environmental issues, expediting the delivery of transportation infrastructure often bears the brunt of the debate.

Thus, regardless of the degree of innovation planned for funding and financing such projects, expediting them becomes futile—even if the financing scheme was brilliantly conceived and effectively communicated by people in this very room. This combination of factors, coupled with the inability of most transportation projects to cover their costs through project-generated revenues, makes for an environment hostile to the encouragement of private-sector investment. If privatization is sought, it is often with a "runt of the litter" mentality whereby low-risk projects that generate higher revenues are kept (and sometimes brought back) within the public domain while the high-risk runts that generate low or uncertain revenues are made available for private-sector investment.

An excellent example of difficulties created by political and institutional factors was recently demonstrated with the SR-91 express lanes project—the only California AB 680 toll revenue project in operation of the four originally franchised by the state. Perhaps the best demonstration of the efficacy of the high-occupancy toll lane concept—under which users pay variable tolls to use reserved lanes as congestion waxes and wanes on the mainline facility—SR-91 bisects the Orange County–Riverside County line in Southern California. Orange County has jobs, wealth, and a vibrant economy; Riverside County has massive tracts of reasonably affordable homes occupied by young families struggling to make mortgage payments. Owing to the demographics, the SR-91 corridor experiences massive traffic demand and a classic peak-hour directionality. However, it is the employees in Riverside County who pay the $5.00+ one-way toll every day, not the employers in Orange County. Thus, the local politicians in Riverside County supported their constituents and sought a way to create free adjacent capacity. The private owners of the express lanes pointed to the "noncompete" clause in the franchise agreement that was necessary to ensure private financing, initially by a bank consortium. Orange County political leadership was muted and ambivalent as long as employees were willing to make the trek and punch their employers' time clocks at appointed hours.

We all know the resolution of this classic political dilemma: the Orange County Transportation Authority has agreed to purchase the SR-91 express lanes facility from its private owners by repayment of equity to the express lanes' owners and a takeout using tax-exempt bonds. In effect, to solve the political disagreement (at least perceptually and perhaps only temporarily), the taxpayers are paying additional costs by subsidizing tax-exempt bonds, and the users will still pay tolls to a newly created public authority.

Party politics also plays an occasionally significant role in creating impediments to project delivery. Interestingly, it seems that there is often no real philosophical difference between Democrats and Republicans with respect to infrastructure development, but merely a contest to determine which party—and which party leadership—can appear to be more "in touch" with constituencies. Populism is in vogue, regardless of affiliation.

One would expect, for example, that the Republican Party would typically be more prone than the Democratic Party to favor elements of privatization in the delivery and provision of public works projects. Many will recall, however, the acclaimed Washington State program for transportation partnerships, which succeeded in encouraging the expenditure of millions of dollars by a number of engineering, construction, and banking organizations in the pursuit of a series of projects of statewide significance. Unfortunately, infrastructure projects generally extend across the terms of elected representatives. As the state legislature turned from a Democratic majority (that clearly endorsed the program for utilization of private investment) to a Republican majority, the legislature effectively vetoed the program. What remains of the multiproject program that would have brought billions of dollars of private capital into Washington State is the Tacoma Narrows Bridge, which will now be done as a tax-exempt project using certain financial innovations but without the financial involvement of the private sector.

Unfortunately, there is no executive order in the works for "institutional streamlining." Regional politics will need eventually to come to the realization that internecine conflict is not good for project delivery. Particularly in cases like SR-91, where each affected political subdivision recognizes and supports the immediate need for increased travel capacity, perhaps it would be advantageous to implement an ombudsman concept under which arbitration by neutral third parties could facilitate political compromise without local officials appearing to either win or lose. When infrastructure projects become the prize in a political test of wills, the ability to bring the stability necessary to accommodate financial innovation is often ephemeral.

Community Involvement and Sustainability

Closely linked to environmental permitting and local governance is the area of community and public involvement. It is virtually impossible in the United States today to enter into the planning and development of an infrastructure project of any significance without suitable and acceptable roles for community groups, special-interest organizations, and the general public. The public participation process is provided for and facilitated by a huge body of federal and local legislation. Advisory committees, public members of agency boards, and required responses to all input are but a few of the policies and programs that have promoted the key role of citizens in the planning and approval process.

Has this role exceeded the bounds of practicality? Short of entering into an open-ended debate, there is little merit to attempting to answer the question. From a more cynical perspective, the following are the more appropriate questions:

- Have we conferred too much power (indeed, in many cases a veto power) on average citizens to affect or even stop the development of infrastructure that a coalition of informed elected representatives has sanctioned?
- Has our form of participatory democracy transferred too great a power of assent to nonrepresentative groups or individual citizens, while at the same time allowing duly elected officials to shirk their decision-making duty by chanting "let the public speak?"
- Have our federal environmental laws facilitated a process that encourages and facilitates capricious litigation by individuals and special-interest groups often simply aimed at delaying or eliminating infrastructure projects rather than providing constructive input to project sponsors?
- Should federal law, like many of the state environmental laws, have a statute of limitations, which, after expiration, permits no suits, litigation, or other action by the public that could affect the project in ways potentially significant to the financial marketplace?

Expediting Project Delivery: A Challenge to the Transportation Finance Community

In our view, there are four keys to fully unlocking the plethora of innovative financial tools available for expediting transportation infrastructure projects:

- Stability,
- Predictability,
- Continuity, and
- Acceptability.

Aside from forming a clever acronym (SPCA), these four characteristics are the most relevant attributes for projects seeking innovative financing. Simply defined, the characteristics are as follows:

- *Stability* is the ability to trust that multiyear funding commitments pledged for repayment of traditional and innovative financing instruments, such as GARVEEs, SIB loans, and TIFIA credit assistance, will be met with minimized revenue risk.
- *Predictability* is the ability to predict what a project will cost and when it will be implemented. This minimizes cost risk and implementation risk.
- *Continuity* is the ability to trust that the political will to get a project done will continue across changes in political office—the ability to know that agency decisions made will be maintained over the project development process. This minimizes political risk and its close relative, implementation risk.
- *Acceptability* is the ability to streamline and expedite the process for achieving substantial effective consent (if not consensus) among involved agencies and the ability to have lead agencies function as ombudsmen—or, in the language of the executive order, as environmental stewards—throughout the process.

To take best advantage of the executive order in creating the list of priority projects, financial and nonfinancial aspects must both be addressed to ensure stability, predictability, continuity, and acceptability. During this period of reauthorization, it is important that we stand back and focus also on the required statutory changes and innovations in the nonfinancial aspects of projects that are companion to innovations in financing. Such statutory changes and innovations do not require bypassing the environmental and regulatory process, but rather managing the process to create a more SPCA-friendly environment within which projects can be built.

In determining the likelihood of expedited project delivery—whether by using traditional or nontraditional financing methods—methodologists could calculate an "SPCA index" that could be an indicator of potential success. This requires looking beyond innovative finance to focus energy on the political, institutional, and regulatory side of the project development process and allowing SPCA to take care of the runts of the litter.

