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*May 5–7, 2002
Portland, Oregon*

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Preface

In May 2002, more than 200 transportation and economic development experts assembled in Portland, Oregon, to participate in the Transportation and Economic Development 2002 Conference (TED2002). TED2002 was designed to provide transportation, economic development, and planning professionals with a broader understanding of the most timely and important issues in the linkage between transportation and economic development.

The conference was organized by the Transportation Research Board (TRB) Committee on Transportation and Economic Development (A1A06). A number of organizations were supporting sponsors of the conference, and we gratefully acknowledge their support and encouragement: the American Association of State Highway and Transportation Officials (AASHTO), the Appalachian Regional Commission (ARC), the Federal Highway Administration (FHWA), and Nick J. Rahall II of the Appalachian Transportation Institute at Marshall University.

We particularly thank Terry Gotts of the Michigan Department of Transportation (DOT), who proposed that AASHTO sponsor the conference, and Sandy Straehl from Montana DOT, who chaired the committee that provided support. David Williams from Oregon DOT served as local liaison on behalf of AASHTO. We also greatly benefited from the involvement in the conference of the Rahall Transportation Institute at Marshall University in West Virginia, represented by Richard Begley and Robert Plymale. Marshall University, led by Michael Hicks, organized the preliminary and final collections of papers. Finally, we greatly appreciate the support of the ARC (Greg Bischak) and FHWA (Martin Weiss) and the added perspectives they brought to the conference.

A number of cooperating sponsors assisted with publicizing the conference and provided many suggestions for topics and recommended speakers: American Planning Association, Association for European Transport, Association of Metropolitan Planning Organizations (MPOs), ASCE Committee on Urban Transport and Economics, CODATU Urban Transport for the Third World, Eno Transportation Foundation, International Economic Development Council, National Association of Development Organizations, National Association of State Development Agencies, Transportation Association of Canada, Institute for Urban Systems, City University of New York, Department of Civil Engineering Systems at Kyoto University, and the Urban Transportation Center at University of Illinois at Chicago.

The conference planning committee was cochaired by Michael Bell, MEB Associates; Glen Weisbrod, Economic Development Research Group; and Norman S. J. Foster, Minnesota Department of Finance.

TRB's staff organized the logistics of the conference in their usual superb way. In particular, Jon Williams guided the conference from its earliest conception. From NCHRP, Ron McCready coordinated the funding that AASHTO provided. At TRB, planning for the conference arrangements was handled by Linda Karson and Bruce Millar, together with Claire Felbinger. Miriam Roskin of Roskin Consulting prepared this summary document of the conference proceedings on behalf of TRB.

Other planning committee members were Adjo Amekudzi, Georgia Tech; Nilam Bedi, Ontario Ministry of Transportation; Richard Begley, Rahall Transportation Institute, Marshall University; Greg Bischak, ARC; Stewart Butler, Volpe National Transportation Systems Center,

U.S. DOT; Randy Eberts, W.E. Upjohn Institute for Employment Research; Abe Farkas, Portland Development Commission; David Forkenbrock, Public Policy Center, University of Iowa; Ed Gilliland, International Economic Development Council; Terry Gotts, Michigan DOT; Peter Hawley, American Planning Association; Jay Hagle, New York DOT; Jacqueline Llanos, INRETS; Shirley Loveless, Coleshill Associates; Janet Oakley, AASHTO; Neil Pedersen, Maryland DOT; R. Leo Penne, AASHTO; Robert Plymale, Rahall Transportation Institute, Marshall University; Ron Poole, formerly North Carolina DOT; Robert Ritter, Eno Transportation Foundation; Michael Sexton, Carter & Burgess; Martin Weiss, FHWA; and David Williams, Oregon DOT.

The 2002 conference was a follow-up to a similar gathering on “Transportation and Economic Development” that was held in Williamsburg, Virginia, on November 5–8, 1989. Proceedings from the 1989 conference were published by TRB as *Transportation Research Record 1274* (1990). A number of people were involved in planning both the 1989 and 2002 conferences, including Stewart Butler and David Forkenbrock, and among the speakers at both conferences were Glen Weisbrod, Michael Bell, and George Hazel.

The conference covered a variety of themes related to the crosswalk between transportation and economic development. Some sessions and speakers focused on rural development, with an especially close look at the role of the Appalachian Development Highway System in addressing the rural poverty that characterized pockets of Appalachia throughout much of the 20th century. Another series of sessions explored the overlap of transportation and economic development in major urban areas throughout the world, including Paris, Mexico City, and London.

Other speakers focused on various aspects of causation; while speakers and attendees generally recognized a correlation between transportation and economic vitality, a number of speakers discussed the roles of benefit–cost analysis, new econometric modeling tools, and case studies in exploring the actual causal relationship between forms of transportation investment and improved economic productivity. Additional speakers broadened their exploration of transportation investment’s impacts to address the capacity of strategic investments to build social capital by considering principles of environmental justice and seeking environmentally and socially conscious investment decisions to implement principles of sustainability and improve low income individuals’ access to health care, work opportunities, and educational opportunities.

Most speakers based their presentations on papers they had prepared prior to the conference. The complete text of these papers is available at <http://www.ted2002.com>. In contrast to the full compendium of papers, this document provides a synopsis of each speaker’s remarks. As such, it serves as an executive summary for the full 3-day conference.

Michael Bell
MEB Associates

Glen Weisbrod
Economic Development Research Group, Inc.

Norman S. J. Foster
Minnesota Department of Finance

October 2002

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PLENARY SESSIONS

Plenary 1: A Relationship Under Stress

A SMART GROWTH PERSPECTIVE

Earl Blumenauer

U.S. House of Representatives

As early as the 1970s, ordinary citizens throughout the Portland, Oregon, area began mobilizing in opposition to certain highway projects that would have had severe negative impacts on their communities. In part because of these citizen-led movements, Oregon was the first state to institute a comprehensive statewide land use planning process that required each square inch of the state to be zoned and mapped. Indeed, 20 years before the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) became the law of the land, the state of Oregon passed legislation mandating a statewide, comprehensive, multimodal transportation plan.

The perspective that drove this statewide approach to transportation planning is evident from a look at Portland's downtown. Light rail and buses have become an essential component of mobility throughout the downtown, and at times more than 40% of commuters arrive downtown by transit. A decision to build a freeway loop around the downtown allowed the city to remove six lanes of highway immediately adjacent to the river and replace them with 37 acres of waterfront park. Suddenly the riverside became a place that people went to—rather than drove through.

Parking policy in downtown Portland is another area in which careful planning has paid great dividends. First, the city limited the amount of downtown parking to just shy of 50,000 spaces; contrary to many peoples' expectations, property values did not decline. In fact, the parking limits turned out to be a good deal for developers because they could avoid the expense of building structured parking and could capitalize on lucrative new redevelopment opportunities on the sites of former surface parking lots. Next, the city decided not only to limit parking but also to actively manage it. The city owns much of the downtown parking, while the downtown business association operates the lots and uses a share of the revenues to support a variety of downtown activities. The city's management policies include a 4-h limit on low-cost parking in city-owned garages, with hourly rates increasing thereafter in order to discourage commuters. The parking rate at meters is set at a rate higher than the 4-h rate in the garage to prevent people from endlessly circling the block to seek out vacant street parking.

The upcoming session of Congress will begin work to reauthorize Transportation Equity Act for the 21st Century (TEA-21). The existing legislation is pretty good, and many representatives will be looking to extend its community-friendly characteristics. One basic principle that many of my colleagues and I support is an emphasis on fixing rather than extending existing infrastructure. Another proposal calls for establishing a funding category to support mixed-use redevelopment along old state highways that have been largely superseded by the Interstate system. Environmental provisions that eliminate fish-killing culverts; using street trees and roadside plantings to reduce roadside maintenance costs; and redesigning roads to respect wildlife corridors are all strong prospects. And, as Portland has experienced firsthand, a continued focus on metropolitan planning and community-based decision making will help ensure that a range of transportation investments supports healthy and economically vibrant communities.

A BUSINESS PERSPECTIVE

Looman Stingo

Senior Vice President for Logistics

Holcim, Inc.

Holcim is one of the largest cement manufacturers in the United States. As such, it is a heavy user of the nation's transportation system. With 12 plants and more than 50 distribution terminals in the United States, the firm makes about 600,000 shipments per year via road, rail, barge, and ship. Industrywide, the expense to move all of this cement is about \$2.5 billion per year; after manufacturing, transportation is the industry's second largest expense.

Holcim is currently in the permitting process for a new plant in St. Genevieve County, Missouri, and this plant siting decision offers an excellent example of the link between transportation and economic development. When the plant is completed, it will employ 200 people. Annual salary payments will be about \$10 million. Approximately 530 spin-off jobs are anticipated, and additional personal income in St. Genevieve and Jefferson counties is estimated to grow by \$24 million. Overall, the state will get \$31 million in additional tax revenues.

The availability of good transportation options factored heavily into Holcim's siting decision. The plant will annually produce about 4 million tons of cement that will be shipped out by barge, rail, and truck. In addition, raw materials have to come into the plant. Altogether, it is estimated that outbound transportation will cost about \$40 million per year and inbound transportation will cost the firm about \$15 million per year. Given the major investment in building a plant like this, it is essential to use economical transportation to keep those costs in check while still moving the product to distant markets. St. Genevieve has the benefit of easy access to inland waterways, which is critical because the firm relies so heavily on barge travel.

Looking at public policy priorities, the industry needs federal funding for both efficient inland waterways and railroad infrastructure. The nation's harbors need dredging, especially because some of the new generation of container vessels cannot even access our ports. Attention to intermodal connectors—truck to rail, rail to port—is essential as well. With trade projected to double by 2020, it is more important than ever that planners, businessmen, engineers, and environmentalists come together to work on ways to improve freight mobility.

A STATEWIDE PERSPECTIVE

Tom Stephens

Director

Nevada Department of Transportation

ISTEA was landmark legislation that helped stabilize the federal-aid highway program, empowered local government as a partner with state and federal governments, and created much more opportunity for cooperation and consultation with the public. TEA-21 continued these trends but also made a quantum leap forward in terms of funding levels and, via the creation of budgetary firewalls and the Revenue-Aligned Budget Authority (RABA), ensured that federal fuel and related tax collections would actually translate into the funding apportionments and allocations distributed annually to the states.

Since its inception, the federal-aid highway program has been federally funded and state administered. This means that once funds are distributed by formula to the states, correct decisions on how to spend the money are left to the recipients. This began to change somewhat with ISTEA, which placed some restrictions on states' allocation decisions. For example, the legislation directed that certain spending decisions from the Surface Transportation Program be

delegated directly down to MPOs, instituted a 10% set-aside for the Transportation Enhancement Program, and created a 10% set-aside for safety-related projects.

States' prioritization of alternative investment choices has always been difficult. One of the most complex decisions revolves around urban and rural claims on scarce resources. In Nevada, 90% of the population lives in two urbanized counties. And yet only 52% of Nevada's highway spending funnels into these areas. Although this allocation is not necessarily intuitive, the fact is that all roads may lead to Rome, but not all roads are in Rome. But even when there are good reasons for the choices made, politically these choices can be very difficult. Moreover, when tight boxes are drawn around different pots of federal funding, competition within those boxes becomes more fierce, and it is even more challenging to make these choices.

As the reauthorization of TEA-21 approaches, it can be expected that most of the debate will center on money: Funding levels, firewalls, refinement of RABA, financial plans for megaprojects, an assessment of the revenue impacts of the existing ethanol subsidy, and expansion of innovative finance opportunities are just a few examples of important issues to address.

In my view, the reauthorization debate should also recognize the critical role of the states. Historically, our nation's surface transportation system has been managed at the state and national levels. Today, the justification for this approach is as strong as ever. Great dangers attend the growing balkanization of the federal program; a fragmented approach is inherent in the proposals by municipal areas for a much larger designated share of the federal program and by the rural counties to get much more control of the highway program. In my experience, most local officials have little appreciation for the interconnective nature of the nation's transportation system, and their perspective spans a much shorter time horizon than does the perspective from the state level of government. Many local governments also lack the expertise needed to carry out a cost-effective highway maintenance program, resulting in decisions akin to not repainting a house until the old paint is already peeling. States are in a unique position to address interconnectivity issues by such actions as addressing rural bottlenecks and applying a long-term perspective that supports adequate investment in maintenance. In the long run, abandoning interconnectivity and reducing maintenance expenditures would have a very negative impact on the economy.

PLENARY SESSIONS

Plenary 2: A New View for the 21st Century

TEN KEYS TO USING TRANSPORTATION INVESTMENTS TO PROMOTE ECONOMIC DEVELOPMENT

David J. Forkenbrock

Director

University of Iowa Public Policy Center

This presentation focuses on a variety of ways to more accurately assess economic development benefits of proposed transportation investments. The link between transportation and economic development primarily revolves around the capacity for new investments to lower the transportation costs borne by businesses and individuals. In this way, an investment in a highway or other facility improves productivity because it enables more product to be produced per dollar spent on inputs. That results in economic development—simply defined, a case in which income and product generated in an area increase.

There are three basic types of transportation cost savings: (i) travel time savings, (ii) accident cost savings, and (iii) vehicle operating cost savings. Environmental cost savings could also be included in light of reductions in pollution and greenhouse gas emissions that result from traffic congestion. There are two cautions to keep in mind. First, actual net gains to society as a result of transportation investments should be distinguished from mere shifts in economic activity from one location to another unless, of course, a business may substantially improve its productivity by changing locations. Second, the benefits must be gauged in light of the resources devoted to the project; an efficient decision requires that benefits exceed the resources consumed to arrive at those benefits.

Transportation is but one factor of production in making economic development happen; it can be viewed as a necessary but not sufficient condition for growth. Let me suggest 10 fundamentals for helping transportation investments' capacity to have a positive effect on an area's economic competitiveness.

1. Improvements in reliability. Traditional investment analyses typically look at the change in the average travel time between an origin and a destination. But increasingly, businesses recognize that reliability—or minimal variations between anticipated and actual delivery dates—is of greater significance from the standpoint of gains to productivity.

2. Transportation-intensive industries. For some industries, transportation can be substituted for other goods in the production process. In others, transportation is the most critical input that bears directly on the industry output. A clear understanding of the unique value of transportation to the industry in question is a critical determinant of the value of transportation investment.

3. Intermodal effectiveness. Traditional analyses have usually focused on travel time cost savings generated by improvements within a particular mode. A consideration of the cumulative rather than mode-specific cost savings is a better indicator of the cost-effectiveness of the proposed transportation facility.

4. Safety improvements. My own analyses indicate that about 5.7% of trucking costs and a little over 16% of freight rail costs are related to accidents and crashes. Lowering accident costs is a very logical way to reduce transportation costs borne by society and therefore to improve economic competitiveness.

5. Construction incentives. The long delays that often occur at construction sites are a major drag on personal and freight mobility throughout the nation and thus a major barrier to economic productivity. There are few more cost-effective ways to spur economic productivity than incentives to construction companies to complete renovation, rehabilitation, and reconstruction projects ahead of schedule.

6. Environmental justice. The purpose of environmental justice is to ensure that the adverse impacts of construction do not fall disproportionately upon low-income populations or minority populations. I would argue that the disharmony and economic deprivation effected by these disproportionate impacts are anything but conducive to a positive business climate. At the same time, investments that support mobility in these same areas can be a very effective social policy lever to raising incomes.

7. Land use planning. Land use planning efforts that produce fewer and shorter vehicle trips can go a long way toward minimizing transportation costs. As the mayor of Milwaukee has said, curbing congestion by adding more freeways is like combating obesity by buying a bigger belt.

8. Preexisting factors. Perhaps the most compelling argument for transportation investments occurs when all other critical contributors to economic development are present—elements such as cost-effective labor, natural resources, and other infrastructure. When access or mobility improvements complement these preexisting factors, transportation investment can serve as an especially powerful catalyst to economic growth.

9. Level playing field. Comparing the economic merits of alternative transportation investments can be very difficult to do well. One alternative may involve external costs such as air pollution, noise, greenhouse gas emissions, or accidents. Another may receive special government subsidies. No true comparison can be made without acknowledging the full range of costs and benefits—including those that may be unique to only one of the alternatives.

10. Systemwide efficiencies. Evaluating the productivity gains of a possible transportation investment in isolation may understate the overall effects the investment would have on improved accessibility and the reduction of transportation costs. We as transportation analysts have not become very good at assessing overall systemwide effects of a single project, but in time I am hopeful that we will become more adept at evaluating these very real effects.

MAKING THE REAUTHORIZATION CASE

Alan E. Pisarski

Consultant

Making the case for increased levels of transportation investment needs occurs at all levels of government. At the federal level, the ground rules for making this case are beginning to shift and will surely look different in the future. As we look at some of the great outcomes that the infusion of TEA-21 resources has produced, it can be seen that by the end of 2003 we will have reached that level of funding adequate to maintain the existing highway and transit system—at least theoretically—per the FHWA's most recent condition and performance report. In the past, the resource level targeted to system maintenance has always been 30% or 40% short of estimated funding needs. Even less reachable was the estimated cost to improve the system's condition and performance, which was often double the current levels of spending.