RESOURCE PAPER

Institutional Framework for Innovative Transportation Finance

James T. Taylor II, *Bear, Stearns & Co., Inc.*

One of the purposes of this resource paper is to stimulate discussion of the long-term implications of innovative transportation finance strategies. Are we creating financing mechanisms that will facilitate continued and timely investment in our nation's transportation infrastructure over the next 40 to 50 years, or are we simply addressing our most pressing short-term capital needs? As a starting point, the following highlights some of the new financing vehicles and partnership structures developed under the umbrella of "innovative finance" and questions where they might be leading us.

The second half of the paper examines certain institutional factors that may have influenced the types of financing approaches taken to date or that could inhibit further innovation. By acknowledging and addressing some of the tensions within and among the key players, transportation policy makers may be able to craft more effective strategies for fostering collaboration and increasing the overall level of transportation investment.

IMPLICATIONS OF KEY FINANCING INITIATIVES

In the late 1980s, with the Interstate highway system essentially completed, the focus of federal surface transportation policy shifted from expanding the nation's highway network to developing a more efficient national transportation system with improved linkages between highways, rail, transit, ports, and airports. This broader mandate has been coupled with a concerted effort to develop new financing techniques to complement and enhance existing federal grant reimbursement programs. These techniques can be grouped into four basic "innovative finance" strategies:

- Modify rules and regulations governing federal aid to allow states to make more efficient use of existing resources,
- Facilitate debt financings that leverage future federal-aid reimbursements,
- Encourage development of new toll facilities and other revenue-generating assets, and
- Provide state and federal credit assistance to sponsors of eligible projects.

Innovative Management of Federal Funds

What Is This Strategy Intended to Accomplish?

The federal government has traditionally supported the financing of the nation's highway network by providing grants to reimburse state governments for a portion of the funds they spend on certain types of projects. This basic approach was established in federal legislation enacted between 1912 and 1922 and reaffirmed in the landmark legislation that created the Highway Trust Fund in 1956. Over the years, a complex set of rules and regulations governing the distribution of the federal aid has been established to provide for an equitable apportionment of the funds among the states, to ensure accountability, and to direct or encourage certain expenditures desired by Congress.

Many of the innovative finance initiatives undertaken by the federal government in recent years involve administrative or legislative changes to ease those restrictions. Some of the changes allow states to manage when and how federal-aid reimbursements are obligated. Others broaden the range of options for meeting the nonfederal matching share requirements. Though the changes do not increase the total amount of federal aid available to the states, they create opportunities to expedite certain projects and to leverage state and local resources.

Where Is This Strategy Leading Us?

The federal funds management tools have been well received (most were actually requested by states under the TE-045 Innovative Finance Test and Evaluation Project) and are generally noncontroversial because they do not create a bias toward or against any particular type of project. In addition, they are relatively easy to implement and usually do not require any legislative action at the state level.

The major issue with this approach is where to draw the line. If giving state and local officials greater authority and flexibility in funding transportation is such a good idea, why not reduce the scope of the federal-aid highway program and give the federal taxes on motor fuels back to the states? While that may seem extreme, bills supporting devolution have been introduced in Congress. A more likely scenario, though, may be a continuing effort to reduce the federal influence in transportation development. Proposals that may be considered include increasing the minimum guaranteed apportionments to states, collapsing various funding categories into block grants, streamlining federal environmental reviews, reducing or waiving state match requirements, and eliminating required set-asides for enhancement projects (bicycle and pedestrian facilities, historic preservation, and landscape and beautification).

Debt Financings Payable from Federal Aid

What Is This Strategy Intended to Accomplish?

Debt is primarily used to accelerate construction of major projects. By expediting construction, states can avoid cost escalation due to inflation and realize the safety and economic benefits of projects sooner. In addition, bonding against future federal-aid reimbursements spreads the cost of a facility over its expected useful life.

Although it is probably not fair to say that the federal government is advocating debt financing, it has been a significant enabler. Since 1995, several changes have been made to the federal-aid highway program that facilitate bond financing by state departments of transportation and other recipients of federal aid:

- Interest and certain costs associated with issuing debt were made eligible for federal-aid reimbursement.
- Restrictions on the amount and timing of advance construction authorizations were eliminated.
- Title 23 of the United States Code was amended to clarify that a pledge of federal aid as a source of repayment for a bond issue does not represent a federal guarantee of the debt.
- Funding guarantees and budgetary firewalls in the Transportation Equity Act for the 21st Century (TEA-21) enhanced investor confidence that future federal-aid apportionments can be a reliable source of repayment for bond issues.

These changes have led to the creation of Grant Anticipation Revenue Vehicle (GARVEE) bonds, securities that are backed primarily by future federal highway grant reimbursements. Between 1998 and 2001, 10 states issued approximately $5.2 billion of GARVEE-type debt to finance various highway and bridge projects and transit equipment. Several other states are actively considering bonding or seeking legislative authority to issue GARVEEs.

Where Is This Strategy Leading Us?

Leveraging future federal aid increases reliance on a revenue stream that many argue will decline over time with the introduction of alternative fuels and technological advances in vehicle fuel mileage. To date, state legislatures (and rating agencies) have limited the amount and term of the GARVEE-type debt that has been issued. As highway travel demand and congestion increase, however, the temptation to overleverage may be more difficult to resist. The challenge for states is to use bonding in ways that complement other innovative finance initiatives, such as investing in revenue-generating assets.

Development of Toll Facilities

What Is This Strategy Intended to Accomplish?

Interest in facilitating the development of toll facilities reflects a desire to create new revenue sources to support transportation investment by public and private entities. When the federal-aid highway program was created in 1916, Congress explicitly prohibited the imposition of tolls on any facility that received federal funds. Exceptions to that policy have been established over the years. Nevertheless, today less than 4 percent of the National Highway System is tolled. In large part, that is because political opposition to tolling existing facilities remains a significant hurdle. No states, for example, have taken advantage of provisions established in TEA-21 that allow reconstructed or rehabilitated Interstate segments or bridges to be converted to toll facilities.

In addition to using it to generate revenue, there is growing interest in using tolling to manage highway capacity in congested corridors. In response to higher fees charged during periods of peak use, some users will shift to less congested routes or travel times. To support development of value pricing strategies, the federal government established a Value Pricing Pilot Program in TEA-21 to provide up to $51 million of support (80 percent federal share) for projects incorporating peak-period pricing and related concepts.

Where Is This Strategy Leading Us?

Successful development of start-up toll facilities requires a unique blend of public and private resources and expertise. To meet the challenge, new public–private partnership structures and financing vehicles were created to facilitate the allocation of risk and benefits. Regional toll authorities such as the Transportation Corridor Agencies in California and the E-470 and Northwest Parkway Public Highway Authorities in Colorado worked closely with private design–build teams to finance and develop their projects. Private nonprofit corporations, created to facilitate access to the tax-exempt markets, secured funding for the Southern Connector project in South Carolina and the Route 895 Connector in Virginia.