What all this means is that dire arguments indicating imminent system failure—bridges falling down and so forth—will not work anymore. Program advocates are going to have to learn a new way to talk about the highway and transit programs in making their case. No less a personage than Frank Turner said some years before his death—when you go to the Congress with a “sky is falling” argument, you might get away with it twice, but by the third time members of Congress will rightly ask what you did with the money you received the other two times.

Though we cannot make the case for engineering failure of the system, we certainly can make the case for economic failure. We are close to a modeling system that can expand our understanding of the interplay between transportation investment and economic performance. More research can carry us forward to an improved condition and performance report that captures a broader spectrum of investment outcomes. But research cannot do it alone. New mechanisms are needed for evaluating and justifying transportation investments and policies. New tools are needed to explain the basis for investment decisions to the public. We have to tell the story to the American people and tell it well.

21ST-CENTURY LINKAGE BETWEEN TRANSPORTATION AND THE ECONOMY

Francis B. Francois

Consultant

Before addressing 21st-century linkages between transportation and the economy, let us first consider the progress made in the 19th and 20th centuries. During the 19th century newly constructed roads, canals, and railroads allowed the United States to expand from states hugging the coast of the Atlantic Ocean to all of the land between the Atlantic and Pacific. Ships connected the United States to other nations around the world, and the telegraph and telephone were invented and served as means for nearly instant communications around the globe.

The 20th century added air transportation and pipelines to the transportation system, a highway system that extended personal and commercial motor vehicle travel to all portions of the nation, and containerized shipping. Also, the nation benefited from radio and television communications, space travel, the development of satellites to provide communication and geographic positioning capability, and the invention of computers and the birth of Internet communication. All of these innovations produced positive economic impacts for the nation and helped to develop today’s industrial America. I believe that transportation developments in the 21st century will again produce positive economic impacts.

What transportation challenges and new concepts will we see this century? There will be changes we cannot remotely envision now, just as in 1900 no one foresaw the aviation industry, space travel, and satellites. But using my 20th-century vision, some possible changes I see are

- Elevated highways, perhaps with trucks and cars on different levels;
- A shift from petroleum to new fuels, probably hydrogen-based;
- Increased globalization of goods, services, and travel;
- Introduction of new transportation security measures;
- A look at new institutional arrangements and revenue concepts;
- Automated highways;
- New policies to minimize contributions to global warming and other environmental concerns;
- Low-cost transmission of electricity; and

- A shift to nanotechnology for manufacturing, thus eliminating the need for much freight transport.

This is a starter list. If this meeting is held again in 2102, we can be sure the agenda will be filled with items that are beyond our current grasp. We can also be sure that transportation and economic development will still be linked.

WILL THE 21ST CENTURY SEE THE “END OF AUTOMOBILITY”?

James A. Dunn, Jr.

Department of Public Policy and Administration

Rutgers University–Camden

If a conference on transportation and economic development in the 20th century had been held in 1901, few experts would have predicted that the mighty railroads of the day would be largely superseded by highways and airlines by the year 2000. Most attendees would have focused on what we now know were relatively minor technical, regulatory, and financial issues. They would have missed the revolutionary implications of new technologies and would not have foreseen the modal shift from a rail-dominant pattern of concentrated settlements to an automobile-dominant dispersed pattern.

Are we in danger of making the same mistake today with the apparent dominance of the automobile and highway system? Are there any overlooked factors in today's world that could produce a modal shift away from the automobile? Past modal shifts (such as railroads' overtaking of canals) required increased inputs of land, energy, and capital; they produced greatly increased outputs of mobility and spatial relocation. Most new technologies foreseeable today (such as cheaper, more convenient electronic communications) will continue to disperse jobs and people. What factors could produce a return to concentrated settlements and renewed reliance on collective forms of travel large enough to amount to a modal shift away from automobiles? According to many critics, a combination of resource depletion, global climate change, and a paradigm shift in environmental values will bring about the end of automobility as we know it. We cannot definitively rule out this scenario. But in view of the long history of predictions of disasters that never happened, a large dose of skepticism is warranted. Steady improvement in the environmental and energy performance of automobile technology represents a far more likely future.

PLENARY SESSIONS

Plenary 3A: Oregon's Economic Development Policies and Programs from the Points of View of Two State Departments

Bill Scott

Director

Oregon Economic and Community Development Department

As Oregon's economy began to shift away from forest products in the 1980s, the state developed a program to boost its economic competitiveness. The program comprised three strategic components: a commitment to a high-quality workforce, an emphasis on the quality of life in the state, and a global mindset in which good international connections and a commitment to overseas markets would be emphasized. These three strategies were supplemented by three supporting initiatives: business friendliness, in the form of sensible regulations and business taxes; the forging of partnerships between industry and the public sector; and the presence of sufficient and effective infrastructure.

The key was to diversify employment opportunities in both urban and rural areas, and Oregon aggressively—and successfully—made overtures to the high-tech sector. In fact, the state now has one of the largest centers of the semiconductor industry in the world. How did Oregon get that level of interest? The quality of the workforce and quality of life were very important, but infrastructure was critical as well. Oregon's land-use planning system dates back to the 1970s and drove many important transportation investment decisions: a light rail system in Portland, suburban highway improvements, new interchanges on U.S. Highway 26, visionary investments in the water system, and wise zoning choices.

These investments were supported by good networking, as diverse groups with common interests joined together to identify solutions to pressing problems. New financing models were also important; the state has developed many initiatives designed to help local counties access the public debt markets. Targeted tax relief has also been key to Oregon's successes.

A few words on the Oregon Economic and Community Development Department: It has a staff of 147 and spends about \$200 million per year. About 85% of that spending represents direct investment in local infrastructure and facilities. The department also does a lot of troubleshooting; for example, it spends a good bit of time helping companies navigate the permitting process.

The continuing disparity between the state's urban and rural economies remains an ongoing challenge. However, we are beginning to have some success in attracting major manufacturing employers into rural counties. We have found that the electronics and software industries are especially interested in airfreight and access to Asia. (This represents a real challenge to us because flight technology has advanced to the point such that planes can fly directly from the East Coast of the United States to Asia without stopping in West Coast locations.) Traffic congestion is also a big concern, especially when it comes to getting goods and people to the airport in a timely way. Freight mobility and congestion are big concerns for the metals industry. The forest products industry is additionally concerned about weight limits on deficient bridges. The agricultural and food-processing industries concern themselves with

access to the Columbia River shipping channel. New environmental initiatives may jeopardize the ease of access, and identifying the right balance between multiple uses of the river is a difficult task.

Bruce Warner

Director

Oregon Department of Transportation

Oregon places heavy emphasis on transportation planning. The state has made a special effort to include economic development in its planning processes; in fact, economic development is one of the four overriding goals in the state transportation plan. A good example of how planning translates into a specific project involves the Interstate 5 corridor—an alignment that at times carries 25% of all imports and exports in the United States. The state is nearing conclusion of a major study to find solutions to the congestion and bottlenecks in this corridor. The study is producing a multimodal solution that would widen the existing bridge spanning the Columbia River, extend the light rail system to improve systemwide connections, and address port-to-port movements. Analysts are also recommending that land use management plans be consistent with investment decisions along the corridors.

Planning is one component of the work, but careful selection of programs and funding opportunities plays an important role as well. A few years ago the state legislature passed the Oregon Transportation Improvement Act, which increased title and other vehicle fees sufficiently to raise \$400 million in bond proceeds. Because of low interest rates and the positive state of the economy, the state was able to sell bonds totaling \$500 million. By leveraging another \$100 million or more from other fund sources, the state is positioned to make significant investments that will create jobs and produce long-lasting economic productivity gains. Other funding actions include new rail investment, including lottery-backed bonding that will upgrade certain lines so that they can accommodate new, heavier vehicles. A third funding opportunity to highlight is the \$30 million Immediate Opportunity Fund, which is available to attract and retain businesses through construction and improvement of state highways or local roads.

The ill effects of transportation deficiencies are especially apparent and quickly realized during economic slumps, making this an especially important time for the state to develop sound solutions to these and other challenges. To that end, the state is currently confronting a series of ongoing challenges. These include the condition of certain bridges; some have weight restrictions that might necessitate detours of up to 150 mi—with the outcome being 1,500 trucks going through otherwise quiet communities each day. The price tag to upgrade those bridges in the Interstate 5 corridor alone could be around \$700 million, so this is not a minor challenge. Investment in rail infrastructure presents another challenge. State law requires that all fuel tax receipts be spent on highways. Accordingly, the state DOT has a task force in place to consider alternative and more flexible revenue sources, including vehicle-miles-traveled taxes and tolls.

PLENARY SESSIONS

Plenary 3B:

Alternative Views on Transportation and Economic Development *Views from the Private Sector and Local Economic Development Community*

DON'T LET THE ECONOMY PASS YOU BY: TRANSPORTATION NEEDS IN THE 21ST CENTURY

Karen Goddin

Executive Director

Pacific Northwest International Trade Association

Transportation and economic development officials have a firsthand view of the linkage between sound infrastructure investments and economic vitality, and this link is no less apparent to those of us in the Pacific Northwest International Trade Association. The example of Nike, headquartered in Beaverton, Oregon, underscores the relationship nicely. The firm is the world's largest seller of athletic footwear and apparel. Annual sales exceed \$9.6 billion, and Nike sells its products to more than 19,000 retail accounts in the United States and in more than 140 countries worldwide. All the footwear is produced overseas, meaning that the company imports approximately 17,000 40-ft containers of finished products into the United States each year. Some containers come via the East Coast, but the majority come through the ports of Los Angeles–Long Beach, Seattle–Tacoma, and Portland. Without an efficient and large-scale transportation network, the company would not be as successful as it is.

The manufacturing sector and high-technology field also have high expectations for the speed and reliability of shipments, and the use of technology has heightened these expectations. Many products are dependent on multiple modes of transport—air, sea, road, and rail—and smooth connections between the modes are essential as well. Logistics has taken on increasing importance, and indeed, transportation and logistics account for 20% to 25% of today's production costs. Much of the dependence on transportation stems from just-in-time business models. The average daily delivery time today is 2 to 3 days versus a full month some 30 or 40 years ago and 10 days in 1980. This changing business environment is putting unprecedented pressure on the transportation system and compels us to keep up with unprecedented demands.

Oregon is perhaps unusually reliant on trade. The Portland–Vancouver (Washington) metropolitan area is the 22nd largest population center in the United States, but it ranks 10th in trade volumes. The metropolitan area is the second largest wholesale trade hub on the West Coast, and almost 60% of Oregon's jobs are in transportation-dependent businesses. But even if Oregon represents an extreme case, national trends also indicate the ever-increasing economic importance of trade and access to global markets—as well as the increasing importance of substantial investment in the infrastructure that makes trade possible.

HOW ECONOMIC DEVELOPMENT RELATES TO TRANSPORTATION: A LOCAL ECONOMIC DEVELOPMENT PERSPECTIVE

Robin Roberts

Governor's Regional Coordinator

Metro/Northwest, Portland, Oregon

From a local practitioner's perspective, economic development is one of four facets that contribute to the broader goal of community development. The full scope of community development comprises social, political, natural, and economic aspects. The trick, of course, is to get all four of these to fire—and to fire in sequence. Transportation is one of the tools that influence development in all of its forms.

Of course, partnerships between local economic development practitioners and transportation practitioners are critical to favorable outcomes. In general, the work of these partnerships rests on five principles: (i) infrastructure is necessary to stimulate economic development; (ii) location and access to infrastructure have a direct impact on costs; (iii) some infrastructure, such as airports, may be shared by multiple communities for the sake of efficiency; (iv) communities need to monitor the status of infrastructure to ensure timely capacity upgrades to meet future commercial and industrial needs; and (v) infrastructure improvement requires long lead and cycle times.

Given those assumptions, how do economic development practitioners go about their work? First, it is essential to realize how quickly business siting decisions can be made and that, therefore, having all necessary services in place prior to seeking a business location decision is important. Ten years ago it might have taken 2 to 3 years for a company to make a decision of that magnitude. Today, companies might make the decision in as few as 2 to 3 weeks. A second guideline is to be realistic and seek out only those industries that can be accessed; market research is critical. Third, early development of collaborative partnerships between the economic development and transportation practitioners is essential. In some locations, and especially in Oregon, land use specialists should be involved in the discussion early, because any necessary zoning changes cannot be made overnight.

Although advance planning is extremely important, communities should also have tools in place that will allow them to capitalize on last-minute opportunities. Oregon's Immediate Opportunity Fund is an example of one such tool. We have seen several cases in which communities have had everything in place to support a business relocation—with the exception of an interchange upgrade necessary to get trucks in and out. Having a ready source of funding for projects of this sort is very helpful.

PLENARY SESSIONS

Plenary 4: The Way Forward

R. Leo Penne

*Program Director, Intermodal and Industry Activities
American Association of State Highway and Transportation Officials*

Probably we all arrived at this conference with a recognition of the complexity in coordination of transportation investment and economic development. I have walked away with a view that such coordination and the relationships between transportation and the economy are considerably more complex than I had previously thought.

The multiple levels of government involved lend to the complexity, especially as even local economies are becoming increasingly globalized. Another layer of complexity derives from the presence of constantly changing market circumstances. Most transportation investments are fixed in nature, but often, by the time projects are built, the economy looks significantly different from how it looked when plans for the project were first on the drawing board. Given these changing circumstances, we need to admit that even if we know that transportation investment can yield economic impacts, it is doubtful that we can use transportation investment to produce specific outcomes because the world is much less controllable and less predictable than that. Finally, investment choices are further complicated by the burden of history. We have a set of systems in place that are rooted in history and not necessarily related to today's society, economy, or population distributions. Without a clean slate, investment choices become even more difficult.

This conference has been a great success, in large part because it has helped to pave the way for reauthorization of TEA-21. As always, the issue will be funding: how much, who gets it, and how can they spend it. But I am strongly of the view that the more you fight about money the less there is to go around. AASHTO is advocating a largely stay-the-course approach, though a number of refinements to current law would be helpful. In the area of freight, which is my area of emphasis, AASHTO's specific recommendations include increased research funding to permit a greater focus on freight mobility issues, creation of a freight advisory group for the U.S. DOT, new innovative financing opportunities for freight-related projects, clarification of freight projects' eligibility for funding under the Congestion Mitigation and Air Quality Improvement Program (CMAQ), and increased funding for the Section 130 grade-crossing program.

Greg A. Bischak

*Senior Economist
Appalachian Regional Commission*

An especially interesting theme arising from this conference has been the amount of thinking that focuses on the extent and composition of demand for transportation. On a world scale, excluding the United States, Appalachia would rank 15th internationally in terms of gross domestic product; so, for me, the Appalachian experience provides an interesting lens through which to view changing trends in transportation demand. The predominant trend that characterizes the Appalachian region is a shift to the service sector, and perhaps more important, to a high-end, value-added service economy, as opposed to the low-end, burger-flipping service economy. We

are looking at a simultaneous decline in nondurable goods production, with plant relocations to other countries increasingly becoming the norm. In the areas of durable goods and high-tech manufacturing, it is likely that, while the share of such manufacturing may decline in our economy, absolute volumes are likely to grow and to continue driving demand for transportation. In another trend, the high-end professional business services that increasingly characterize our economy elicit a significant demand for air transportation, because even in a world of e-communications, face-to-face operations are very important.

Several other important trends are afoot. Regionalism is one. The transportation needs and asset bases found in nonmetropolitan America are very complex. This complexity, coupled with the productivity possible in such areas, makes it essential for us to look at opportunities for dispersing our national economy in sensible ways. The aging of America is another clear trend, with access to health care taking on increasing importance. And the types of automobiles we drive and fuels we consume are other areas that are clearly in motion, though none of us can specifically predict what the future holds. It is certain, however, that at the beginning of the 22nd century our followers will look back and see that the automobile industry and the fuels they rely on are entirely different from what they were at the time of this conference.

Randall W. Eberts

Executive Director

W. E. Upjohn Institute for Employment Research

The relationship between transportation and economic development provides just another example that transportation investment is always a means to a greater goal and not simply an end in itself. This notion of transportation as a means to an end is especially apparent when one considers transportation infrastructure from the standpoint of an economic developer. Although economic developers look at a variety of incentives to attract businesses or otherwise influence positive economic outcomes, transportation is surely one of the most important of the arrows in their quiver.

Simply stated, economic development occurs when the income and products generated within a region increase. But, as an objective, economic development must also be interpreted broadly, to represent such things as quality of life, environmental preservation, sustainability, and environmental justice; indeed, economic development has not only an economic dimension but also social, political, and environmental dimensions. Consideration of these multiple dimensions must occur at all levels of government. For these reasons, transportation investment decisions require not only sound engineering but also advocacy and coalition building.