Although efforts to promote private development of public infrastructure continue (including proposals to create a new class of tax-exempt private activity bonds for toll projects and certain multimodal facilities), state and local governments are increasingly willing to take the lead themselves. As a result, many new toll facilities may be developed by using an old model: state and local toll authorities. The Texas Turnpike Authority, for example, recently entered the bond markets to finance a $2.9 billion Central Texas Turnpike system. Georgia, Colorado, North Carolina, and Louisiana are considering the use of existing or new state toll authorities to develop and operate projects. Although the states will likely use some form of design–build, the amount of risk transferred to private entities may be limited.

State and Federal Credit Assistance

What Is This Strategy Intended to Accomplish?

By providing other forms of assistance besides grants, the federal government and states can help project sponsors accelerate construction of certain projects and attract additional investment for transportation infrastructure from local and private entities. Federal credit assistance has the added benefit of being scored for federal budget purposes on the basis of anticipated cash disbursements that may not be repaid rather than the total amount committed.

The vehicle for providing credit assistance at the state level is the state infrastructure bank (SIB). SIBs can be structured in a variety of ways, but most are revolving loan funds. As of October 1, 2001, 32 states had entered into 245 loan agreements with a dollar value of nearly $2.9 billion. The South Carolina Transportation Infrastructure Bank initiated approximately $1.5 billion of the total loan activity. Capitalized primarily with state funds (including a share of the state gas tax and truck registration fees), it has facilitated the development of nearly $2.4 billion of projects.

At the federal level, credit assistance is provided under the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA). It authorizes the U.S. Department of Transportation (USDOT) to provide up to $10.6 billion of credit assistance to surface transportation projects of national or regional significance. As of August 2002, USDOT had committed nearly $3.6 billion in assistance to 11 projects, primarily in the form of direct federal loans. The total budgetary cost of providing that support, based on federal guidelines, was approximately $200 million.

Where Is This Strategy Leading Us?

Most states have experimented with the SIB concept, but few have used it extensively. It is not clear that loan activity will increase if all states are allowed to capitalize their SIBs with federal-aid funds (TEA-21 only authorized four states to do so), but the consensus is that each state should at least be given the option.

It is too early to tell whether TIFIA can be more than a niche program. As noted in the report to Congress on TIFIA, a limited number of projects fit the TIFIA profile, and they typically take 5 to 10 years to secure necessary planning approvals and environmental clearances. There are proposals to lower the minimum threshold for eligible costs from $100 million to $50 million, but sponsors of smaller projects are likely to wait for funding through traditional processes or to pursue a direct congressional earmark.

Institutional Factors Inhibiting Innovation

The innovative finance strategies pursued to date have been constrained to some extent by the established roles and relationships among the various institutions involved in developing transportation infrastructure in the United States. The parties (federal, state, and local governments and the private sector) have significant experience in working together to construct projects, so the natural focus of their initial efforts to address transportation funding gaps is to enhance approaches to project delivery. Each party can bring something to the table (more flexible rules, design–build, nonrecourse financing, etc.), and the outcome can be measured in terms of the number of projects advanced or the dollar amount of savings. The challenge facing the transportation community, however, is not how to build projects more quickly but how to develop sustainable sources of funding for transportation investment and partnering with relevant stakeholders to address mobility issues. To that end, the following discussion attempts to highlight some of the institutional dynamics that may need to be addressed before more beneficial change can occur.

Federal Government Does Not Develop Projects

With the exception of certain roads on Indian reservations, in national parks, and on other federal lands, the federal government does not build, own, or operate specific projects. Therefore, despite billions of investment, there are no federal transportation assets to sell or securitize. In addition, the federal government does not initiate projects, and it is not considered the logical sponsor for private transportation concessions. As a result, private companies interested in playing a significant role in U.S. transportation finance must pursue opportunities in several states to find projects of sufficient scope and number to justify a major commitment of resources.

Potential strategy: Assign development responsibility for a "megaproject" of national significance, such as truck tollways or North American Free Trade Agreement superhighways, to the federal government. USDOT could outsource most services and would work closely with state and local partners.

Federal Transportation Policy Is Influenced by Many Competing Interests

Transportation issues affect every individual and business, so a number of entities effectively have standing when it comes to federal transportation policy, including the Departments of Treasury and Labor, the U.S. Environmental Protection Agency, and the Office of Management and Budget. As a result, some innovative transportation finance proposals are never fully considered. The following are among the issues that face continued resistance and debate:

- Increasing federal motor fuel taxes;
- Issuing debt at the federal level for transportation purposes;
- Using general fund resources to fund transportation;
- Allocating federal transportation funds on the basis of need or the level of effort put forth by each state to finance its infrastructure;
- Limiting the amount of congressional earmarks for specific projects; and
- Easing requirements related to environmental, labor, and other social objectives.

Potential strategy: Build strategic coalitions with traditional opponents of innovative finance proposals and directly address their issues, such as double taxation and urban sprawl.

State Departments of Transportation Caught in the Middle

Standards and performance measures for the traditional services provided by state departments of transportation are well defined. In addition, several processes have been established to ensure accountability, such as competitive bidding and program audits. As the missions of state departments of transportation expand and new services are added (innovative finance, intelligent transportation systems, etc.), similar "institutionalization" must occur. The following are issues related to transportation finance:

- Negotiating the appropriate level of public subsidy for project financings,
- Managing noncompete provisions and other policies designed to facilitate private development of infrastructure,
- Developing standards for "best value" procurements,
- Designing projects to maximize revenue,
- Selecting which projects are developed in-house and which can or should be done privately,
- Managing various intermediaries (consultants, bankers, lawyers, etc.) involved in project financings,
- Building public involvement and support for innovative finance initiatives, and
- Facilitating the sale and purchase of public infrastructure projects.

Potential strategy: Create a standing advisory committee with broad representation from various transportation interests to help identify and evaluate relevant policy issues.

Local Resistance to Innovative Finance Initiatives

It is difficult for local communities to evaluate and build consensus on whether a tolled project delivered in 3 years is better than a toll-free facility delivered in 10 years. Similarly, there is no incentive for localities to understand or accept that transportation resources may need to be distributed unequally to address mobility issues in different areas of a state effectively.

Potential strategy: Create financial incentives that reward locally developed transportation solutions.

The opinions expressed in this resource paper are those of the author and do not represent the views of Bear, Stearns & Co., Inc.

RESOURCE PAPER

Finance and the Visible Hand of Technology

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Finance is about more than just money. This is not an easy sentence to say with a straight face, nor one that many people necessarily will believe. Obviously, money is important, since how much we have determines how much we can build and how well we can manage the assets we have.

The consensus is that money will be harder to find for TEA-3 than for TEA-21, a result of improving fuel economy, slower economic growth, higher oil prices, a tighter federal budget, and perhaps some resentment over the success achieved 6 years ago. This implies that we need ideas that involve more than changes to our current financial toolbox. Such changes, in turn, may open the door to approaches that go beyond the traditional broad-based user fees, with or without some leveraging. My discussion today will not solve any immediate problem, but it could help with the next big piece of legislation—TEA-4?

BACKGROUND

How we raise money affects what we do and how well we do it. I am not just talking about Transportation Infrastructure Finance and Innovation Act versus federal apportionments or one flavor of Grant Anticipation Revenue Vehicle bonds versus another. Rather, the issue relates to the fundamental economic linkages between prices and service quality. Put another way, in the best of all worlds we should be able to generate funds in ways that encourage better service and operating efficiency as well as ways that provide an adequate level of funds.

This sounds a lot like what a successful private-sector business does—simply provide a useful service, control costs, and generate enough money to cover capital and operating costs as well as a return for future investment. Finance is really about prices. In the private sector, prices reflect the quality of the product sold or the value of the service provided. That is, the amount of revenue a firm books relates directly to the quality of the service that it provides relative to that of its competition.

Feedback between quality and the amount of business a firm receives can be rapid, particularly in businesses that deal directly with the retail customer. This is often very personal. We all have been asked by our waiter or waitress about the quality of our meal—and may even have had an entrée dropped from the bill if we expressed dissatisfaction. How often has the state secretary of transportation or the district engineer asked us if we were satisfied with our daily commute, let alone offer a refund as a sign of a commitment to improve?

This process is part of what Adam Smith termed "the invisible hand" that balances supply and demand and thus shapes the economy. While highway finance has long relied on a set of broad user fees or benefit taxes, these reflect long-term values rather than near-term service quality. As long as the level of highway revenues bears at best an indirect linkage to the quality of service received by the public, we will be forced to work with a very "visible hand." Intelligent transportation system (ITS) and telematics technologies may offer a way to make the idea of a visible hand practical.

In sum, I believe that there is an interaction among finance, technology, customer service, and the management of departments of transportation (DOTs). If we look at finance alone, we risk continued frustration—and a transportation system that fails to meet our economic and social needs. If we work to improve management alone, we miss using one of the more effective tools for efficiency and customer satisfaction.

To set the stage for this argument, I will address two trends that are broader than finance itself: first, the move by secretaries of transportation and many other transport administrators to emphasize their role as managers of a business, and second, changes in technology that make it possible to measure highway performance directly.

Management

Today, the most imaginative DOT leaders think and act as if they are running a business—indeed, most state secretaries of transportation now call themselves CEOs rather than CAOs or chief administrative officers. This has generated interest in new management techniques and approaches. For example, asset management is now a hot topic, albeit one that remains dominated by engineering-based techniques and measures rather than financial measures and economic efficiency.

Asset management offers promise, but few systems have been implemented that examine assets the way a private enterprise would. One reason is simply that our surface transportation systems do not operate in a free market. Our ability to generate a breakthrough in this regard could take one of two paths:

1. *Direct competition.* To be effective, this needs to be more than transit versus highways, since it is tough to have competition when one entity has 95 percent of the market and its competitor 5 percent. Thus, despite the ideological appeal of public–private partnerships, we are unlikely to have more than one DOT per state.
2. *True measures of performance.* If real competition is unlikely, then at least we can try to improve our measurement of service. Once we measure the performance of the highway system on a consistent and routine basis, we can start to develop a pricing system that sends market signals to travelers and providers alike.

Because there is no true competition for local highways and transit, there is no incentive to develop true measures of customer satisfaction or system performance. How do we do this without the invisible hand of the marketplace? Perhaps we can use technology to create a smarter visible hand. This will never replace the elegance and effectiveness of Adam Smith's invisible hand, but a good second best is much better than what we have now.

Transportation depends on assets, but this emphasis ignores the routine economic and social values that it provides. For example, while volume–capacity ratios and levels of service provide one measure of congestion, the consumer of transportation services probably relies on a much more basic measure: Did I get where I want to go on time? Or more broadly, what fraction of peak-hour trips arrived on time this morning? What fraction of supply chain shipments arrived on time? This is similar to measures used by the airline industry today. Again, this requires a direct and personal measure of highway performance—something that a vehicle-oriented technology might provide.

Technology

Technology refers to human knowledge about products and services and the way they are made and delivered. This is a fairly broad definition and is certainly relevant to the surface transportation industry. Advances in technology can dramatically alter the surface transportation industry's landscape. They make it possible to produce new and better service at lower cost and help create new revenue sources.

Technology also offers a possible way to measure direct performance. Certainly one dream of the ITS community has been roadway sensors that make it possible to know traffic speeds on all roadways, all the time. Such information could then be used both to manage the system better and to provide information to the traveling public. In reality, over the past dozen years the pace of deployment has been glacial, with only 22 percent of urban expressways having sensors of any kind by 1999 and fewer than 10 percent of major arterials (Figure 1).[1] In recent years the rate of growth has rocketed to 3 percent per year—which means that the problem will not be solved in my lifetime.

As Phil Tarnoff from the University of Maryland points out,[2] advances have been made that include the following:

- Sophisticated side-fire radar detectors capable of providing traffic flow data by lane;
- Video imaging that can now provide reliable measurements of traffic speeds, counts, and queues;

[1] Tarnoff, P. J. Getting to the INFOstructure. Prepared for TRB Roadway INFOstructure Conference, Aug. 2002.
[2] Tarnoff, P. J. Getting to the INFOstructure. Prepared for TRB Roadway INFOstructure Conference, Aug. 2002, p. 7.

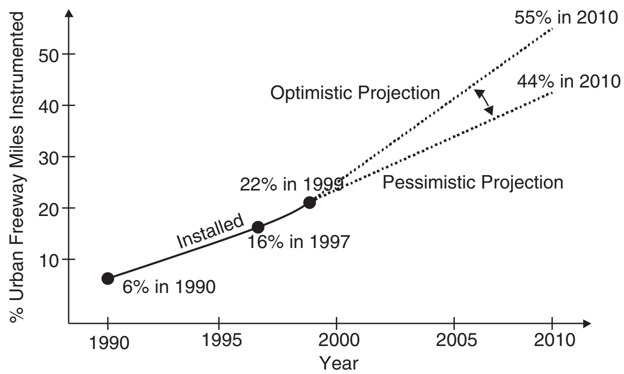

FIGURE 1 Percentage of urban freeway miles instrumented.

- Cellular geolocation technology with the capability of tracking individual vehicles to measure their speeds and travel times;
- Tracking of vehicles with toll tags to measure speeds and travel times;
- Tracking of vehicles through the use of license plate readers that measure speeds and travel times; and
- Development of systems of instrumented probe vehicles that use the Global Positioning System for positioning and other sensors to measure travel speed, weather, and pavement conditions.

Frustration with the slow pace of deployment despite the range of technical solutions has led to some new approaches. The U.S. Department of Transportation's INFOstructure plan, for example, calls for a nationwide network of traffic sensors and video monitors. On the one hand, this is ambitious and offers benefits for Homeland Security. On the other hand, the cost is high ($5 billion has been mentioned), and the plan faces a problematic future in our new world of growing budget deficits. It also represents a continuation of existing technologies, just with a fixed schedule and more funds to back them.