These investment decisions take place in a dynamic atmosphere. Transportation infrastructure is largely permanent, but the economy is always changing. As a result, communities must constantly adapt and reinvent themselves. Ultimately, infrastructure is less important than the “right of passage,” and all decisions must be made in the context of changing demand and supply patterns, demographic shifts, time and spatial preferences, urban congestion, and land use patterns. The continued development of sophisticated analytic tools can help clarify certain trade-offs between complex investment decisions. But, regardless of the analytic tools at our disposal, the multitude and complexity of considerations that affect the relationship between transportation infrastructure and economic development in all of its forms demand that planners from different levels of government and sectors of the economy work together to apply sound judgment and broad perspectives to these decisions.

CONCURRENT SESSIONS

Session 1:

Evolution of Rural Development Corridors

BRIEF HISTORY OF INTERSTATE-ERA TRANSPORTATION AND ECONOMIC DEVELOPMENT

Martin H. Weiss

*Principal Official for the Economic Development Highway Initiative
Federal Highway Administration*

Between the peak of the Interstate construction era and today, the number of new linear center lane miles of Interstate-type highway added each year has decreased. In that former time, a typical year saw a few thousand miles added; in the more recent time, a few dozen were added. During this time period, a number of studies, analyses, and modeling efforts, as well as new statutory and regulatory directions, have yielded a common understanding on a variety of issues related to highway economic development. These include some fairly obvious findings on the desirability of productivity increases, the fact that the freight industry wants more freight-oriented projects, that economic development generally does not begin until after highway improvement is completed, and that bypasses are neither saviors nor destroyers but generally have a modest positive economic effect after about 2 years for urban areas with populations exceeding 5,000.

Some not so obvious findings are that counties and parishes are a useful domain for analysis, that economic development effects in urban areas are typically more difficult to analyze than those in rural areas, that elected officials are willing to legislate funding for economic development highway projects even in cases in which project completion is still decades away, and that some nonhighway programs can enhance the benefits of highway-related economic development. FHWA has a number of activities underway, some internally conceived and some required by Congress, to further improve the state of the practice in this area.

RURAL TRANSPORTATION ACCESS AND HEALTH SERVICES

Aurelia Jones-Taylor

*Chief Executive Officer
Aaron E. Henry Community Health Service Center*

The Delta Area Rural Transit System (DARTS) opened in 1990 with just two minivans. The primary objective was to provide access to medical services offered at the center's various clinics up to 75 mi away. Medicaid was the primary payor for the service. On the basis of the center's success in providing access to health care, it expanded the system to transport people to job opportunities. With the expansion into job-access transportation, the center applied for and won funding from the Mississippi DOT in 1993. As its relationship with the Mississippi DOT grew, it jointly applied for funding and was able to purchase larger and more durable vehicles and improved communications systems; it was also able to establish automatic routing and institute more training and technical assistance.

Over the years, the center's fleet has grown to 24 vehicles. A new federal award of \$1.2 million will enable it to purchase an additional 17 vehicles while simultaneously reducing its dependence on the state DOT. Since 1996, the center has increased ridership from approximately

80,000 one-way trips to more than 200,000, generated over \$500,000 per year in farebox revenue, and maintained human service contracts totaling \$3 million annually.

These successes do not mean that the center is free from challenges. From a systemwide perspective, it is constantly struggling to contain costs, keep its rolling stock in good working order, educate politicians on the value of the service and the need for a reliable funding base, maintain an adequate market share, and connect to people in even more remote rural areas. From a service perspective, it constantly works to improve efficiency and increase frequency between routes, develop additional routes, improve coordination and collaboration among its partners, and streamline operations to reduce its operating costs.

Confronting these challenges is well worth the effort. The center genuinely believes that its health-related programs are economic engines for underserved communities, and that transportation to these programs is an indispensable component of the overall mission. Consider that in the town of Tunica, the teen pregnancy rate fell from first to eleventh in the state in 2001. This is the kind of success that empowers the community and lays the groundwork for significant and long-term gains, not only for the region's but also for the nation's economic well-being.

TRANSPORTATION FOR DEVELOPMENT IN APPALACHIA

Edward A. Terry

Senior Transportation Planner

Appalachian Regional Commission

Congress established the Appalachian Regional Commission (ARC) to promote economic and social development in the Appalachian region, which encompasses all of West Virginia and portions of 12 additional states from southern New York to Alabama. By the 1960s, one in three Appalachians lived in poverty, and unemployment was 40% higher than the national average. To help address these inequities, ARC was founded in 1965. Recognizing that a good transportation system is essential for economic and social development, the ARC supported creation of the 3,025-mi Appalachian Development Highway System (ADHS). ADHS is the cornerstone of the ARC's economic and social development strategy, though transportation is only one of ARC's six major program areas.

The cost-effectiveness for completed sections of the ADHS is well documented, yielding the creation of 42,000 jobs and a 1:32 cost-benefit ratio. From site-specific studies in places such as Pulaski County, Kentucky, and Randolph County, Virginia, we can see that a good intermodal transportation system is essential for any region to compete in a global economy. We also recognize, however, that investments in a transportation system must be accompanied by investments in education, health care, infrastructure, and local leadership to achieve sustained economic and social development in a region.

ESSENTIAL NEED FOR PASSENGER CARRIER SERVICES TO RURAL AMERICA

Linda B. Darr

Vice President of Policy and External Affairs

American Bus Association

To help frame this discussion, let's lead off with some facts and figures about public transportation in rural areas. First, it is limited or lacking in many communities, with about 38% of rural residents having literally no access to public transportation. Second, from a safety perspective, 58% of traffic fatalities occur on rural roads, which is more than twice that of urban

areas for every 100 million vehicle miles traveled. And third, only 50% of rural roads are paved. From these and other data available from the U.S. DOT and other organizations, we can conclude not only that rural communities are underserved by public transportation but also that both safety and infrastructure are a concern.

The federal government has recognized that significant investment in rural transportation services is warranted. TEA-21 dramatically increased funding for rural transportation under Section 5311 of Title 49 of the U.S. Code. By 2003, federal rural transit funding will have reached \$240 million, representing an 80% increase from 1991. However, the dollar amounts alone can be misleading. Indeed, rural America continues to suffer from a lack of intercity public transportation, with more than 20,000 communities losing bus service over the past 30 years.

The American Bus Association has developed several TEA-21 reauthorization proposals designed to improve the rural transportation network. First, the association sees a need for improved rural access to the national airway system. Currently, the federally supported Essential Air Service program connects only 89 rural communities to hub airports. The association believes that motor coaches could be an excellent resource for connecting small towns to hub airports, particularly for towns less than 150 mi from the destination airport. Our proposal thus calls for a \$50 million annual essential bus service program that would be included as an extension to Section 5311. Second, the association is proposing that the Section 5311(f) program be expanded by an additional \$40 million per year to support existing and new intercity bus service among rural areas and towns. A third recommendation calls for funding to support research into the connection between the aging of the rural population, the availability of public transportation, and rural road safety.

CONCURRENT SESSIONS

Session 2: **Lessons to Be Learned from Major Urban Areas Around the World**

INCORPORATING WIDER SOCIAL OBJECTIVES INTO TRANSPORT POLICY: HEALTH CARE COSTS AND EDUCATIONAL ACHIEVEMENT

Ravi Gurumurthy

Social Exclusion Unit, Cabinet Office, London, United Kingdom

One in three Londoners does not have a car. These individuals, who also tend to have lower incomes, travel fewer miles each year than anyone else and thus lack the flexibility to get to workplaces, interviews, schools, and health care (7% of those without cars miss appointments, which is double the rate of those who own cars).

What accounts for the lower miles traveled and the resulting disparities for those with less income? Although urban proximity to bus stops is adequate, distance from bus stops in rural areas becomes problematic. As a result, safety is an important consideration, coupled with mobility problems for the aged and disabled. A second concern is the cost of transportation, particularly with bus fares rising much faster than the costs of using other modes. For example, it is estimated that, on average, 16- to 18-year-olds spend £10 per week on transportation to college. Third, there appears to be some psychological travel time horizon, of perhaps 10 mi or so, that limits individuals' willingness to use public transportation.

Solutions include mapping and planning to improve accessibility of health care for those without cars, coupled with incentives to transportation providers to serve a broad range of riders. Second, creation of demand-responsive rather than fixed-route transportation services can help address the mobility needs of those riders least likely to own a car. Travel vouchers that do not place limits on the mode of transport are another key strategy. Clearer trade-offs between entitlements and responsibilities—such as a guarantee of a reduced travel cost provided that the traveler is willing to travel 60 min to his or her destination—could also help. And finally, distance learning and an increased emphasis on mixed-use development could help reduce the necessity of travel and thereby help minimize disparities between the transportation haves and have-nots.

TRANSPORTATION IN NEW YORK: PAST IS PROLOGUE

Jeffrey Zupan

Regional Plan Association, New York

New York is unique. The size, scope, and intensity of the activities in the tri-state region are unmatched anywhere in the nation. Consequently, the size and use of the region's transit system dwarf that of any other in the nation. In fact, New York City's transit ridership is the highest it has been since 1953. This turnabout can be traced to investments to repair a system previously ignored, a strong economy, lower crime rates, and fare innovations.

In the suburban counties throughout the region, traffic congestion is the greatest concern. This is a result of the almost total reliance on driving, the absence of road capacity, and transit

systems that are ineffective at low densities. The complexity of the transportation systems in the three-state region—with many transit operators, toll authorities, and planning organizations, none of which have control of land use—guarantees transportation planning problems.

Fare and toll innovations spurred by technology have been very successful, but major system expansion has lagged. The exception is New Jersey, where five major projects began in the 1990s and are close to completion. The New York Metropolitan Transit Authority has made less progress, having devoted most of its capital in the last 20 years to necessary maintenance programs. However, major expansion and connectivity projects are now more likely if funding can be found. Two airport projects are also close to completion.

Most transit remedies will require substantial investments. Making choices about which expensive projects to pursue is difficult, and the stakes are high. But the process of setting transportation priorities in the region on a regional, multimodal, multijurisdictional, and participatory process does not exist.

In an ideal environment, planning would be highly strategic, regional, long term, and participatory, and the resulting plans would be well funded. In this region's real world, planning is short term, tactical (often for short-term political gain), piecemeal, exclusionary, and underfunded. What progress has occurred in the region can be traced to three catalysts: (a) technological advances, (b) consensus on projects in New Jersey, which possesses a statewide transit agency with sufficient autonomy, and (c) airport access projects spurred by funding from the passenger facility charge at airports. The lessons are simply stated: exploit technology when it appears, create consensus on priorities, build political support, and find dedicated sources of funding.

NEW POLICIES OF TRANSPORTATION FOR THE PARIS METROPOLITAN REGION: HOW TO REACH SUSTAINABLE DEVELOPMENT

Joseph Berthet

Director, Division Infrastructure et Transport

Institut d'Amenagement et d'Urbanisme de la Region d'Ile de France, Paris

Transportation investment addresses multiple goals. A principal goal is to boost economic effectiveness through efficient investment choices. This mission is complicated by the desire to incorporate social and environmental goals in the decision-making process. Recent experience in planning for transportation improvement in the greater Paris metropolitan area offers a fine example of the complexities inherent in developing policies to support sustainable transportation investment.

As with other big cities, feeding the Paris central business district is the main problem. The city is very dense, with an average of 2,000 people per square kilometer. Paris has a broad-based economy, but one that is still dominated by services. Following World War II, Paris experienced a significant growth in the suburbs and the creation of new outlying towns to absorb the demand for office and residential space. With a very dense metro network, a complex grid of freeways and ring roads, two airports, and high-speed rail service, the transportation network is growing ever more complex. In recent years, changing demographics have created a mismatch between demand and supply. The central question to face, therefore, has less to do with how to keep up with demand and more to do with ensuring a congruity between the types and locations of demand and supply.

The Paris metropolitan region is investing an amount equivalent to \$3.15 billion over 7 years, two-thirds of which is targeted to public transportation investments principally in the

suburbs. We are also seeking to implement a trip management plan, designed to improve mobility while combating air pollution. This plan could involve more restrictive parking policies, more aggressive planning activities to encourage density and mixed-use development, the construction of cycle paths, and other policies collectively designed to reduce automobile use by 5% in Paris, 2% in the outskirts, and 3% overall. We face numerous challenges in implementing this trip management plan, including opposition to pricing mechanisms and diverse objectives among numerous stakeholders. At the same time, we realize that the plan is not a panacea, because funding challenges will persist and new concerns—notably, freight mobility—still demand continued attention. Still, it is a first step, and we are hopeful that the approach will generate results in the near future.

METROPOLITAN MEXICO CITY: TRANSPORTATION POLICIES AND ECONOMIC DEVELOPMENT

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The population and urban area of the Mexico City metropolitan area (MCMA) have grown sixfold during the last 50 years. The national government has historically fostered a centralized economic development model by subsidizing urban infrastructure and services. This has been reversed since the 1990s because of privatization and decentralization policies. The MCMA inherited a strong economic base, but now it must chart its path forward without subsidies.

The government plays a more active role in rail and transit than other modes, with public operation of buses, trolley buses, a light rail train line, and a metro network. These collectively accommodate about 21% of travel demand. The main motivations for continued government's presence in this sector are the desire to settle labor strikes, ensure service delivery, create jobs, spur economic vitality, and enhance performance as the metropolitan system expands. Although the government does not play an active role in provision or direct oversight of road-based transportation (including bus service and jitney-like transport), a new inspection and maintenance program is beginning to address the pollution and congestion effects attending the growing importance of private vehicles as a mode of transport.

These modes lack integration at the metropolitan level, which forms a key challenge to rational transportation development. Prior to 1997, metropolitan actions were clearly led by the federal government, which had control of the capital city. Today, the MCMA's own metropolitan leadership must assume a greater role, perhaps within the context of the federal government's providing individual incentives to foster cooperation. City governments should bear in mind that the robustness of their fiscal budgets relies upon an efficient transportation system.

CONCURRENT SESSIONS

Session 3: **Planning for Transportation in Urban Areas**

ACCESS AND PARKING MANAGEMENT IN DOWNTOWN CORVALLIS, OREGON

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Downtown parking problems are frequently a symptom of economic success. Opportunities for employment, shopping, dining, and other services generate demand for parking. However, if access is not convenient, frustration among customers, visitors, and employees can jeopardize the sustainability of the downtown core by driving consumers and workers to suburban shopping centers and office complexes that compete by offering free and plentiful on-site parking.

The increasing pressures on downtown parking systems are tied to two compounding and mutually reinforcing events. First, new development or redevelopment increases demand for parking, even as such development often consumes surface parking lots. At the same time, successful downtown revitalization increases land values and contributes to the scarcity of available land for parking purposes. The result is that while requirements for convenient, safe, and sufficient access to downtown grow, land resources that can be dedicated to surface parking become increasingly scarce.

The desire to alleviate parking pressures while accommodating increased demand often brings about cries for structured parking. Yet, the cost of structured parking can be prohibitive for new development. Before breaking ground to construct a new supply of parking slots, a closer look at the existing system will often reveal hidden resources and opportunities to support a city's transportation and development goals through effective parking management rather than increased supply.

TRAFFIC IMPACTS AND INEQUALITY IN PEDESTRIAN ACCIDENTS IN BRITAIN

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This presentation builds on a basic premise that sustainable mobility should meet not only economic and environmental objectives but also social objectives. Today, we are getting to a point at which there is general acceptance that transportation projects that impose environmental costs ought to be complemented by mitigation efforts that minimize or largely eliminate those costs. I propose that our approach to transportation investment similarly recognize social costs that equally warrant mitigation.

Road use and traffic management require a balance of freedoms. I would argue that in the balance between the freedoms of motorists and children, children—and particularly those in poorer areas—find themselves on the losing end. To date, Britain has a bad record on child pedestrian safety. What is more, my research indicates that children in poor areas are likely to suffer more accidents. Generally, we can understand that this occurs because children from

families with relatively little income are more exposed to traffic as they make journeys on foot and play in the street.

In the near term, what can be done to remedy this imbalance? Key actions would include a systematic plan to reduce traffic speeds and create safe play areas for children in these traditionally underserved neighborhoods.

ECONOMIC DEVELOPMENT IMPACTS OF TRANSPORTATION DEMAND MANAGEMENT

Todd A. Litman

Director

Victoria Transport Policy Institute, British Columbia

People often assume that since motor vehicle use tends to increase with economic development, efforts to reduce driving must be economically harmful. However, there is an economically optimal level of mobility, beyond which increased driving is economically harmful.

Transportation demand management (TDM), which includes various strategies to encourage more efficient use of transportation resources, is one tool available to keep vehicle travel at an optimal level.

Excessive automobile use reduces productivity by increasing total transportation costs and increasing consumption of imported fuel and vehicles. Fuel and vehicle expenditures provide relatively little employment and business activity in most regions, so reducing consumer expenditures on these goods tends to increase employment and economic development.