Technology, however, can also develop along nonlinear or divergent paths. These types of changes are hard to foresee, in part because many fail or remain dormant until the time is right. When they do occur, they can create a chain reaction of changes well beyond the immediate area of focus. Examples abound in our daily lives, with the most obvious coming from the Internet, wireless communication, and the personal computer. Examples from previous generations include the automobile, jet aircraft, the Interstate highway system, and so on. While progress continues, transportation technology has yet to see such a breakthrough.

Within the world of traffic sensors, we may be on the verge of a nonlinear shift. This revolution will be based on vehicle-based sensors rather than those reporting from specific points along the highway infrastructure. Floating car data and vehicle probes appear more powerful and cost-effective than fixed, infrastructure-based sensors.

Vehicle-based sensors offer several advantages:

- They provide a direct measure of performance as seen by the roadway customer, rather than measures inferred from volume–capacity ratios.
- They can do this across all roads in all parts of the country at the same time.
- They can provide measures that are consistent from road to road and from city to city.
- They provide geographic detail that can be reshaped to meet a variety of public and private purposes.

Such data, in turn, will support most traditional traffic management activities. Because of the direct link with roadway performance, they also provide the foundation for a profound shift in transportation management. This has implications for such activities as day-to-day management, financing, and emergency support. The same data provide the long-sought information needed by the traveler information portion of the telematics industry. It may even be possible for more than one of these firms to make money!

Vehicle-based sensors are well along the development path. Floating car data systems exist on small scales in Europe. OnStar in the United States has units in some 3 million vehicles. These represent more than 1 percent of the nation's fleet—which should be enough to estimate travel speeds by roadway link. Of course, a number of communication and financial issues need to be resolved before this becomes commercial reality. At the same time, some 600,000 commercial vehicles already have tracking equipment as part of the fleet management industry, with Qualcomm the leader. Other systems propose the use of cell phones as data probes to provide location, speed, and acceleration information. Progress is being made in enforcing the Federal Communications Commission's E-911 mandate to convert the nation's 100 million cell phones into probes, although this process is well behind schedule.

As one example, the British firm ITIS Holdings has deployed a floating vehicle system that converts high-mileage vehicles into probes and provides regular reports on more than 8,000 miles of motorway and major arterials in the United Kingdom. Commercial customers include the British AA, BMW, and OnStar. Other than this, no vehicle-based system has been deployed on a significant scale. All have one or more problems to resolve, most of which are finance-related.

But the time is right for a new way to collect traffic data. The technology exists, and several commercial enterprises have begun to deploy their networks. Vehicle-based systems will support activities and businesses well beyond traditional traffic problems. How might the public sector play a role in this movement, and what implications might this have for how we manage and fund transportation?

Implications

If, through some bizarre twist of fate, I were named benevolent transportation czar, I would want to manage and fund my transportation system a bit differently. I would take a lesson from the best of the private firms and set a big hairy objective. Why not work so that all important trips are completed on time—or at least better than the airline industry? Such an objective would have implications for a very different transportation system, both in how it is managed and in how it is funded. What might such a transportation system look like?

- Part of this would involve having information on system reliability that could be communicated to travelers in advance so that they could manage their own travel. I am not naive enough to believe that this would cause people to shift modes, but they could
  - Change the time they travel,
  - Shift routes to take full advantage of available capacity, and
  - Call ahead to minimize disruption.
- Part of this would mean that I would manage my system to a preset performance standard:
  - Average speeds better than 50 mph, for example;
  - All routine maintenance and construction work in off-peak hours; and
  - All incidents cleared in X minutes, and so forth.
- Part would involve a more personal relationship with the traveler. I would even go so far as to provide rebates if performance standards were not met. Again, technology in the form of transponders offers a direct way to implement a "money-back guarantee."
- Part would involve knowing the relative value of a timely trip completion (just-in-time inventories provide a direct example for freight).
- Part would involve direct cooperation with certain major transportation customers, ranging from sporting events, to job locations, to individual industries. This knowledge would provide a source of money (as shown by the use of variable tolls on SR-91 and the San Diego high-occupancy toll lane to ensure a given quality level). It would also require direct cooperation between the transportation provider and its customers.
- Part would involve a different set of internal standards for district engineers. For example, knowing that it was possible to measure the average speed for the morning or afternoon commute would change the incentives for the district engineers. The British highway authority already does this when it outsources maintenance work, with part of the compensation dependent on the lack of congestion as measured by the amount of time that design speeds are met.

Let me return to the finance question once again. Today, highway travelers in the United States pay a low average rate—only pennies per mile traveled. This is much less than the 35 cents per mile that it costs to own and operate their vehicles. Financing is based on the long-term average cost of highways, with a correspondingly average quality of service. The ability to provide high-quality service begins with the ability to measure performance, but it allows a price that more closely reflects the value of the completed trip.

The technology to measure highway performance on a link-by-link basis also opens the door to a host of financial and performance initiatives. This creates the opportunity to unleash some of the creativity and management techniques that the invisible hand of the marketplace stimulates in other industries.

The gains from this could occur along several dimensions. While only one of these changes has a direct link to increased funds, each should improve the financial health of the transportation agency. The following are examples:

- *Improved customer satisfaction.* Most travelers take traffic for granted as something imposed on their daily lives, much like the weather. Direct measurement of highway performance will permit a host of changes that will show that the DOT cares—money-back guarantees in case service is poor.
- *Improved day-to-day management.* Most DOTs rely on important but indirect measures. A more direct set of measures—such as average speeds during the morning commute—will result in improvements.
- *Increased revenues.* Higher-quality service is not free. The technical ability to charge travelers more when the service is better (the flip side of a money-back guarantee) will generate more resources. This will be independent of automobile fuel economy and the motor fuel tax in general.
- *A more efficient economy.* The combination of performance measures related to travel times by individuals and corporations and financial incentives to encourage improvement should also improve economic productivity.

The rapid progress in the development of these technologies sets the stage for providing better service to the surface transportation industry's customers. Yes, customers. Not motorists or travelers or taxpayers but customers. The distinction is key if you want to pursue performance pricing successfully. If you are going to be successful in running surface transportation systems in an efficient way and charge fair prices for using the service, industry management must develop a service orientation and consider those who use surface transportation systems as customers first and foremost.

The customer is someone who is a willing buyer of what you have to sell at the particular price you are charging. What makes someone a willing buyer? The judgment about whether the value to him or her of what you are selling is greater than the price you are charging. The goal of creating customers is just as important for public entities as it is for the private sector. How do you create customers? By heightening the perception that what you are selling is worth more than the price you are charging. You can do this in the surface transportation industry by using these new technologies to improve the quality of what you are selling.