Under some circumstances, highway investments provide significant economic productivity benefits by reducing transportation costs. But this only occurs if other conditions are ripe and transport costs are a significant economic constraint. Once a region has a basic paved road system, additional roadway capacity provides relatively small economic development benefit. In fact, although U.S. highway construction projects showed a high annual return on investment during the 1960s, the return ratios have declined significantly in recent years, and the most cost-effective highway projects have by now been completed.

Current transportation and land use markets are distorted in several ways that encourage excessive automobile use. Many TDM strategies consist of market reforms that correct these distortions and encourage more economically efficient transportation.

TDM can help create a more efficient transport system that increases productivity and economic development and makes consumers better off overall. The total economic benefit of TDM can be large. Efficient market reforms can reduce per capita vehicle use by a third or more, providing thousands of dollars in annual per capita economic savings and productivity gains. This can make consumers wealthier, increase investment, and support economic development. However, TDM policies and programs must be well planned to maximize economic development benefits.

CONCURRENT SESSIONS

Session 4: Transportation Perspective on Economic Development and Vice Versa

OREGON'S INTEGRATED STATEWIDE MODEL

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The Oregon Integrated Statewide Model is an analytic tool that captures information on multiple businesses and household sectors and identifies economic relationships between producers and consumers. The first application of the model was the Willamette Valley Transportation and Land Use Study. The Willamette Valley, which runs north–south along Interstate 5 in Oregon, is the state's major population center. Analysts modeled eight scenarios involving differing levels of development patterns and transportation capacity expansions and concluded that regardless of scenario, congestion will increase, vehicle-miles-traveled per person will decrease, and that major, not incremental, policy shifts would be required to alter these outcomes. The study also indicated that transportation improvements and their locations, land supply and resulting prices, and transportation costs are all major factors in location decisions for both people and jobs.

The model was also used in an eastern Oregon freeway study to evaluate the extent to which a better north–south connection to Interstate 82 could increase growth in central or eastern Oregon, or both; decrease growth in the Willamette Valley; and decrease travel and congestion on Interstate 5. The model considered several alternative alignments. It ultimately found that while a new central or eastern freeway connecting Washington to California could significantly reduce border-to-border travel time, neither option would shift growth from western to central or eastern Oregon and thus would not meet one of the major objectives.

On the basis of these real-life applications of the Oregon Integrated Statewide Model, the Oregon DOT has found that the model can facilitate analysis of complex economic, land use, and transportation interactions; help stakeholders reach a common understanding of the effects of proposed policies; illustrate the linkages between geographic areas; identify effects that otherwise would not have been expected; and help identify those combinations of policies with the greatest potential to yield the desired outcomes.

WHAT DOES IT ALL MEAN AND WHO SAYS SO?

R. Leo Penne

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American Association of State Highway and Transportation Officials

It should be no surprise that linking or coordinating transportation and economic development is difficult and problematic. For coordination to be successful, it is important to realize that these separate realms are worlds unto themselves with some of the characteristics of sovereign entities or at least distinctive tribes. Basic communication is difficult because of language differences—at least as significant as those between American English and British English. Basic cultural differences can be seen on important dimensions of human understanding and

values, such as time and risk. For transportation agencies, for example, the time frame for a major project may be a decade or longer. For the economic development official, the project may be needed in 6 months or yesterday to prevent a business closing or departure or to encourage a business location. Transportation agencies are risk-averse and have an engineering and public planning perspective—they are fearful of collapsing bridges, highways to nowhere, or “takings” disputes—whereas economic developers are inclined to reflect the competitive market orientation of their clientele, private business, and are much more willing to take a risk and may even be excited at the prospect. Unless these deep cultural differences are recognized and addressed, efforts to link transportation and economic development are likely to be only partially or temporarily successful.

MUTUALLY REINFORCING TRANSPORTATION AND ECONOMIC DEVELOPMENT: THE MONTANA CASE

David Rose

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Steven Landau

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The most effective role for a DOT in supporting economic development is to ensure mobility and system reliability and to do so while maximizing the productivity of its investments in people and products moved. Recent analyses in Montana considered first the major economic trends facing the state. These included decreasing employment in forest products, farming, mining, and manufacturing; a strong tourism industry; and growth in the service sector at a faster rate than the nation as a whole. Population is forecast to grow at the national rate but will age faster than the nation's rate. Population and employment growth will be concentrated in the most urban counties.

From a transportation perspective, forecasts indicate growth in the value of bulk commodities to be shipped out of state and an increase in manufactured products to be trucked or flown elsewhere, with the Port of Sweet Grass continuing to dominate Montana's international exports. Also, growth in the service industry will generate increased demand for air travel and increase traffic in parts of the state.

In much of Montana, the greatest transportation barrier to economic development is distance to markets rather than a lack of infrastructure. As a result, highway investments in system reliability are especially productive in supporting economic development. Looking ahead, system reliability, as opposed to journey time, will be essential to support just-in-time delivery and other key factors that contribute to a strong regional and statewide economy.

Other implications for the state's transportation investment recognize the necessity for the state's transportation infrastructure to meet the need to ship high-volume, low-value commodities, with especially substantial dependence on rail. However, demand for truck transportation and strong intermodal connections is also present, in part to provide continuing service for Montana's basic industries and in part to respond to economic diversification and growth in the service industry. Growth in the service industry will also yield an increase in air travel.

Given these conditions, to support economic development, the state DOT can take at least five different types of actions:

- Supportive actions help retain the existing foundations of the economy by preserving the efficient operation of the current system.

- Reactive actions are demand-driven and respond to new needs that are created by ongoing economic transitions.
- Proactive actions seek to maximize new economic opportunities. They involve investing in strategic improvements to the transportation system and supporting state and local initiatives to generate economic diversification.
- Informational actions clarify and communicate what transportation investment can and cannot accomplish in support of economic development.
- And finally, institutional actions are organizational actions whereby the department can strengthen its capacity to support economic development.

CONCURRENT SESSIONS

Session 5: Valuing Freight Linkages for Economic Development

HOW DO FREIGHT TRANSPORTATION IMPROVEMENTS AFFECT ECONOMIC DEVELOPMENT? AN OVERVIEW OF LINKAGES

Sergio Ostria

Vice President

ICF Consulting

Of course, a tight link exists between transportation investment and economic vitality, but perhaps nowhere is this more evident than in the area of freight transportation improvements. However, the ability to understand the interrelation of freight transportation investment and economic productivity depends on a good grasp of benefits and costs. Traditionally, the benefits of freight projects have likely been understated. Conventional benefit–cost analysis models have not captured the benefits to the owners of the cargo (i.e., shippers). An FHWA-sponsored freight benefit–cost analysis study is helping us to better understand these benefits, especially those that derive from businesses’ reorganization of logistics in response to improved transportation infrastructure.

Interviews with industry officials indicate that current service is good, with estimated on-time delivery rates often exceeding 95%. These interviews also show that shippers frequently reorganize their logistics arrangements in response to a variety of business pressures. They also show that firms are very concerned about worsening highway conditions. Congestion, in particular, is viewed as very damaging, because logistics costs are so highly dependent on both transit time and on-time reliability. Shippers attach a dollar value to both speed and reliability; carriers value savings in nonscheduled delays at \$371 per hour. Given persistent and worsening congestion, costly overhauls of logistics systems could become necessary.

What can be done to address congestion? First, targeted capacity enhancements to address known bottlenecks would yield great payoffs. Second, development of advanced freight planning tools could help improve shippers’ and carriers’ decision-making processes. Third, increased attention to operations planning and intelligent transportation systems could improve the performance of the existing infrastructure. And finally, the development of new grant programs that facilitate financing for freight-oriented projects would be valuable as well.

WHY IS FREIGHT IMPROVEMENT THE NEGLECTED CHILD OF THE TRANSPORTATION IMPROVEMENT PROGRAM?

John C. Falcocchio

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Polytechnic University

Most metropolitan transportation improvement programs focus heavily on personal travel while largely neglecting freight improvements per se. Why are freight planning and therefore freight improvement projects so frequently neglected? At the strategic level, there is often a failure to link transportation investments to jobs and economic health. At the technical level, MPOs have spent considerable resources in developing planning models with a traveler behavior focus, whereas planning models for freight movement are lacking. At the political level, it is difficult to

obtain support for freight projects if politicians do not relate the importance of freight mobility to the quality of life made possible by an efficient freight transportation system. At the institutional level, there is a need to build linkages and better integrate the work of transportation agencies with that of city and regional planning and economic development agencies.

There is a need to change the state of transportation planning practice from one that uses travel time savings as the common denominator to one that recognizes the differential value of benefits received by different users of the transportation system. For freight, this reorientation should consider the following 10 strategies:

- Including the private sector on MPO boards;
- Training professional staff with skills in freight mobility analysis;
- Developing performance measures and a database that allow for monitoring freight mobility in metropolitan areas;
- Developing analytical tools (including both models and performance measures) that link freight transportation investments to growth and jobs creation for key economic sectors of the region;
- Educating the media, the public, and elected officials on the importance of efficient freight mobility to the region's economy and quality of life;
- Establishing an interagency office in charge of freight mobility for the metropolitan area;
- Encouraging the chief executives of the local constituent agencies of the MPO to become the champions of freight improvement projects in their jurisdictions;
- Focusing on projects whose time lines meet the needs of industry (18 to 24 months);
- Undertaking studies with the objective of implementing the recommended solutions; and
- Establishing a dedicated funding source for freight projects.

FREIGHT, LOGISTICS, AND THE ECONOMY

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Port of Portland, Oregon

Global economic trends and changing business practices are placing a premium on efficiency of an interconnected freight transportation and distribution system. Changes in projected growth in trade will put additional pressure on the transportation system for future productivity gains. Recent data specific to the Portland region suggest that this region may be one of the areas in the country that is well positioned to take advantage of these trends to support economic growth.

A quick look at the history of industrial competitiveness can help illuminate current trends. The 1800s were characterized by an emphasis on production, as firms sought to decrease the cost of production on a per-unit basis. The 1900s, in contrast, were characterized by an emphasis on sales. During this time, production started to catch up with demand, and businesses began to recognize the importance of driving demand for their own particular products. The late 1900s and early 2000s are characterized by an emphasis on logistics. We are currently seeing new sophistication in product offerings, global trade, and increased customer expectations. These combine to make logistics, or the smooth and efficient transport of goods to market, key to companies' and regions' economic competitiveness.

As logistics takes on increasing importance, we see that in Oregon a full 60% of state jobs are in transportation-dependent industries. Trade drives this economy. The Port of Portland is the second largest wholesale trade hub on the West Coast, the 11th largest exporter in the United States, and the 20th largest industrial center in the United States. Trade is our lifeblood,

and that is why it is so critical for us to recognize current trends in the worldwide economy and business practices so we can capitalize on them.

How is Portland seeking to harness the opportunity that current circumstances create? First, analysts are working to understand the region's economic base, especially market clusters. Second, the Port and others are seeking to ensure efficient freight mobility by supporting multiple modes, improving intermodal connections, and reducing conflicts between modes. Third, policy makers are considering various aspects of the land use system. Ideally, policy can support the region's economic development goals by targeting investment to support industrial development and retaining adequate close-in land supply for employment. And finally, a tax structure that supports rather than impedes these objectives is critical as well.

CONCURRENT SESSIONS

Session 6: Economic Development in Rural Regions

NORTH COUNTRY CASE STUDY OF THE ECONOMIC DEVELOPMENT POTENTIAL OF TRANSPORTATION IMPROVEMENTS SERVING A RURAL DISTRESSED AREA

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The North Country Transportation Study documents how transportation investment can both cause and fix economic problems. The North Country represents an isolated corner of the United States, bounded on the west by Lake Ontario, on the east by Lake Champlain, on the north by the St. Lawrence Seaway, and on the south by Adirondack Park. It is economically distressed by any measure: unemployment, income, and outmigration of the population.

The study identified six major constraints on economic development: inadequate infrastructure to support growth, a declining population due to a lack of job opportunities, low value added from extractive industries (e.g., metals) due to poor market access, high shipping costs for farmers and factories, colleges that are below capacity, and the difficulty of attracting and retaining professional staff. In the area of access, from a road and highway perspective, the area suffers from poor intraregional mobility as well as poor links to Albany and downstate, to the Interstate system, and to airports. These road access issues are of special significance for the tourism sector, a regional military base, the manufacturing sector, and colleges. From an airport perspective, a limited market share challenges the region, with commercial service at its five airports getting just 4% of the overall regional air travel; the remaining 96% goes to Ottawa and Montreal, Canada, or Syracuse, New York. This is of special consequence to area colleges, the manufacturing sector, and the high-tech sector. Other important trends include a decline in bus service, a shortage of broadband services and fiber-optic lines, and freight rail lines that are in jeopardy.

To address these issues we have developed a regional transportation plan. The plan proposes conceptual highway connections, public transit services, commercial air service, bicycle and pedestrian facilities, and improved border-crossing flows into Canada. As the region moves forward to implement the conceptual plans and address some of the identified obstacles to economic development, it will have to confront a series of ongoing challenges. These include the integration of the State Transportation Improvement Program and international border plans, cooperation with the Canadian government, cooperation among states and the U.S. government, and the integration of the transportation plan with regional land use and economic development plans. As always, political will and strong communications among stakeholders will be essential to successful implementation of the conceptual plan.

ISSUES FOR EXAMINING ECONOMIC DEVELOPMENT IMPACTS USING A NETWORKED MODEL OF THE APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM

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An array of conceptual issues arises when integrating multiple modeling systems. A prime case study is offered by the ARC's work to integrate a geographic information system (GIS) model of the fully networked system, 28-corridor ADHS with an economic development impact modeling system. The original economic development impact model was developed for the ARC to analyze the economic development impacts of 12 completed corridors of the 28 corridors in the ADHS. The study assessed both the travel efficiency effects and the economic development impacts of these 12 corridors, finding (i) that travel efficiencies valued at \$4.9 billion will obtain over the years 1965 to 2025, yielding a benefit-cost ratio of 1:18; and (ii) that by the year 2015 the 12 corridors will have created a net increase of 42,000 Appalachian jobs and, in economic development terms, an overall return on investment of \$1.32 for every dollar expended.

The model did not attempt to analyze the network effects of the incomplete ADHS, nor did it attempt to analyze the business and nonbusiness traffic flows between the Interstate and the ADHS. Thus, we find great potential for further advances in modeling both efficiency and development impacts. Developing a fully networked GIS model of the ADHS would create the capability to perform simulations of the completed system. These simulations would permit analysis of systemwide efficiencies and the potential net changes in corridor-level traffic flows in the completed network. In addition, such simulations of systemwide efficiencies and measures of corridor-level accessibility effects would permit a more complete analysis of the economic and social benefits arising from travel efficiencies, including the potential effects on business site location and the competitive advantage to local industries, pass-through roadside business, tourism, and residential site development.

Perhaps as important, such a model would permit the development of quantitative estimates of the potential social benefits arising from improved access to health services, educational services, and cultural amenities in adjacent metropolitan areas. It would also be valuable to capture the potential contributions of transportation improvements to development through the stimulation or amplification of industrial agglomeration effects; import substitutions effects; and improvements in human resources and quality of life, which, in turn, could help counteract outmigration of prime-aged workers and educated youth.

IDENTIFYING OPPORTUNITIES ARISING FROM HIGHWAY DEVELOPMENT IN RURAL AREAS

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Although the ARC has long viewed highways as an important tool for improving access and the quality of life in the Appalachian region, it is evident that a new highway segment does not make economic development happen automatically. To help communities make the most of new investments, the commission recently published a handbook entitled "Targeting Economic Opportunities from Appalachian Development Highways." The handbook sets forth a series of analytic steps, starting with the definition of the study area and linkage areas. Next follows a

local economic performance analysis. Third, analysts consider the impact of highway changes on market access as related to residential customer markets, labor markets, business supplier markets, recreation and tourism markets, and pass-by traffic markets, as well as impacts on other transportation modes. Fourth is an assessment of facilities and resources such as industrial parks and buildings, downtown resources, tourism and recreational resources, the labor force, and existing economic development programs. Taken together, these steps permit a conclusion that identifies growth opportunities and remaining constraints.

Ultimately, the economic impacts of specific highway investments depend on the implementation of supporting local actions. Local planners therefore need to screen opportunities and work through the set of constraints that may impinge on those opportunities. The handbook and supporting software can be a very helpful tool for analysts in seeking to sort out the complex relationships between opportunities and constraints.

CONCURRENT SESSIONS

Session 7: Planning and Analysis Tools and Methodologies

ESTIMATING THE INDIRECT EFFECTS OF PROPOSED TRANSPORTATION PROJECTS

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Irrespective of whether economic development is specified as an intended consequence of a transportation improvement project, the National Environmental Policy Act (NEPA) requires sponsors of federally funded projects to evaluate the potential for project-influenced development and the resource impacts of such development. Thorough evaluation of these indirect effects is always necessary, especially in cases in which economic development is a stated project purpose.

Research confirms that access to transportation is just one of many factors in household and business location decisions. Therefore, methods to estimate project-influenced growth must examine changes in accessibility in the context of regional economic, regulatory, and demographic trends. An eight-step framework is detailed in NCHRP Reports 403 and 466.