Acronyms

9/11	September 11, 2001
AASHTO	American Association of State Highway and Transportation Officials
AFSCME	American Federation of State, County, and Municipal Employees
AGC	Associated General Contractors of America
APTA	American Public Transportation Association
ARTBA	American Road and Transportation Builders Association
ASCE	American Society of Civil Engineers
BWI	Baltimore/Washington International Airport
CPI	Consumer Price Index
CRM	construction and resource management
DDOT	Delaware Department of Transportation
DOT	state department of transportation (or Department of Transportation if preceded by a state name)
EPW	Environment and Public Works Committee
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GARVEE	Grant Anticipation Revenue Vehicle
IRS	Internal Revenue Service
ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	intelligent transportation system
MassHighway	Massachusetts Highway Department
MBTA	Massachusetts Bay Transportation Authority
MDOT	Michigan Department of Transportation
MEGA Trust Act	Maximum Economic Growth for America Through the Highway Trust Fund
MIC	Miami Intermodal Center
MPO	metropolitan planning organization
NAS	National Academy of Sciences
NASTO	Northeast Association of State Transportation Officials
NRC	National Research Council
PPTA	Public–Private Transportation Act
PWF	*Public Works Financing* (newsletter)
RABA	revenue-aligned budget authority
ReTRAC	Reno Transportation Rail Access Corridor
RIDOT	Rhode Island Department of Transportation
SES	Senior Executive Service
SIB	state infrastructure bank
SPCA	stability, predictability, continuity, acceptability
STIP	State Transportation Improvement Program
TEA-21	Transportation Equity Act for the 21st Century
TFC	Transportation Finance Corporation
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIMED	Transportation Improvement Model for Economic Development
UIC	University of Illinois at Chicago
USDOT	United States Department of Transportation
VMS	variable message sign
VMT	vehicle miles traveled

Conference Steering Committee Member Biographies

Affiliations listed are as of the date of the Transportation Financing Conference, October 2002.

William D. Ankner, *Committee Chair*, is director of the Rhode Island DOT (RIDOT). He came to RIDOT in December 1996 from the Delaware DOT (DDOT), where he was director of financial management and budget, a position he held for 3 years.

While at RIDOT, Ankner increased the department's productivity and implemented a fix-it-first philosophy, allocating the majority of the department's funding to fixing the infrastructure before undertaking new projects. He also instituted a bridge maintenance program that was designed to better track the condition of the state's bridges.

Ankner was committed to the success of the state's bicycle and pedestrian path network, stressing its importance within the state's overall transportation system. He was also a strong advocate for intermodalism, helping to develop a seamless transportation system and providing the necessary infrastructure for the connection between air, transit, and rail. He also supported the state's enhancement program, which focused its efforts on nontraditional transportation projects such as those that improve the environment, preserve historic resources, and beautify the landscape.

Ankner's leadership resulted in a variety of legislative successes. Crucial traffic legislation passed during his tenure includes stiffer penalties for drunk drivers; a graduated driver's license bill; a law requiring helmets for children who use bikes, scooters, and in-line skates; a $50 penalty for failing to wear a seatbelt; a child endangerment law; and an open container law.

In his role as RIDOT director, Ankner headed the governor's Office on Highway Safety, served on the boards of the Rhode Island Turnpike and Bridge Authority, the Rhode Island Public Transit Authority, and the Transportation Center of Excellence at the University of Rhode Island. He was the governor's representative on international trade for the New England Governors and Eastern Canadian Premiers Association. Also, he is past president of the Northeast Association of State Transportation Officials (NASTO) and its regional representative to the AASHTO-AGC-ARTBA (American Association of State Highway and Transportation Officials, Associated General Contractors of America, and American Road and Transportation Builders Association) Joint Committee. As a member of the board of AASHTO, he chaired AASHTO's Administrative Subcommittee on Transportation Finance and served on the Standing Committees for Aviation and the Environment. He is an adjunct professor at the University of Rhode Island and a Trustee of Bryant College.

Ankner holds an M.A. and a Ph.D. from the University of Ottawa, an L.Ph. from St. Paul's University (Ottawa), and a B.A. from Stonehill College in North Easton, Massachusetts.

Peter J. (Jack) Basso is director of management and business development for AASHTO. Having joined AASHTO as chief operating officer and business development director in March 2001, he oversees the management of a $33 million nonprofit organization representing the interests of state DOTs. He develops new member services and more aggressively markets current technical services provided for AASHTO members. Basso works closely with congressional staff and with other associations who have mutual interests in transportation financing issues.

Before joining AASHTO, Basso served as assistant secretary for budget and programs and as chief financial officer of the USDOT. In that capacity, he oversaw the development of a $60 billion budget and interacted with senior officials, members of Congress and their staffs, and key industry officials on a wide variety of transportation matters. Before his appointment by President Bill Clinton to this position, he served as deputy assistant secretary for budget and programs.

Basso's 34 years of service as a career official included assignments such as assistant director for general management of the Office of Management and Budget, deputy chair for management of the National Endowment for the Arts, and director of fiscal services for the Federal Highway Administration (FHWA). He has held numerous positions in administration and management with FHWA.

Basso has served as a board member and chair of numerous councils, including 5 years as a member of the President's Council on Management Improvement representing the independent agencies of the executive branch and 5 years as chair of the Small Agency Council. He also served as a member of the Consolidated Administrative Support Units board of directors.

Basso earned a B.S. in business administration from the University of Maryland at College Park and continued graduate study in general administration at the university from 1980 to 1981.

Basso is the recipient of various awards, including the Presidential Rank Award of Meritorious Executive in 1989 and 1997; Senior Executive Service (SES) Bonus Awards, 1991 thorough 1996; the President's Council on Management Improvement, Special Recognition Award, 1990; Executive Achievement Award, 1988; Senior Executives Association, Distinguished Service Award, 1987; National Endowment for the Arts, Faculty Excellence Award, U.S. Department of Agriculture Graduate School, 1987; SES Performance Awards, 1985 through 1988; and the Administrator's Award for Superior Achievement (bronze medal), 1980.

Thomas W. Bradshaw, Jr., is managing director and co-head of Salomon Smith Barney's Transportation Group. Before joining Salomon Smith Barney, Thomas Bradshaw worked for another major investment banking firm in New York. He was responsible for senior management of transportation financing for the Arizona, Colorado, Indiana, and Missouri DOTs; the Montana and Alabama Highway Departments; the Dallas Area Rapid Transit Authority; the Los Angeles County Transportation Commission; the New York Metropolitan Transportation Authority; the Orange County Transportation Corridors Agencies; the Contra Costa County Transportation Authority; the Riverside County Transportation Authority; the San Bernardino Transportation Authority; and the San Diego Transportation Commission

Bradshaw also had responsibility for senior management of turnpike financings for New Jersey, New Hampshire, Florida, Massachusetts, Oklahoma, Texas, Illinois, Kentucky, and Harris County–Houston, Texas. He is currently involved in the financing of the Tren Urbano transit system and toll road improvements in Puerto Rico and with public–private transportation projects in California, Massachusetts, and Colorado.