A wide range of qualitative and quantitative tools is available to aid in decision making and documentation. A new generation of models holds promise, but more research is needed to determine ways to link resource impacts to forecasted growth and land use changes. Also, it is important to remember that qualitative assessments often perform as well as quantitative efforts in the NEPA context.

Project sponsors and other agencies are beginning to formulate assessment guidelines. At this point, however, no clear method, model, or combination of tools has emerged as a standard, making this a prime area for continued research. Mitigation strategies are also a critical consideration, as project sponsors have an obligation to advise on appropriate mitigation efforts that are outside of agency control. Effective mitigation efforts often require early and concerted coordination among multiple agencies and jurisdictions.

MULTIMODAL BENEFIT–COST ANALYSIS USING STEAM: IS STEAM THE TOOL FOR YOU?

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CH2M HILL

The FHWA's Surface Transportation Efficiency Analysis Model (STEAM) was developed to facilitate benefit–cost analysis as part of a corridor-level multimodal environmental review under the NEPA. STEAM has tremendous potential. Compared with most other available models, it offers the prospect for improving the accuracy and completeness of benefit–cost analyses.

STEAM is also a complex program that requires careful calibration and close coordination with existing travel demand models. One cannot take output from a travel demand model, input it into STEAM, run the model, and expect reasonable results. There must be

considerable give-and-take between the two programs, and one may need to make considerable modifications to the travel demand model to obtain input files that will work with STEAM. Our team encountered a number of obstacles merging the regional travel demand model and STEAM and ultimately took a different approach to estimating benefits and costs. We are hopeful that refinements can be made to the program so that STEAM can evolve into a program that is useful for a broader audience.

In place of STEAM, we developed a spreadsheet-based tool that used many of the principles included in STEAM. It provided a relatively straightforward and comprehensive means of evaluating the benefits and costs of project alternatives. This approach allowed us to draw useful conclusions about the various alternatives' benefits and costs—and within the time frame typically allowed for a NEPA analysis.

LEAST COST PLANNING: IMPROVING IDENTIFICATION AND IMPLEMENTATION OF TRANSPORTATION INVESTMENTS TO MAXIMIZE ECONOMIC DEVELOPMENT

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Although economic growth is generally characterized by increasing outputs through replication of productive means, economic development focuses on increasing output through structural transformation. In a parallel fashion, transportation growth has traditionally been measured as an expansion of capacity in terms of road miles, but now it is better viewed in light of development-oriented assessments and recognition of the diminishing marginal returns from capacity building. Key considerations include (i) the dilemma of capacity expansion versus capacity management; (ii) exploration of the relationship between transportation planning and economic growth and development; (iii) the suitability of using least cost planning (LCP) for analyzing capacity management and transportation investment decisions; and (iv) implications of the LCP process on economic development.

Shifts in the analytic approach represent a paradigm shift from the traditional capacity expansion perspective to a capacity management perspective. This shift is also reflected in urban transportation models that now recognize the growing importance not only of interurban links but also intraurban links. And finally, ISTEA's emphasis on multimodalism was well suited to application of the LCP model, particularly given recent advances in multimodal LCP methodologies. Although LCP is not the only approach available, the complexity of today's transportation investment dilemmas, the maturity of our system, and a resulting shift to a more dynamic, management-oriented assessment of the links between transportation and economic development suggest that LCP merits serious consideration.

RELATIONSHIP BETWEEN TRANSPORT AND SOCIAL-ECONOMIC DEVELOPMENT: READING NATIONAL DATA FROM A NEW POINT OF VIEW

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(Note: Paper prepared but not presented)

Wise transportation infrastructure planning requires sound forecasts of the consequences of varying infrastructure supply. In part, because of such forecasts' complexity, they are often neglected in practice. Progress in understanding and predicting mobility phenomena is possible

only if we change the traditional paradigm that suggests that movement of people and freight is merely a derived need.

More accurately, we should consider movement to be an innate human need. This hypothesis allows us to delineate a framework of phenomena associated with transportation infrastructure and development. The key elements of this framework include first a definition of significant indicators (for example, length of roadways, railways, and waterways; possible capacity; maintenance condition; population; geography; culture; and the economy and development status of the study region). These indicators are then evaluated through correlation analysis and graphical presentation. By capturing the dynamics among these many indicators, it is possible to draw a number of conclusions. A key finding is that in the modeling field, it is most promising to look at infrastructure as a capability essential not only to economic development but also to promotion of human liberty and solidarity.

CONCURRENT SESSIONS

Session 8: **Considering Economic Development in Transportation Decisions** *Views from Various Countries*

U.S. ECONOMIC DEVELOPMENT AND BENEFIT–COST POLICY FOR TRANSPORT IN THE ERA OF TEA-21

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Economic development policy as applied to transportation generally centers on the use of improved transportation to facilitate, inaugurate, coordinate, or motivate new jobs; attract new business or tax-paying entities to a given geographic area; or preserve the existing tax base in a given geographic area (typically a municipality, county, or group of municipalities or counties). Benefit–cost policy generally centers on the use of analytic techniques to distinguish between projects or groups of projects on the basis of those most likely to produce a higher benefit–cost ratio or (less frequently) a higher net benefit.

Both economic development and benefit–cost–based policies predate enactment of TEA-21. However, prior to that time, economic development was almost exclusively the province of one federal highway program (the ADHS) and a variety of state and local programs. Benefit–cost policy was mostly the province of those evaluating full programs of projects; it was only occasionally used for project-based analysis. By the end of the TEA-21 era, economic development policy will have significantly advanced in large part because of (i) the interest of elected officials, including those at the congressional level and (ii) the advent of various analytical and research projects of FHWA. The use of benefit–cost analysis will be largely the same as before TEA-21, although with a continuing evolution in the details of the analytic practice.

IMPACT OF INSTITUTIONAL FACTORS ON TRANSPORTATION INVESTMENT DECISIONS

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The economic evaluation of transportation projects through cost–benefit analysis involves numerous technical issues that are well documented in the literature. Economics literature and practice are replete with ongoing methodological refinements to address definitional, measurement, discounting, distributional, and other kinds of issues. In the real world, cost–benefit analysis is, at best, only one ingredient in investment decisions. These decisions occur within a broader policy- and decision-making context and are inevitably shaped by political, social, and pragmatic considerations.

The institutional context surrounding transportation infrastructure investments has also changed significantly in recent years. These changes cover many fronts, including public policy objectives, instruments available to implement policy, shifts in the public and private sectors’

roles, and fiscal planning and control mechanisms. The linkage between transportation investment decisions and economic development in the Canadian context is also illustrated by

- Evolving views of what constitutes economic development and the role assigned to transportation infrastructure in this process;
- Adoption of business planning approaches and their impact on transportation planning;
- Use of pricing, privatization, and public–private partnerships; and
- Reform in public capital funding practices to achieve strategic objectives while pursuing flexible approaches at the local level.

ECONOMIC IMPACTS OF TRANSPORT PROJECTS: DEVELOPING GUIDANCE IN THE UNITED KINGDOM

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Steer Davies Gleave, United Kingdom

In recent years, the practice of transportation analysis in the United Kingdom has demonstrated an increasing commitment to a consideration of so-called wider economic benefits. The Standing Advisory Committee for Trunk Road Assessment has recommended the development of a somewhat standardized economic impact report to consider the impacts of proposed investments in a broader context than is typical of more traditional analytic approaches.

Such economic impact reports could consider wider economic benefits and incorporate considerations as diverse as demographic characteristics, existing jobs, residential housing stock, commercial premises, and the existence of brownfield and greenfield sites within the vicinity of the proposed investment. Especially important would be a distinction between efficiency and distributional effects of a proposed investment. The theoretical framework behind the guidance for the new report is intended to be applicable to both large and small transportation projects. Additionally, a key aim of the guidance is to keep things relatively simple—users should be able to get by with only limited specialist knowledge.

Ultimately, the proposed guidance is intended to help promoters of projects more clearly demonstrate why impacts, both positive and negative, are likely to arise. Perhaps more important, the guidance will help analysts explain how such impacts may be distributed among stakeholders in a given project. Significant challenges remain in identifying and quantifying future impacts of transportation strategies, and further work on practical implementation of the guidance is still required.

CONCURRENT SESSIONS

Session 9: Using Joint Development Effectively

INNOVATIVE APPROACH TO FINANCING A RAIL PROJECT BY USING INCREASED LAND AND DEVELOPMENT VALUE AROUND STATIONS

George McLean Hazel

Managing Director

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Research shows that the value of land and property increases between 10% to 20% around railways, yet it is often difficult for local authorities and the private sector to harness this potential gain in an efficient and rational fashion. To help put this premium to productive use, the company E-Rail works with landowners and developers to establish a contribution based on the uplift in the value of their property that would result from construction of a transportation link. The increases in land value are used in part to fund a share of the railway improvement.

How does it work? Adjacent landowners place their land holdings into a joint venture at current market value. E-Rail helps the landowners craft an agreement on the impact of a rail investment and resulting capital contributions to a fund established by E-Rail. E-Rail subsequently transfers the fund to the rail project sponsor, with proceeds available to serve as equity, to raise debt, or to pay operating costs. Upon grant of planning permits for a rail project, adjacent land increases in value because of the permission to develop and the expected proximity to a live railway. The majority of this increased value, as captured by the landowners' contributions, is earmarked for the rail project. Developers can still get their profits from developing out the sites.

By way of practical example, E-Rail is now working to reopen a freight line to passenger traffic in the city of Edinburgh. Over the past 2 years E-Rail has self-funded a study on the amount of capital that can be raised through development gain, anticipated passenger revenue, operating-cost projections, and technical issues related to fitting new passenger service into existing infrastructure. The initial study has shown that from 25% to 50% of the capital required can be raised from increased land values around the railway. The remaining capital requirements are raised by the public sector.

MANAGING INTERCHANGE AREAS

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Highway interchanges can have a substantial impact on the intensity of land development in the surrounding area. They create opportunities for development and provide valuable economic resources for surrounding communities. However, if land use and the transportation system at the interchange site are not carefully managed, the project can lead to congestion, cause safety hazards, and adversely affect the adjoining community. It can also disrupt traffic flow on the Interstate and connecting roadways and result in the need for costly retrofit projects. Effective interchange management requires participation at the local level, where land development

decisions are made. The shared and sometimes overlapping responsibilities of separate jurisdictions for investment decisions have traditionally made it difficult to preserve the safety and efficiency of interchange areas.

The University of South Florida's Center for Urban Transportation Research recently prepared a study that identifies land development and access management strategies that local governments can apply to interchange areas. These strategies are designed to preserve the function of the interchange and the safety and efficiency of the surrounding roadway system. The study also reviewed state policies to identify changes that may be needed to facilitate local participation in managing interchange development. The study recommended that (i) project sponsors consider operations, rather than simply capacity enhancements, in justifying interchange projects; (ii) sponsors employ access management measures in making such justification, particularly in light of alternatives to the given interchange project; (iii) local governments incorporate state-level access management regulations into their analyses; (iv) all parties secure written agreements prior to approval of any interchange project; and (v) the state coordinate with and provide assistance to local governments in all phases of the analytic process.

USING VALUE CAPTURE TO FINANCE INFRASTRUCTURE AND ENCOURAGE COMPACT DEVELOPMENT

Rick Rybeck

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Transportation investments often help create higher nearby land values. Thus, even as such investments aim to promote development, they can also choke off close-in development by pushing new growth to cheaper sites that are remote from infrastructure. This "leapfrog" development pattern then creates a demand for infrastructure extension or expansion that starts the process over again. Resulting sprawl strains the transportation, fiscal, and environmental systems upon which communities rely.

But perhaps the new infrastructure is not itself to blame. Punitive taxes on buildings, combined with the ability of landowners to appropriate the land-value benefit from the infrastructure investment as their own, foster speculation that drives development away. To combat this result, jurisdictions around the country and around the world are now utilizing so-called value-capture taxing mechanisms to help finance infrastructure and simultaneously motivate affordable compact development.

In one approach, the standard property tax system is changed by reducing the tax rate applied to building values while increasing the tax rate applied to land values. The reduced rate on building values makes it cheaper to construct and maintain them. It also counteracts the tendency of some property owners to let buildings deteriorate as a means of minimizing their tax burden. The increased rate on land values captures infrastructure-created land values and counteracts the revenue loss to the government. Simultaneously, it reduces land price inflation and thus limits real estate expansion into outlying areas.

Resulting compact development should facilitate better transportation and accommodate economic growth while also reducing fiscal and environmental costs. By fostering affordable compact development, value capture might help bridge the gap between those who advocate growth boundaries and those who fear that such growth boundaries may drive up land prices to such an extent as to compromise the availability of affordable housing.

CONCURRENT SESSIONS

Session 10: Port Development and Intermodal Connections

PORT DEVELOPMENT AND INTERMODAL CONNECTIONS FOR A JUST-IN-TIME ECONOMY: A REAL WORLD EXAMPLE IN PHILADELPHIA

Shirley M. Loveless

President

Coleshill Associates

Ports everywhere are facing new accessibility challenges. Evolving manufacturing and shipping practices challenge ports to stay competitive by finding new market niches, creating new landside transportation links, making major modifications to existing surface transportation facilities, and undertaking major investments in modernizing port facilities. Links to surface transportation infrastructure are of special consequence, because just-in-time manufacturing and distribution systems require prompt access to and from ports. Because ports are typically in dense urban areas, surface transportation connections are often congested, which makes it difficult for ports to meet shippers' time demands consistently.

Accessibility challenges at the nation's ports are further complicated by market and municipal pressures for redevelopment of port area waterfronts. As many ports developed, various shipping facilities fell into disuse and were abandoned, which left large chunks of vacant waterfront property. Because of the potential market value of this land for nonmaritime uses, many port cities, such as Philadelphia, are encouraging such development, even while hoping to preserve the viability of port-related facilities in the midst of these new development areas. Conflicts between port-related traffic and non-port-related traffic are likely if there is no comprehensive, cooperative, and integrated transportation and land use planning involving port, municipal, and transportation agencies. Without such planning, port cities run the risk of impairing both the ability of ports to function competitively and the maximization of potential recreational, residential, and other nonmaritime uses of waterfront property.

IMPROVING ACCESS TO RAIL-HIGHWAY INTERMODAL TRANSPORT: LESSONS FROM WEST VIRGINIA

Mark L. Burton

Director, Center for Business and Economic Research

Marshall University

Increasingly, transportation providers and various levels of government are working jointly to provide new transportation infrastructures. This partnering is a promising new form of public-private cooperation. At the same time, however, it brings to light a number of important questions about the efficient level of investment in transportation facilities and how the funding for these investments should be shared.

The current analysis attempts to address these questions within the context of improving shipper access to highway-rail intermodal facilities in West Virginia. Specifically, the study examined the benefits and costs anticipated in connection with modifying 29 privately owned railroad tunnels in southern West Virginia, so that the overall route between the East Coast and the Midwest can be used to move containers in a double-stack configuration.

Results of the investigation suggest that, over a 20-year time horizon, the proposed project would yield transportation and inventory savings with a present value of between \$195 million and \$395 million, depending on the rate of traffic growth and various routing considerations. The estimated project cost is between \$45 million and \$105 million, depending on the feasibility of certain construction methods, so that the overall project is viable under every scenario.

Although the proposed process would provide direct rail intermodal services to West Virginia, the estimated volume of local traffic and corresponding benefits are relatively small. Similarly, the highly competitive nature of intermodal services will make it difficult for the railroad's owner to retain the savings as additional profits. Instead, the analysis suggests that the vast majority of the savings would accrue to shippers in Virginia, Ohio, and Illinois.

OPTIMIZING PORT ACCESS FOR MAXIMUM REGIONAL ECONOMIC DEVELOPMENT: CHALLENGES FACING A BI-STATE PORT AUTHORITY

Melissa Grimm

Delaware River Port Authority

The Delaware River Port Authority serves regional ports along the Delaware River, including those in southern New Jersey, Camden, and Philadelphia. In addition to operating four bridges, a ferry, several ports, and a cruise terminal, the authority places special emphasis on strategic planning. It approaches the waterfront as a diverse asset, using dollars per acre and value of jobs as key measurements of success. In planning, it also keeps tabs on changes in the maritime industry—significant trends include improvements in land-side infrastructure, bigger ships driving more specialized ports, the development of new shipping lanes because of growing global trade, and a more diverse and outspoken range of customers. In light of all these trends, reaching out to the community is more essential than ever.

The authority's vision for the waterfront stresses a balance among retail, industrial, maritime, and open uses of the waterfront; the vision also recognizes the waterfront's capacity to attract new regional tourist dollars. The vision is complemented by a continued commitment to enhancing port infrastructure.

The authority's primary regional development objectives include establishment of the Philadelphia–Camden waterfront as a nationally recognized tourist destination, support for the acknowledged shift from a manufacturing to service- and tourism-based economy, and support for transportation projects that maintain the region's economic competitiveness. These investments cover everything from movable median barriers on bridges to new implementation of intelligent transportation systems projects, including traffic surveillance cameras, variable message signs, and participation in the E-ZPass program. Other recent investments include a \$300 million project to modernize a 100-mi stretch of the river by deepening it from 40 ft to 45 ft. This action is projected to generate 1,600 jobs, protect more than 54,000 jobs, and permit 2,000 more containers per ship.

In the case of commercial development, the authority has supported the Kvaerner Philadelphia Shipyard, which employs 1,000 skilled workers and marks the first step in fulfilling a regional commitment to convert the former Philadelphia Navy Yard to civilian use. A \$32 million aerial tram and the Riverlink ferry are also prime examples of commercial development projects. In Camden, rehabilitation of Admiral Wilson Boulevard is a key investment. In Philadelphia, the authority and the Philadelphia Planning Commission supported redevelopment plans for 10 mi of waterfront.

The challenge of regional development is the very fact that it is regional. The Delaware River Port Authority, for example, needs a perspective that spans two states. Moreover, the challenge has multiple layers, and the multijurisdictional challenge is further complicated by the need to develop a collaborative marketing strategy, a balanced approach to mixed use and port-specific use of the waterfront, and a balance between cooperation and competition.

PORT OF PORTLAND AND SMART GROWTH

Mary Gibson

Senior Planner

Port of Portland, Oregon

The Port of Portland was founded in 1891 to dredge a channel to the Pacific Ocean. Since then, the agency has grown to own and operate the Portland International Airport, three general aviation airports, five marine terminals, and 10,000 acres of land for future expansion. The port's operations are estimated to produce the following economic impacts:

- Providing employment of approximately 38,600 direct, indirect, and induced jobs each year;
- Influencing 130,000 additional jobs annually;
- Generating \$4.5 billion per year in revenues for regional businesses; and
- Generating \$2.3 million per year in state and local tax revenues.

National trends influence the port's business planning efforts. Key considerations include the anticipated doubling of freight volumes by 2020, with West Coast ports projected to receive a disproportionate share of this growth; the introduction of larger ships and planes; a shortage of capital for infrastructure improvements; and an increasing emphasis on route productivity. From a more localized point of view, the Port of Portland is looking at an economy in which wholesale distribution is a key component of the economic base, land supply is constrained, the population base remains of moderate size, and exports rather than imports dominate.

How do we channel these trends into "smart growth"? The standard tenets of smart growth call for a focus on the quality of life, support for existing communities, avoidance of sprawl, protection of open space, and provision of alternatives to the automobile. The Port of Portland's approach parallels these tenets. As we move further into the 21st century, the port's operations will revolve around several principles. The first is to avoid freight sprawl by supporting close-in industrial development and designating industrial sanctuaries within the urban core. Second, the port seeks to support quality of life and the economic base of the community by using the port to ensure cost-competitive access to national and international markets. Finally, the port is committed to supporting alternative freight modes by using the value of existing land holdings to support terminal operations, using property to leverage transportation investment, and developing logistics strategies that involve multiple modes of transport.

CONCURRENT SESSIONS

Session 11: Transportation and Rural Connections

GRAPPLING WITH THE REGIONAL ECONOMIC IMPACTS OF NATIONAL SCENIC BYWAY DESIGNATION

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Director of Economic Research

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Barbara Koth

National Scenic Byways Resources Center

The scenic byway, whether a part of a state program or a federal program such as the National Park Service or the National Scenic Byways Program, is no ordinary segment within this country's transportation network. These roads perform a dual function by not only providing access to but also preserving and showcasing local endowments of scenic, cultural, historic, and recreational sites of natural value and importance. As a result, a scenic byway can draw to a region new traffic that otherwise would not have occurred, predominantly from tourism-based travel. For most locations, a road's formal designation as a scenic byway will no doubt benefit from an effective promotion and marketing program to encourage potential tourists and travelers. The new trips—also known as visitation—also create a direct economic impact because of visitor spending within the community surrounding the byway, however broadly or narrowly defined that community may be.

When evaluating these impacts, analysts must first consider the proper way to measure the direct economic impact stemming from new trips along the scenic byway; the key here is to isolate those impacts that are attributable to the road's formal designation as a scenic byway. Analysts must also consider the potential for multiplier impacts as well. A good decade's worth of economic impact studies on scenic byways helps to inform the analytic approach. Done correctly, the estimated economic impact of byway designation—regardless of whether the subject road is pre- or postdesignation—can provide valuable information to the local community of stakeholders and decision makers. Communities considering scenic byway designation may wish to consider a prototype of a simple impact analysis model available in the paper upon which this presentation is based. The prototype is suitable to different byway situations. The paper also provides an outline of the key data that must be collected to quantify the impacts that are included in the model.

IMPACT OF APPALACHIAN HIGHWAY CORRIDORS ON THE SCOPE OF SMALL BUSINESS ACTIVITY

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Center for Business and Economic Research, Marshall University

An ongoing study of the Appalachian Development Corridor G is analyzing the productivity-enhancing impacts of highways at the firm and regional levels. Three distinct modeling efforts are employed. The first is a firm-level Corridor G in West Virginia and Kentucky. To evaluate the productivity impacts, the study uses Euclidean distances of these firms to proxy the impact of the highway. The study outlines a series of small positive impacts on productivity that are caused by

proximity to the highway. This finding occurs in rural, not urban, areas and is sensitive to firm size and individual industries. Further research will employ actual road distance as a proxy for the impact of the highway. Additionally, the impact of completed four-lane expansion versus the uncompleted portion (primarily in Kentucky) will be estimated.

The second model, a regional production function, finds modest impacts of the highway construction for counties in which construction has been completed. This is consistent with most other studies of highway impacts. However, conterminous counties experience productivity declines, a finding that strongly supports that of Chandra and Thompson, 2000. This suggests that the highway is concentrating economic activity from a broader region.

Finally, a model of regional sustainability suggests that little economic diversity is achieved through the highway construction, but that the highways result in firms with less tenure that are relatively more productive than their older, less proximal counterparts.

Together, these three sets of findings are important for three reasons. First, productivity increases found in this study are of more central concern than structural changes to a regional economy. Second, the finding of a positive relationship between productivity and proximity to the highway is an entirely new finding that suggests the concentration of firms along the highway is not merely a zero-sum outcome of highway construction. Finally, the finding of a negative relationship between age and productivity suggests the impacts of the highway may be more than transitory shocks to regional productivity.

TRANSPORTATION-RELATED BARRIERS TO MEDICAL CARE: A GRANT-SUPPORTED STUDY OF A RURAL WEST VIRGINIA COUNTY

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One of the most important and consistent barriers to health care for the people of rural Appalachia is physical access to clinics and other medical facilities. A recent survey of patients in a selected county in central Appalachia assessed the availability, cost, dependability, and perceived safety and adequacy of transportation to medical care.

Access to transportation appeared to be a significant barrier to health. Users of both the health care facility and public transportation systems traveled relatively long distances to care when compared to rural populations in some other areas in the country. Although the poor were the most transportation needy, residents across gender and a wide range of incomes and ages depended on others for transportation to health care. A significant number of participants paid for others to drive them to health care, both within and outside the county. These costs may represent a sizeable percentage of the patients' disposable income. What is more, lack of transportation evidently contributed to missed appointments for care and patients' inability to obtain prescription medication.

In its current form, the public transportation system is inexpensive and safe, but it appears to be an inconvenient and unattractive method of transportation to health care. Residents are unlikely to be able to schedule appointments that are compatible with bus schedules. Round trips require long waiting times. A possible low-cost solution would be to coordinate scheduling of the public transportation system, the county's Center on Aging, and health care facilities. Further investigation of the feasibility of a coordinated scheduling system merits attention.

CONCURRENT SESSIONS

Session 12: Economic Development and State DOT Practices

SURVEY OF ECONOMIC DEVELOPMENT TOOLS AND POLICIES AMONG TRANSPORT PLANNING AGENCIES

Glen Weisbrod

President

Economic Development Research Group, Inc.

The recently published *NCHRP Synthesis of Highway Practice 290: Current Practices for Assessing Economic Development Impacts from Transportation Investments* presents findings derived from a survey of state DOTs, Canadian provincial DOTs, various MPOs, and overseas transportation agencies. The survey requested information on the extent to which the agencies assess the economic development impacts of proposed transportation investments, the analytic tools that the agencies were using, the ways in which they were using the results, and their perceptions of remaining problems in the use of economic development impact assessment tools. The study also included a critical review of the methods used in 200 studies conducted over the past 15 years.

The survey generated the following findings:

- Nearly all state DOTs and many MPOs recognize that economic development objectives are germane to transportation investment decision making and planning. However, few agencies address these issues on a regular, formal basis.
- A small number of state DOTs have formal staff positions that focus on the economic development aspects of transportation planning. More states have policies for addressing economic development issues within the jurisdiction of their planning departments.
- A widespread perception exists among transportation agency staff that economic development impact analysis suffers from a lack of standard measurement and analytic methodologies as well as a lack of staff training for addressing these issues. As a result, the survey respondents believe that both the costs of conducting such studies and the accuracy of the results can be problematic.

These findings point to serious limitations on the capacity of transportation agencies to analyze economic development issues as well as the value of such analyses, given existing tools and as currently performed. The findings also indicate clear opportunities for future improvement.

ECONOMIC DEVELOPMENT POLICIES AT OREGON DOT

David G. Williams

Oregon Department of Transportation

The Portland region's land use planning process is guided by the 2040 Growth Concept, a regional strategy integrating land use and transportation planning with curbing rural and resource land consumption.

When considering increases in transportation capacity, particularly highways, the 2040 Growth Concept creates some unique analytical and decision-making challenges. An emphasis on urban form objectives, neighborhood livability, and alternate modes and demand management collectively creates a presumption in the minds of much of the public and its elected officials that the negative externalities of highway expansion outweigh the benefits. We have yet to succeed in developing a broadly accepted analytical and procedural methodology for highway expansion commensurate to the climate of pervasive ideological opposition.

Traditional level of service (LOS) analysis is not accepted. Traditional triggers based on the LOS system (with the breakpoint occurring at LOS D) clearly result in overinvestment and sprawl. Even dramatically lower standards (e.g., 1 hour LOS F, 1 hour LOS E) have proven to be too clumsy for constrained corridors or cases involving unique land use objectives. Additionally, the standard is unresponsive to system reliability considerations, which are prime considerations for intelligent transportation systems (ITS) and other design options and management techniques.

Benefit–cost analysis does not fare much better. The highway user cost focus of standard approaches (e.g., AASHTO) fails to address the normative urban form–livability assumptions that drive our planning process. The analysis also does not address locational issues, which are seen to be more important locally than those of cost—for example, will congestion in the corridor cause firms to relocate? Moreover, the data were not sufficient to capture differences in the valuation of travel-time savings as they relate to system reliability and predictability. As the peak spreads and reliability drops, user costs may rise disproportionately.

Oregon DOT is currently grappling with these issues, as it performs a multimodal study of the I-5 corridor from Portland’s central business district into Clark County, Washington. The study includes a land use analysis using a new metro model (MetroScope) that attempts to discern the development effects of adding capacity in the corridor compared to a 20-year projection of the status quo. Assumptions made in modeling the scenarios coupled with the region’s inexperience in dealing with this new information may undercut this attempt to incorporate urban form trade-offs into a transportation corridor analysis.

The rail freight capacity component of the study is proving challenging as well. The need for capacity expansion at the Columbia River in the relatively near future is not particularly difficult to assess. Public sector involvement, however, will be contingent on two variable and rapidly changing factors: (i) port expansion plans and (ii) rail passenger service expansion plans. Both of these are susceptible to rapid swings given changing business cycles, as well as political and environmental conditions.

Last, the relative ineffectiveness of traditional transportation demand and economic analysis in driving the public decision-making process means that the “spokesmen” of economic efficiency and development—the business community—must actively participate in the public debate on the need for additional transportation capacity. In spite of our attempts to place it at the table in the I-5 study, the business community has not been a strong participant. An unbalanced public discussion seems less likely to achieve an appropriate compromise solution.

ECONOMIC DEVELOPMENT POLICIES AT WISCONSIN DOT

Dennis Leong

Chief, Economic Development and Planning

Wisconsin Department of Transportation

The Wisconsin DOT's Economic Development and Planning Section provides funding, technical assistance, and research services to facilitate transportation planning and economic growth throughout the state.

One funding program the section administers is the Transportation Economic Assistance Grant Program. With annual funding of \$3.6 million, this program provides eligible communities with grants of up to 50% of the cost of a transportation improvement that is necessary to create or retain jobs in the state. Grant awards range between \$30,000 to \$1 million for a road, railroad, airport, or harbor improvement, with up to \$5,000 available for each new job created or retained. The Local Roads Jobs Preservation Grant Program, with total available bonding authority set at \$10 million, provides eligible communities with a grant of up to 80% of the cost of a local road or street improvement. This program focuses on projects designed to facilitate the movement of freight and employees in and out of larger employment centers, thereby retaining employment in the community. The State Infrastructure Bank Loan Program provides low-interest loans to communities to help improve transportation efficiency and promote economic development projects. The interest rate is set at 4%, and the term of the loans ranges between 10 and 15 years. A total of \$1.875 million resides in the bank, and as the fund is replenished with the payback of outstanding loans, a new generation of capital will become available. Finally, the section also administers the state's Rustic Roads Program and Scenic Byways Program.

In technical assistance and research, the section performs research that illustrates the relationship of transportation investment and the local and state economy. Recent studies have addressed the economic impacts of projects in the State Highway Plan and the economic significance of rail infrastructure, the aviation industry, and harbor infrastructure in Wisconsin. The section also ranks lists of proposed new highway improvement projects from the standpoint of their economic benefits; this is a key input for the state's annual development of its transportation investment priorities.

ROLE OF TRANSPORTATION IN NEW YORK STATE AND THE NEW WORLD ECONOMY

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The world economy is changing dramatically. Competition is global. The need for partners is critical. Understanding how these changes affect the state, region, nation, and North American continent can mean the difference between continuing economic vitality or slipping into the backwaters of the new world economy.

Customers now demand their goods faster and cheaper. North American industry has responded to this challenge by improving supply patterns. This had a dramatic impact on logistics, freight movement, and transportation infrastructure. Of these, the last is probably most important to state DOTs.

State DOTs have not traditionally considered the global perspective. Understandably, their emphasis has been on maintaining the current transportation network. Today, however,

DOT officials must join with their counterparts in economic development agencies to look beyond existing boundaries to understand current and future trade and freight patterns.

New York State has recognized these changes. Its DOT has embarked on a major initiative to identify areas in the transportation network whose smooth operation will be critical to the state's keeping pace with changing economic patterns. Once these areas are identified, the state will move forward to make key improvements in a timely fashion. In addition, the New York State DOT has begun to reach out to its Canadian neighbors and other northeastern states to identify common issues and shared solutions. For efforts in supporting freight transportation to succeed, more partnering of this sort will be required.

The new world economy is changing the role of state DOTs. While continuing to maintain the infrastructure and address safety and congestion problems, DOTs must also think regionally, actively involve neighboring states and provinces to identify and solve emerging issues together, and in all cases factor in the impact of the shifting dynamics of the economy.

CONCURRENT SESSIONS

Session 13: Urban Redevelopment Projects

TRANSPORTATION INVESTMENT, ENVIRONMENTAL JUSTICE, AND SOCIAL EQUITY

Carmen Morosan

Coordinator, Equity Project

Baltimore Urban League

The environmental justice and transportation equity movements can be said to have their beginnings in the civil rights movement. The realization that low-income and minority populations were disproportionately affected by environmentally harmful actions came soon after the environmental movement began. The environmental justice movement started in 1982 with organized resistance to the placement of a toxic-waste landfill in a low-income community in Warren County, North Carolina. Subsequently, several landmark studies focused on equity in land use.

Environmental justice concerns equal enforcement of the law, elimination of disproportionate impacts on low-income and minority populations, and involvement of those populations in decision making. The legislation and regulations implementing these ideas are based on the ideas expressed in the Civil Rights Act of 1964. One aspect of environmental justice concerns transportation equity. Laws passed and regulations issued in the 1990s attempted to balance equity and efficiency, so that the benefits of transportation investments are enjoyed by all and the costs of the system are shared fairly. These investments should foster personal mobility, which is the key to employment, education, self-sufficiency, and community involvement. In this context, the Baltimore Urban League is currently conducting a study on one aspect of equity in transportation planning. The study focuses on the mismatch between the location of entry-level jobs in the Baltimore area and the ability of welfare recipients to obtain transportation to these jobs.

It should be recognized that transportation equity is the law. Both transportation and land use planning by state and local governments should take equity into account. Public participation in the planning process is essential. If the goal of moving welfare recipients into permanent employment is to be achieved, the lack of adequate transportation must be addressed.

PORTLAND DOWNTOWN RETAIL STRATEGY STUDY

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Economics Research Associates

The urban development patterns of this country have been highly influenced by its transportation systems and standards. Before the widespread ownership of automobiles, our downtowns had multistoried department stores and streetcar service. During the second half of the 20th century, Americans had a period of romance with the automobile. Extensive suburban housing development and the emerging dominance of the suburban shopping center complemented this golden age of the automobile.