In 1993, Bradshaw led a banking team's successful introduction to capital markets of the San Joaquin Hills Transportation Corridor, the first public toll road in California. The transaction encompassed $1.2 billion in senior and junior lien financing. He was also a senior manager for the $1.5 billion Eastern Transportation Corridor project in 1995 and the $1.6 billion Foothill Transportation Corridor project in 1999.

From 1977 to 1981, Bradshaw served as secretary of transportation for North Carolina. He is a past president of the Southeastern Association of State Highway and Transportation Officials and a former vice president of AASHTO and has served as a member of the executive committee of the Transportation Research Board (TRB) of the National Academy of Sciences (NAS). Bradshaw has served on the board of consultants of the Eno Transportation Foundation and as a member of the Board of Highway Users Federation. He has been active in the development of transportation legislation on both the state and national levels.

He is a former mayor of the City of Raleigh, North Carolina; a former chairman of the Triangle J Council of Governments serving the Raleigh–Durham–Chapel Hill area of North Carolina; and a former member of the board of directors of the National League of Cities and of the Transportation Committee of the U.S. Conference of Mayors.

He is the former chairman of the North Carolina Environmental Management Commission, the Greater Raleigh Chamber of Commerce, the United Way of Wake County, and the North Carolina Citizens for Business and Industry. He is vice chairman of the North Carolina Global TransPark Authority and is a member of the Southern Growth Policies Board. He currently serves as the chairman and a member of the Executive Committee of the Board of the Public School Forum for North Carolina.

Bradshaw is a frequent speaker on transportation financing for public and private policy groups [e.g., AASHTO, American Public Transportation Association

(APTA), Institute of Transportation Engineers (ITE), Design-Build Institute, National Association of Regional Councils, American Public Works Association, American Automobile Association, U.S. Conference of Mayors, National League of Cities, U.S. Chamber of Commerce, and other organizations].

Bradshaw served as chairman of the Transportation Alternatives Group of the Transportation 2020 Program and chairman of the National Transportation Alliance that led to many of the new flexibilities included in Intermodal Surface Transportation Efficiency Act (ISTEA) and Transportation Equity Act for the 21st Century legislation.

He is a former president of ARTBA's Public-Private Ventures division and a member of ARTBA's board. He also has served on the board of associates of the Airport Council International–North America.

Anne P. Canby serves as senior consultant at Cambridge Systematics, Inc. She was Delaware's transportation secretary from 1993 to 2001. Canby is recognized nationally as a progressive leader in the transportation field for transforming a traditional highway agency into a multimodal mobility provider and as an advocate for integrating land use and transportation planning. Under her leadership, DDOT shifted emphasis from highway expansion to providing choice and preserving and managing the existing transportation system, and improving transit service became a priority. The department invested in integrated technology initiatives as part of its overall business plan in support of system management and internal operations; training and diversity programs were instituted to strengthen professional skills of department staff; and strong public outreach programs were initiated. A key area of emphasis was shaping transportation projects to enhance communities. Canby has been recognized in the leading state newspaper as the most creative and competent cabinet member of the Carper administration.

Before serving as Delaware's transportation secretary, Canby led a consulting practice that focused on institutional and management issues, with particular emphasis on implementation of ISTEA.

She has been treasurer of the Massachusetts Bay Transportation Authority, commissioner of the New Jersey Department of Transportation and deputy assistant secretary of the USDOT. Canby has served on the executive committee or board of numerous transportation organizations, including TRB, AASHTO, and NASTO. She is a member of the Urban Land Institute, ITE's National Operations Steering Committee, and the Women's Transportation Seminar.

She has been recognized for her leadership by APTA, the Association of Metropolitan Planning Organizations, and the Delaware Chapter of the American Planning Association.

Lowell R. Clary is chief financial planner responsible for advising senior management on transportation finance policies and initiatives at the Florida DOT and for the financial management of federal aid that averages $1.5 billion annually. Clary is an experienced state government manager in a wide range of areas, including executive level management, management information systems, finance and accounting, budgeting, federal funds management, revenue collection, bonded debt issuance and management, procurement, personnel management, auditing, federal relations, legislative process, and press relations. He has significant experience in many state program areas, including transportation, health and social services, public safety, education, financial management, and revenue collection. He also is knowledgeable about environmental regulations, professional regulations, community affairs, and law enforcement. He holds a B.A. in accounting from Florida State University, and he is a certified public accountant. Clary is a member of the TRB Committee on Taxation and Finance.

Yuval Cohen is a principal at PB Consult and conducts financial and economic evaluations for infrastructure projects worldwide. As a manager of complex projects involving toll highways and bridges, advanced rail, heavy rail, mass transit, pipelines, air transportation, contaminated materials, and water treatment facilities, his broad-ranging management consulting engagements have included evaluating concession approaches to transportation finance; assessing toll revenue financing and other funding techniques; analyzing rates of return and life-cycle issues; assessing public transit (rail and surface) productivity, cost and operations issues; and assessing development and commercial bank transactions in emerging markets.

Cohen has provided specialized expertise to private lenders, investors, and developers engaged in designing, building, operating, and maintaining transportation facilities; to public agencies considering innovative approaches to finance programs; and to freight shippers (air, surface, and water) affected by regulatory control, deregulation, or privatization. He has managed projects throughout the United States, central Europe, and Latin America and is a recognized authority on concession-based financial portfolios.

Cohen has published widely in project finance and serves on the editorial board of *Project Finance*.

For his undergraduate degree in philosophy, politics, and economics, Cohen was awarded a Barnet scholarship, and he was a memorial scholar at Oxford University in the United Kingdom. He earned his doctorate in economics at Columbia University, with a dissertation under Nobel prize winner William Vickrey on congestion pricing. He has served on the faculties of Rutgers and Adelphi Universities.

Edward J. Corcoran II became affiliated with the Boston firm of Foley Hoag LLP as counsel on November 1, 1999. Corcoran joined the Infrastructure Privatization and Practice Group and concentrates on providing advice to public and private sector clients in the area of infrastructure development. Corcoran focuses on the implementation of innovative financing and procurement strategies for major projects in the transportation and public education arenas, including design–build and design–build–finance methods of project delivery.

Before joining Foley Hoag, Corcoran served as deputy secretary for policy and planning for the Massachusetts Executive Office of Transportation and Construction. In this capacity, he was responsible for the development of strategies for implementing innovative financing initiatives for both highway and transit projects. He drafted authorizing legislation and developed and managed the procurement process for the Route 3 North Transportation Improvement Project, the first design–build–finance transportation project in New England.

Corcoran also served as the deputy commissioner, chief counsel, and right-of-way director for the Massachusetts Highway Department (MassHighway), an agency within the executive office responsible for constructing and maintaining the commonwealth's highway and bridge network.

A graduate of Brown University and Suffolk University Law School, Corcoran is licensed to practice in the state and federal courts of both Massachusetts and Rhode Island. Before joining MassHighway, Corcoran practiced in the Newport, Rhode Island, firm of Corcoran, Peckham & Hayes, PC.