During the past 15 years, street retailing has returned to many downtowns. Downtown Portland, with its small (200 ft by 200 ft) blocks, has one of the most successful street retail environments of any medium-sized city in the country. This success has been achieved despite the

sometimes conflicting objectives of urban retailers and transit providers in downtown Portland. Transit-only blocks, which have neither automobile access nor parking and are relatively common in downtown Portland, offer clear benefits to the transit community while presenting both opportunities and challenges to retailers.

AIRPORT ACCESS AND COMMUNITY REDEVELOPMENT: JAMAICA, NEW YORK

Robert F. Baker

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Jamaica, a part of Queens, New York, plays a unique role in the fabric of our nation's largest and most complex urban area. Once a thriving, suburban-like community a few minutes from Manhattan, in past years Jamaica has suffered a downturn. The downturn derived from shifts in the labor market, increased suburbanization, substantial immigration, and lack of renewed investment. The area's employed residents earn 80% of the average regional wage. Most residents' employers are outside of the immediate area. Local businesses serve almost exclusively a local clientele, many of whom are first-generation immigrants just starting their climb up the career ladder.

Very recently, the development community has shown increased interest in Jamaica. One factor is Jamaica's status as a transfer point for subway, bus, and the Long Island Railroad (LIRR); it offers multiple modes of access to Long Island and Manhattan. However, accessibility has long been a hallmark of Jamaica, so while we recognize good access as a necessary condition for revitalization, accessibility alone is evidently not a sufficient condition.

What other factors have caused the recent surge of interest in Jamaica? First, the economy itself improved dramatically over the last decade. This effect was felt most strongly in real estate, and as Manhattan became increasingly expensive for business and commercial real estate, new locations were sought for new or expanding businesses. Second, with the introduction of electronic fare collection, transit ridership went through large gains. This created a focus on improving transit and increasing transit capacity. Third, it is globalization's march forward that in part led to modernization of aging intermodal facilities. Other key infrastructure investments include AirTrain—the first true train from John F. Kennedy Airport with an ultimate destination of central Manhattan. AirTrain is near completion and looks for a 2003 opening date.

All these taken together prompted creation of the Greater Jamaica Development Plan. That plan addressed the needs for compatible facilities development—for example, an air rights hotel to serve airport customers, office towers, and new retail businesses. The plan explicitly seeks to shape a future in which the personality of Jamaica will change from a connecting point to a destination.

The transportation investments have reinforced other important contributors to Jamaica's gradual resurgence. One is the new cohort of "movers"—those urban professionals with incomes above the regional median who are seeking a new, affordable, and close-in neighborhood. Second is new construction: a new theater complex and shopping mall are now under construction, which will add nightlife to the area and underscore its status as a destination. A third factor is the creation of an Aviation Institute at York College, located a few steps from the transportation stations and terminals. The institute will train managers from throughout the world for modern aviation industry jobs. Taken together, these factors and the newfound vitality of Jamaica demonstrate the impact that transportation investments can have in an urban setting.

CONCURRENT SESSIONS

Session 14: Making Airports Support Economic Development

FREDERICTON'S AIRPORT AND THE KNOWLEDGE INDUSTRY

J. David Innes

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In recent years emerging technologies and greater levels of international trade have transformed the nature of commerce. Fredericton, a small city in central New Brunswick, Canada, has enjoyed significant growth in this new environment. The knowledge industry has now become a dominant sector of the economy in the Fredericton area.

The Fredericton airport has played a significant role in the level of activity within the local economy. A recently completed study explores the importance of the Fredericton airport to this sector of the economy. Some of the study's key observations are that the knowledge industry has distinct characteristics and needs, one of which is good transportation access, whereby the best minds can converge and work together. The knowledge industry has grown tremendously in recent years and is taking on a growing importance in the local economy. The importance of the airport to that industry is evidenced by its impacts on employment levels, payroll, and the industry's own productivity.

The provision of good air service is essential to this industry; a substantial loss to the local economy would result if air service were to be discontinued.

AIRPORT IMPROVEMENTS TO SUPPORT JUST-IN-TIME AUTOMOBILE ASSEMBLY PROCESSES

Steven Coons

*Aviation Planner, Bureau of Aeronautics
Wisconsin Department of Transportation*

On-demand air cargo services are vital to automotive plants at which the introduction of just-in-time logistics and production methods has increased the importance of uninterrupted materials deliveries. Rock County, Wisconsin, is home to one of the largest truck assembly plants in the United States as well as numerous automobile supply firms that ship goods to Big 3 plants and transplanted Japanese and German automakers across North America. The local automotive supply base is both broad and deep and includes manufacturers of wheels, seats, paints, coatings, and a range of electronics products used in automobiles. Total employment at the truck assembly plant and at other local suppliers to the automotive industry is approximately 9,000 people.

The inbound and outbound shipment of on-demand air cargo by large air carrier aircraft is essential to the efficient operation of the assembly plant and other area suppliers to the auto industry. Rock County Airport (JVL) is primarily a cargo airport serving on-demand air carrier and air taxi cargo operations. A planned \$15 million extension and strengthening of an existing runway and taxiway to 7,300 ft along with the installation of an instrument landing system will allow fully loaded large cargo aircraft (727s and DC-8s) to use the airport.

These improvements at the Rock County Airport are critical to the efficiency of the truck assembly plants and the numerous local suppliers to the automotive industry. Plant closure is a significant risk if these businesses do not remain competitive. A major benefit to improved runway length at JVL will be the gains in efficiency that result from fewer slowdowns and shutdowns of production lines. This, in turn, will also improve the competitive position of Rock County–Janesville firms within North America and help to secure current levels of national production and employment.

PORTLAND'S AIRPORT LIGHT RAIL PROJECT

Brian Campbell

Planning Manager

Port of Portland, Oregon

The Portland metropolitan area has just constructed a new light rail line connecting Portland's airport to the rest of the light rail system. A major land development project accompanied this transportation project. The planning processes for these two investments took place concurrently and built on the concept of combining the region's transportation and land development planning priorities into one project and using a unique public–private partnership to implement it.

One of the Portland metropolitan region's long-term priorities has been to use light rail transit as an alternative means of moving large numbers of people. It has also been a priority to use light rail stations as focal points for transit- and pedestrian-oriented development. The airport project was able to combine these two priorities and use an efficient public–private partnership to fund both.

The key features of the project were

- Trade of land development rights for infrastructure funding;
- Use of all locally-directed funds for the major transit project; and
- Mutually dependent transit and land development funding, schedules, and decision-making processes.

The result has been the completion of a 5.5-mi light rail line to Portland International Airport for \$125 million, completion of all infrastructure for a 120-acre mixed-use development surrounding two light rail stations along that line, and development regulations for the 120-acre property that will ensure a high-quality built environment while allowing construction to take place without further environmental or land use review. The partners in this joint project included the city of Portland, the Port of Portland (which owns and operates the airport), Tri-Met (Portland's regional transit agency), the Oregon DOT, Metro (a regional growth management and transportation planning agency), and the Bechtel Corporation–Trammel Crow partnership. Only by working together did this diverse team arrive at a project that made sense; was feasible to finance, design, and construct; and promises to yield public benefits for many years to come.

**TRANSPORTATION AND ECONOMIC DEVELOPMENT:
MAKING THE IMPOSSIBLE POSSIBLE****William Ankner***Director**Rhode Island Department of Transportation***Sam Reid***Formerly Head of Governor's Washington Office**(Note: Paper prepared but not presented.)*

In 1998, the State of Rhode Island secured \$25 million through the Transportation Equity Act for the 21st Century (TEA-21) to build an Amtrak and commuter rail station at T.F. Green Airport in Warwick, Rhode Island. This Amtrak station will be part of the Northeast Corridor (NEC). Geographically, this project is one of the most promising for anyone interested in efficient and effective travel connections. At a distance of 1,600 feet from T.F. Green Airport, this train station will be the closest Amtrak to an airport connection in the country. Its location on the heavily traveled NEC and its close proximity to Interstate 95 (1,800 ft) are also significant benefits.

These transportation investments attain three significant objectives at once: transportation, public policy, and economic development. The overall transportation objective of the project is to provide an intermodal connection between the rail system and the air system. Additionally, the project would provide an intercity and intracity bus hub, commuter rail service to Boston, and a rail shuttle between Rhode Island's two largest cities, Warwick and Providence. The rail shuttle would provide frequent service between the two cities to enable travelers to maintain a seamless transportation connection.

The public policy objective is to provide the means for people to take transit (commuter and intercity rail) to the airport instead traveling by car. This will free up needed roadway capacity, help clean the air, and improve use of an economic asset, the NEC. The calculation is that there would be an 8% reduction in traffic, with concomitant air quality benefits. The economic objective is to develop the property between the airport and the NEC for activities that complement the transportation investments such as hotels, conference centers, offices, and restaurants.

We are making the impossible possible. Unlike the alchemists in the Middle Ages, we are taking lead and hazardous materials and turning them into gold by transforming dangerous and nonproductive real estate into an economic advantage for the City of Warwick and into a transportation center for the Northeast region.

CONCURRENT SESSIONS

Session 15: Business Locations, Distribution, and Productivity

WAREHOUSE DISTRIBUTION: AN ECONOMIC DEVELOPMENT CASE STUDY

James R. Held

Empire State Development

A major economic development focus in New York State is attracting distribution facilities operated by large retailers. These facilities are large both in size (often 1 to 2 million ft² of floor space) and in employment levels (as high as 1,000 jobs).

Retailers siting these facilities consider both transportation and nontransportation factors in making location decisions. Among the transportation factors are Interstate access, travel cost minimization, and the presence of business-friendly transportation officials. Airport proximity and United Parcel Service hub proximity are also important, but rail access is seldom an issue.

Among the most important nontransportation factors driving distribution center location are the business climate and quality of the workforce. The business climate is a first hurdle and is especially indicated by tax rates and workers' compensation policies. Demonstrating the availability of a quality workforce and training programs is also essential.

The locations of several distribution facilities in New York seem to reflect the culture and customer base of their owners. For example, The Gap chose a relatively sophisticated area north of New York City. The retailer Target is in a fast-growing, middle class suburban county. Kmart chose a location with a substantial Latino population, and Wal-Mart has established itself in a rural setting some distance from Interstate highways.

TRANSPORTATION, INDUSTRIAL LOCATION, AND THE NEW ECONOMY

Joseph Cortright

Economist

Impresa, Inc.

There are important correlations between transportation and industrial location. For example, reduced transportation costs increase the feasible scale of production and promote trade and centralization. However, as cheap transportation makes many physical inputs effectively ubiquitous, other factors, particularly the availability of specially skilled workers, become proportionately more important.

Increasing returns and the positive feedback associated with initial industry concentrations tend to lock industries into certain locations. Therefore, these concentrations persist even in the face of later technological change. Still, technological changes and their resulting effects on the number and organization of businesses and the number and kinds of products can generate major indirect or second-order effects on such things as industry location and transportation choices. For example, while e-commerce represents an important technology, it faces real limits. Transportation costs still limit what can be sold through the Internet, and while transactions are moved easily to the Internet, the complex and often ambiguous relationships between buyers and sellers still require face-to-face interaction. Nonetheless, e-

commerce may trigger important indirect effects, such as encouraging larger and more distant retail stores. New businesses associated with e-commerce have grown disproportionately in areas with strong existing industrial concentrations, which evidences the importance of increasing returns and access to skilled workers.

GEOGRAPHIES OF CYBERSPACE AND TRANSPORTATION

Maggie Cusack

GIS Coordinator

Hudson Valley Transportation Management Center

Business relationships have been changing because of the availability of Internet technologies and the expansion of the World Wide Web. Collaboration among suppliers, manufacturers, and consumers is blurring the lines of what were, until recently, discrete organizational boundaries. Mergers, acquisitions, and alliances are proliferating in the business culture globally. Internet technologies, specifically the tools for virtual collaboration, are enabling this transition.

The effect is a restructuring of the traditional supply chain as well as the associated delivery and warehouse structure. The shift also tightens cultural ties between business communities and contributes to a new shape to urban infrastructure. The transportation system has also been changed by these alterations in the traditional pre-Internet economy. The trends include increased freight shipments, increased air travel (with a temporary decrease in air travel after the terrorist attacks of September 11, 2001), increased volumes of freight at ports, and increased vehicle miles of travel. Growth can be observed in those urban centers with good communications infrastructure, good freight access, and adequate air access. Collectively, these factors amount to the key elements to successful virtual trade.

PRODUCTIVITY GAINS FROM PULL LOGISTICS: TRADE-OFFS OF INTERNAL AND EXTERNAL COSTS

Bahar B. Barami

Senior Economist

Volpe National Transportation Systems Center

Efficient supply chain practices of the past two decades have spurred economic growth and bolstered trade globalization. U.S. expenditures for logistics—96% of which are for transportation and inventory carrying costs—have declined steadily since 1980 to less than 10% of the U.S. gross domestic product (GDP). Efficient inventory management and advanced information technologies have allowed businesses to substitute information and transportation for inventory holding. The inventory carrying rate has plummeted from 34% to 24% of GDP, while inventory velocity has grown in all sectors.

In pull-based logistics, production practices are driven by actual sales—rather than pushed by production schedules and demand forecasts—and are supported by a constant flow of point-of-sale data that allow vendors to replenish inventories without warehousing them. Yet, not all the lower logistics costs have been from leaner inventories and higher productivity. In the early days of mass production—when manufacturers still realized economies of scale—vertically integrated assembly-line production plants achieved significant push-based supply chain efficiencies through internal cost controls. Today, with diminishing returns from automation and scale economies and shifts to mass customization, attempts to enable yet leaner inventories have led to cost-cutting strategies focused on sources outside the plant.

Substitution of transportation for inventory holding has led to significant external costs, partly because businesses practice pull-based production without improving their internal operations. Today's logistics practices generate pecuniary externalities—i.e., costs that take effect through shifts in market prices—that result from passing on logistics costs to downstream suppliers and local governments. They also generate technological (direct) externalities that affect production practices through distortions in transportation mode choice and rising external costs of network congestion and environmental pollution. In the absence of a full-cost accounting system to internalize these logistics externalities, market prices for logistics services will continue to understate the full social costs generated by demand-driven pull logistics.

CONCURRENT SESSIONS

Session 16:

Economic Growth, Smart Growth, and Sustainability *Friends, Kinfolk, or Competitors?*

OREGON'S STRATEGY TOWARD LIVABLE AND SUSTAINABLE COMMUNITIES

Elaine C. Smith

Community Development Liaison

Governor's Office of Community Development

Sustainability requires an integrated approach to governance. Economic, environmental, and community needs are interdependent, but governance systems tend to address these issues individually. Government agencies are charged with specific missions and tend to view their roles narrowly. We work in silos—economic development, housing, environmental quality, transportation, land use, and the like.

Oregon has developed an approach to connect these dots. This approach emphasizes a community and regional focus, is guided by a set of unified policy objectives, and provides a structure that requires agency field, program, and policy people to work together. In practice, the state's five agencies with clear links to community development—Economic and Community Development, Environmental Quality, Housing and Community Services, Land Conservation and Development, and Transportation—have joined together to form a Community Solutions Team. The team is supported by regional subteams of representatives from each of the five agencies to ensure that the team's policies and projects are responsive to individual communities' needs and priorities. To date, the team has established policy objectives that focus on compact, mixed-use, sustainable economies; protection of the environment; and transportation choices. The team is currently working on integrating the five agencies' 30-plus community investment programs. The community solutions approach and its successes are easily adaptable for use by other state and local governments.

DECOUPLING ECONOMIC GROWTH AND TRANSPORT DEMAND: A REQUIREMENT FOR SUSTAINABILITY

Richard Gilbert

Research Director

Centre for Sustainable Transportation

Kathleen Nadeau

Policy Analyst

Environment Canada

Economic activity and transport activity appear to be strongly correlated, raising questions as to the extent that one may cause or contribute to the other. European policy makers and researchers are taking an increasing interest in decoupling economic activity from transport activity, thereby allowing economic growth to continue with fewer adverse impacts from transport. This kind of decoupling involves a reduction in transport intensity, i.e., a reduction in the amount of transport activity associated with each unit of GDP.

There is less concern about decoupling and transport intensity in North America, perhaps because—in the United States at least—there is some level of decoupling effectively taking place as economic activity becomes less dependent on freight transport, irrespective of governmental policy initiatives. Still, even though some decoupling of economic activity from transport activity is occurring in North America, it is probably less than may be required for sustainability. This in turn raises questions as to whether economic growth and sustainability are compatible.

The Transportation Satellite Accounts produced by the U.S. Bureau of Transportation Statistics could help identify economic sectors that have high transport intensity and thus provide information to support the development of optimal strategies for further decoupling economic activity from transport activity.