John W. Flora is director of the department responsible for the transportation, urban development, and disaster management and mitigation sectors in the World Bank's central vice presidency for finance, private sector, and infrastructure. He has over 37 years' experience in policy, planning, design, and operations. He began his career in municipal government, where he was responsible for urban transport planning and operations. He subsequently worked for 12 years as a consultant in transportation and urban development to public- and private-sector clients throughout the United States, Europe, east and south Asia, and Latin America. He has served as principal investigator on USDOT research studies and developed and taught urban transport and urban development training courses in the United States and other countries. He joined the World Bank in 1982. He is a registered professional engineer.

Bryan Grote is a principal at Mercator Advisors LLC, a financial advisory consulting firm that helps public and private entities implement financial assistance programs and infrastructure project financings. Grote works with governmental agencies, special purpose organizations, and private firms to access public and private funding sources by synthesizing governmental budgetary and financial practices with capital markets requirements. The firm has a special focus on transportation infrastructure projects and programs.

Before he joined Mercator Advisors, Grote headed the USDOT's Transportation Infrastructure Finance and Innovation Act Joint Program office, where is was responsible for the evaluation and negotiation of more than $3 billion in direct loans, loan guarantees, and lines of credit to support project investments totaling nearly $12 billion. He also coordinated legislative proposals, financial policies, special projects, and new programs as financial policy advisor to the USDOT's assistant secretary–chief financial officer. Grote previously worked on budgetary and policy matters for several federal agencies, including the Congressional Budget Office, the Office of Management and Budget, and the U.S. General Accounting Office.

Grote is a graduate of the University of North Carolina and holds a master's degree in public policy from the University of Minnesota.

Dennis G. Houlihan is on the national staff of the 1.3-million-member American Federation of State, County and Municipal Employees (AFSCME), AFL-CIO. As a member of the union's Department of Research and Collective Bargaining Services, Houlihan advises the union's members and affiliates on labor–management relations, public finance, privatization, and other public policy issues involving transportation, public works, housing, and water and wastewater agencies. He is a member of TRB's Management and Productivity Committee. Before joining AFSCME in 1988, he was the assistant to the director of NAS's Committee on Science, Engineering and Public Policy's Panel on Technology and Employment. He also was on the staff of the U.S. House of Representatives, Subcommittee on Labor Standards. Before moving to Washington, D.C., in 1981, he was a San Francisco–based consulting city planner for local and state governments. Houlihan received a master's in public policy from the University of California, Berkeley, and a B.A. in urban studies from San Francisco State University.

Susan P. Mortel is director of planning and program operations for the Michigan DOT's (MDOT's) Bureau of Transportation Planning. Before assuming that post, she had been assistant deputy director. She is responsible for directing the planning and programming process for MDOT's $1.2 billion capital program, including the development of all major planning products for the department. She also is responsible for directing the day-to-day operations of the Bureau of Transportation Planning.

Mortel is a member of TRB's Committee on Statewide Multimodal Planning and participates regularly on National Cooperative Highway Research Program panels. She is actively involved in support of MDOT's activities in AASHTO and is a past recipient of MDOT's Director's Award.

Mortel has worked for MDOT in positions of increasing responsibility since 1977. She is a cum laude graduate of Bowling Green State University (Ohio) with a B.S. in environmental studies. She has also conducted coursework in the Michigan State University master of public administration program.

Michael A. Pagano is professor and director of the graduate program in public administration at the University of Illinois at Chicago (UIC). Before his appointment at UIC, he was professor of political science at Miami University, where he taught for 21 years. He is author of two books on urban infrastructure and economic development; editor of *Urban Affairs Review*; on the editorial board of several other journals, including *Public Works Management and Policy*; and author of over 50 articles and book chapters on capital budgeting and finance, infrastructure, urban policy, and intergovernmental relations. He writes an annual city fiscal conditions report for the National League of Cities, serves as a faculty fellow for the Great Cities Institute at UIC, and is a member of TRB's Steering Committee for the 3rd National Transportation Research Conference.

William G. Reinhardt is editor, publisher, and owner of *Public Works Financing* (PWF), the oldest subscription-based newsletter in the world covering outsourcing, public–private partnerships in infrastructure development, and innovative finance. Under business journalist Reinhardt's direction, PWF has been in continuous monthly publication since January 1988. Reinhardt started PWF in 1987 after serving on the editorial staff of McGraw-Hill's *Engineering News-Record*. PWF now has 3,500 readers and 44 advertisers in 15 countries.

PWF's focus is on the new business opportunities, politics, regulation, deal structures, legal issues, and people involved in developing, financing, and operating infrastructure projects. These include airports, roads, bridges, rail projects, prisons, seaports, public buildings, and water and wastewater facilities. Such limited-recourse project financings fall under the general category of privatization or public–private partnerships.

PWF's readers now include government budget, fiscal management, and public works administrators; senior executives at most major international construction and engineering companies; 55 of the world's largest law firms; all major global consulting firms; public and private bankers involved in project finance; institutional investors; and the new international class of infrastructure developers.

Reinhardt has received a number of awards for the timeliness and accuracy of his reporting. The National Council for Public–Private Partnerships, the New York Business Press Association, the Atomic Industrial Forum, the Water and Environment Federation, and the New Jersey Press Association have recognized his journalistic excellence in covering energy, environmental, and infrastructure development issues during the past 25 years.

Reinhardt is a member of an ongoing National Research Council (NRC) study group on water privatization in the United States and of a steering committee on innovative finance at TRB. Both groups are part of NAS.

Anthony J. Taormina is an associate at OmniTRAX, Inc., an affiliate of the Broe Companies, Inc., located in Denver, Colorado. OmniTRAX is one of the largest private rail and rail-related operations in North America. In his capacity as director of seaport development, Taormina is responsible for expanding existing OmniTRAX and Broe activities in the area of seaport development through acquisitions, investments, and public–private ventures. From 1975 through May 2002, he served as executive director on three U.S. seacoasts. He was also appointed executive director of the Port of Palm Beach District; executive director, Mississippi State Port Authority at Gulfport; and executive director, Oxnard Harbor District, Port of Huanne. Taormina is a former chair of the TRB Committee on Ports and Channels. He was also a member of the NRC Steering Committee on the Intermodal Challenge: Freight Transportation Issues for the 21st Century.

Vicki L. Winston has served as management services administrator for the Alameda County (California) Public Works Agency since joining the county in November 1999. She is responsible for the financial management of the agency's road and flood zone funds, with an annual operating and capital budget exceeding $100 million. Winston has more than 16 years' experience in the public sector in financial and operational analyses. She holds a B.A. in education from the University of North Carolina, Chapel Hill, and a B.A. in international relations from San Francisco State University and has completed coursework for a master's in public administration and urban studies from San Francisco State University. She is active in her community, serving as president of her neighborhood council, as member and rotating chairperson of the El Sobrante Valley Coordinating Council, on the Steering Committee of the El Sobrante Downtown Revitalization Committee, and as planning commissioner for the city of Richmond, California.

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