Whether or not decoupling is observed depends on how transport intensity is characterized. Use of the Genuine Progress Indicator (GPI) rather than GDP leads to the conclusion that no decoupling of transport activity from economic growth has been occurring in the United States.

COPING WITH THE CAR: RECONCILING AUTOMOBILITY AND SMART GROWTH

James A. Dunn, Jr.

*Professor and Chair, Department of Public Policy and Administration
Rutgers University–Camden*

With the phrase “smart growth,” the antisprawl movement has found both a successful slogan and a program that has been able to build political support among local elected officials. By emphasizing the carrots on the antisprawl agenda, smart growth and its cousins legitimize the distribution of amenities that essentially amount to suburban pork barrel spending. However, these so-called soft items (e.g., new light rail lines, bike paths, and grants to community groups for participatory planning) are not likely to advance very far toward the broad goals of reducing automobile air pollution and energy consumption, nor are they likely to stem the tide of suburbanization. Although the smart growth repertoire also includes a number of policy sticks (e.g., densification regulations, in-fill development, urban growth boundaries, parking surcharges, and increased fuel taxes), these remain in contradiction to the preferences of the majority of the population. Moreover, the concepts of path dependence and increasing returns suggest that the costs of such programs in terms of economic growth could be extremely high.

Given the inadequacy of the carrots and political unacceptability of the sticks, it's clear that another path must be chosen. It is not impossible that changed circumstances (e.g., a new energy shock or a shift in public opinion on the urgency of global warming) could open a policy window leading to enactment of some of the hard items on the antisprawl agenda. Investing political and economic capital in improving the environmental and energy performance of automobiles will yield greater and more sustainable results than attempting to change the preferences of Americans for automobility and low-density, single-family homes.

CONCURRENT SESSIONS

Session 17:

Technical Measurement of Effects of Transportation Projects

ASSESSING TRANSPORTATION-RELATED EXTERNAL COSTS: VALUING DECREASES IN PM-10 EMISSIONS DUE TO MODE SWITCHING

Mark L. Burton

*Director, Center for Business and Economic Research
Marshall University*

For decades, the environmental treatment of proposed navigation projects has centered on water quality and wildlife habitat concerns. More recently, however, the set of environmental interests has been expanded to include the relationship between modal choice and air quality.

The current analysis describes recent modifications in the methods for estimating fuel consumption, pollutant emissions, and associated human health costs under differing modal and route choices. The analysis uses GIS-based shipment routings in combination with location-specific demographic information to identify human exposure to particulate matter. The health impacts of this exposure are then valued on the basis of earlier research.

The specific transportation movements to which this methodology was applied involve navigation and rail movements to, from, and within the Ohio River Basin. Generally, commercial navigation results in less human exposure to emitted pollutants than does rail transport. However, in some cases, the circuitry of water-inclusive routings was sufficient to reverse this outcome. Nonetheless, on average, the analysis found that the reduced health-related damages attributable to water-inclusive ship routes amounted to approximately \$1.30 per ton of shipped commodity.

ASSESSING STRATEGIC FREIGHT CORRIDORS: ALTERNATIVE MEASURES

Robert Anderson Chase

*Principal Economist
Huckell/Weinman Associates*

Efficient freight mobility is the result of successfully balancing the demand for transportation capacity and service with the supply of those capacities and services. Attaining this balance requires an accurate assessment of transportation demands and the value of those demands. Basic knowledge of freight flows on roadways, waterways, and railways is often expressed in terms of tonnage. This information on tonnage can be useful for planning the physical maintenance, preservation, or expansion of facilities. In fact, Washington State has adopted annual tonnage as the measure to identify its strategic freight corridors, primarily because the data can be readily obtained.

However valuable information on tonnage may be, determining the marginal or incremental value of improved freight mobility along a segment or corridor demands more detailed information. Such measurements are of special consequence when decision makers seek to identify and prioritize alternative freight projects. The fuller set of descriptors might include not only tonnage but also the dollar value of freight movements, dollar value of transportation services in moving these products, and the value-added characteristics of those products and commodities being moved. Of these, the value-added to the state in question holds the greatest

promise of realistically reflecting public benefits to the state, although it must be acknowledged that freight value has its proponents.

On the basis of five case studies performed throughout Washington State, our team tested alternative methodologies for determining the value of freight moved in various corridors. The case studies were useful in identifying the data needs and the availability (or scarcity) of data. A conceptual approach, in which the analyst first determines tonnage, then values that tonnage, and then finally derives the amount of value-added, was also found to be appropriate.

In summary, a ton is not just a ton when one attempts to estimate its value to a given state's economy. Even a commodity that appears to be of high value can offer very little value-added if it simply passes through the state. In contrast, manufactured products from firms in the state are a good example of high value-added truck movements, resulting in a potential higher priority for infrastructure investment. It is apparent that the use of value-added information is a positive addition to decision making about public and private investments in the state. Such information reflects the contribution of a particular movement to the state's economy and specifies more clearly the benefits of decreased congestion and improved efficiency.

USING ECONOMIC DEVELOPMENT (AND OTHER) MEASURES FOR STATEWIDE AVIATION RESOURCE ALLOCATION

Eric B. McClellan

Senior Economist

Wilbur Smith Associates

Faced with increasing demand for limited financial resources, state officials with responsibility for aviation infrastructure are seeking a means to prioritize investments between airports on the basis of those investments' potential economic impact. For definitional purposes, economic impact refers to the ability of an airport to positively affect its service area's economy. This perspective varies greatly from typical airport economic impact studies, which measure airport jobs and expenditures based on a number of visitors that fly in and out and the associated multiplier impacts.

Rather, the intent of this economic impact perspective is to systematically assess how airport investments might best help those businesses in an area that ship time-sensitive cargo and fly management and technical personnel via general aviation (GA) airports. The analysis purposely excludes consideration of key airport operational data (e.g., runway length, based aircraft, and aircraft operations) and safety issues. Additionally, the analysis does not concentrate on commercial passenger airports, because they often directly obtain FAA funding, can generate funds through passenger facility charges (PFCs) and other sources not available to GA airports, and typically enjoy a significantly greater degree of autonomy than GA airports.

Specifically, the approach examines the relationship between GA airport market areas and potential economic development. The first step of the analysis is to identify key measures of rising demand for goods and services. Various prioritization techniques are then employed to determine the best method to evaluate the key measures. This information provides background for the application of a filter analysis.

The filter analysis application helps to identify GA airport market areas with the greatest potential to positively influence their local economies. Based on this identification, an economic perspective can be incorporated into a state-level aeronautic division's overall system plan.

**BUSINESS AND USER IMPACTS OF HIGHWAY CONSTRUCTION:
STUDY OF HIGHWAY 52 IN ROCHESTER, MINNESOTA****Rabinder Bains***Economic Policy Analyst***Scott Peterson***Assistant to the Deputy Commissioner**Minnesota Department of Transportation**(Note: Paper prepared but not presented.)*

After the city of Rochester, Minnesota, objected to a highway reconstruction project that was scheduled to take 11 years and that would pass right through the center of town, the Minnesota DOT undertook a study to evaluate the relative costliness of alternative construction staging plans. The study took into account a variety of potential economic impacts on such factors as road user costs, temporary construction costs, and retail business costs. The first stage of the analysis forecast the flow of traffic in the region resulting from each of the alternatives.

Impacts on road user costs were measured as changes in vehicle travel time, travel distance, and crash rates. The retail business impact was based on the anticipated changes of retail sales for businesses in the affected corridors. The projected rates of change derived in part from a retrospective study prepared by the Indiana DOT (Effects of Road Construction on Adjacent Economic Activities: A Retrospective Study) and from research conducted on three corridors in Minnesota.

Although the proposed 11-year plan to which the city of Rochester objected had the longest duration of the three options considered, the study found that this was the option that ultimately incurred the lowest costs in total. The results further demonstrated that maintaining the flow of traffic and accessibility to the highway during construction was critical to minimizing the costs borne by travelers and neighboring businesses and outweighing the duration of construction as a factor in controlling costs.

CONCURRENT SESSIONS

Session 18: Transportation Financing and Funding Allocation for Economic Development

HIGHWAY FINANCING: ALTERNATIVES, MIXES, SUSTAINABILITY, AND PUBLIC POLICY

Marc W. Simpson

*Assistant Professor of Finance, Division of Finance and Economics
Marshall University*

Studies on the links between infrastructure investment and economic growth often find that spending on infrastructure has no statistically discernible impact on economic growth. We suggest that this counterintuitive result may be primarily because of the manner in which these studies are conducted. Specifically, most studies use aggregated data on infrastructure investment and pool expenditures across heterogeneous investment activities. Thus, the effects of activities that one might expect to produce economic growth, such as road building or road resurfacing, are mixed with the effects of activities that should have little economic impact but may be necessary for other reasons. The provision of guardrails, for example, may be necessary to improve public safety, but spending on guardrails is unlikely to produce significant increases in measurable indicators of economic growth. Thus, when road resurfacing expenditures are lumped together with guardrail expenditures, an analysis of the relationship between infrastructure investment and economic growth is likely to produce misleading conclusions.

Our study used county-level infrastructure investment data for West Virginia. The data were disaggregated by the type of investment activity undertaken. Further, we examined the subsequent increases in nonconstruction income in the county arising from the provision of one physical unit of infrastructure (e.g., 1 mi of roadway resurfaced) within the county or in neighboring counties. We examined only nonconstruction income to isolate the externality of the investment activity and thereby bias the results against our hypothesis. In addition, we controlled for trends in nonconstruction income, changes in population in the counties, and the level of economic education in the county and in neighboring counties.

Once the increase in nonconstruction income from infrastructure investment was extracted, we used standard capital budgeting decision rules to determine if the investment activity was worthwhile from the economic growth perspective.

Our results indicated that road resurfacing in West Virginia counties is an appropriate economic development activity. The provision of guardrails did not produce increases in nonconstruction income above their cost sufficient to justify investment in guardrails on the grounds of economic development. Providing guardrails, of course, may be justified for public safety reasons beyond the scope of our present study.

CREATIVE USES OF FEDERAL DOLLARS TO LEVERAGE PRIVATE INVESTMENT AROUND TRANSIT FACILITIES

Todd Chase

Planning Manager

OTAK, Inc.

As transportation planners consider new ways to make their existing federal funds go further, several opportunities have presented themselves. An array of new funding programs is now available. One example is the FTA's Transit-Oriented-Development Implementation Grants. Another is the authorization for PFC receipts to help finance transit improvements that connect to airport property.

No matter what financing tool is used, there is an art and science to defining the local matching share. New tools, including grant software, pro forma software, cost-benefit software, and visualization analysis tools, are now available to help project planners and analysts increase their capability to leverage existing assets to attract new resources and use them in the most cost-effective ways.

When seeking to leverage private investment to support transit facilities, 10 recommendations apply for planners. First, define the projects accurately. Second, concentrate on only two to five funding sources. Third, maximize the local match; a case of overmatch is always valuable as a means of demonstrating local commitment to the project when seeking federal funds. Fourth, memorializing funding and other commitments in writing is critical. Fifth, realistic, and even conservative, cost and revenue projections are very important. Sixth, it is important to build upon proven track records. Seventh, patience is a virtue; no funding package has ever come together without persistence. Eighth and ninth, stay up to date on new funding opportunities and financing tools and think creatively about ways to apply them to the project. Finally, sensitivity to market conditions is essential; there are no one-size-fits-all solutions, and one's choice of a financing tool must constantly be evaluated in light of current economic conditions.

CONCURRENT SESSIONS

Session 19: Multijurisdictional Transportation Projects as a Tool for Economic Development

OVERVIEW OF MULTIJURISDICTIONAL PROJECTS IN THE UNITED STATES

Arno Hart

Director, Economics, Freight, and Finance

Wilbur Smith Associates

Given that cross-jurisdictional travel is so important to economic development, cross-jurisdictional planning is an essential component of sound transportation policy. Even more important is the recognition of trade sheds among markets, some of which may not align with political borders. The existence of these trade sheds places an even greater premium on forward-looking cross-jurisdictional cooperation. A recent study performed by Wilbur Smith Associates evaluated seven formal multijurisdictional cooperative efforts. The study found that most of these organizations focus on specific goals. Examples include ITSs, a new proposed highway or corridor, regional passenger rail service, economic development, or alleviation of congestion at border crossings. It was also found that these organizations frequently build on preexisting informal relationships. Most coalitions lack any formalized power but rather act as forums.

Multijurisdictional coalitions typically have four major roles: coordination, consensus building, identification and development of multijurisdictional projects, and identification and pursuit of special funding opportunities. In the realm of funding, most coalitions focus heavily on off-the-top funding opportunities such as federal discretionary grants and congressional earmarks. The fact that coalition members' level of commitment to the organization appears to be directly proportional to the prospects for obtaining funding for the sought-after project seems to demonstrate the preeminence of fundraising in any of these coalitions' lists of objectives.

MULTIJURISDICTIONAL COALITIONS: PERSPECTIVES ON TRENDS AND ECONOMIC IMPLICATIONS

Gordon Rogers

Planning Director

Whatcom Council of Governments, Washington

Multijurisdictional coalitions tend to experience varying levels of success, depending on several factors: how they are organized, how they are funded, how they are led, how they are scoped, the goals and objectives that guide their paths, and whether they are officially sanctioned and by what body.

Such coalitions have a life span, champions, and detractors. How the coalitions confront those challenges is a factor in their success or failure. One such coalition, the International Mobility and Trade Corridor project (IMTC), focuses on U.S.–Canada border-crossing issues between Washington State and British Columbia and is successful, well regarded, and shows all signs of anticipated longevity. What factors have contributed to IMTC's success thus far?

Although there is no one-size-fits-all prescription, a few guiding principles follow. First, IMTC arose from a specific need—a challenge that immediately defined the need for and the mission of

the coalition. Second, strong coalitions generally should not be institutionalized or permanent; rather, the coalition's life span should correlate with the problem it was created to address. Third, although these coalitions frequently seek grants and other funding, they should not be overly focused on fundraising. Again, the mission is paramount, and funding is merely a tool to achieve the sought-after ends. Finally, the group must be very flexible and able to react to changing circumstances nearly at the moment they arise. For this and other reasons, good staff is essential.

Looking ahead, what events and trends will affect continued operation of this and similar coalitions and what overall economic issues will have a bearing on the groups' operations? International accords, federal transportation program management, state and provincial leadership, homeland security, manufacturing methodologies, and globalization are among the currents both giving rise to and simultaneously influencing coalitions such as IMTC.

ECONOMIC DEVELOPMENT AND CONTINENTAL 1; AN EASTERN SEABOARD TRADE-TRAVEL CORRIDOR

Natalie J. Harder

Executive Director

Continental 1

The United States has 1,200 to 1,300 federally designated high-priority projects, approximately 50 of which are designated as corridors. Highways attain the status of a corridor when they (i) sustain economic development by, for example, supporting international trade or tourism and (ii) link and contribute to existing transportation networks.

Continental 1 is the name of a coalition that is sponsoring an alignment extending 1,500 mi from Toronto to Miami. The alignment was approved in May 2002. It is binational and also intermodal, intersecting 13 major highways, linking to seaway connections either on Interstate 95 or via east-west connectors, and serving 12 major airports within a 50-mi radius. The concept for a unified corridor approach along the East Coast of the United States arose about 35 years ago, though the Continental 1 coalition was formally established in 2000. The coalition is served by a technical steering committee with representatives from nine states and one province; two additional Canadian representatives sit on the committee. The coalition has one staff member and a Washington-based lobbyist.

Naturally the coalition is seeking federal corridor funding, but it is also attracting private funding. No matter the source of funding, however, it is critical for the Continental 1 coalition to demonstrate the economic significance of the corridor and the tangible results that it will generate. Making this case is one of the coalition's major objectives. Other key objectives are to coordinate proposed projects on the corridor to ensure that they mutually support one another rather than work at cross-purposes, to provide each of the member jurisdictions more heft in Washington, D.C., than if they each approached government separately, and to conduct planning activities that proactively address any political or other early obstacles to the component projects' progress.

APPENDIX A

Final Program

Sunday 11:00 a.m. to 12:30 p.m. (*Colonel Lindbergh Room*)

Welcome on Behalf of Committee on Transportation and Economic Development,

Norman S. J. Foster, Minnesota Department of Finance

Welcome on Behalf of Oregon Department of Transportation and AASHTO,

David Williams

PLENARY 1

Transportation and Economic Development: A Relationship Under Stress

Moderator: Michael Bell, MEB Associates, Inc.

Congressman Earl Blumenauer, U.S. House of Representatives: Transportation and Economic Development: A Smart Growth Perspective

Looman Stingo, Senior Vice President for Logistics, Holcim, Inc. Transportation and Economic Development: A Business Perspective

Tom Stephens, Director, Nevada Department of Transportation and President, Western Association of State Highway and Transportation Officials: Transportation: A Statewide Perspective

Sunday 1:30 p.m. to 3:30 p.m.

CONCURRENT SESSIONS

Evolution of Rural Development Corridors (*Chief Poker Jim*)

Moderator: Greg Bischak, Appalachian Regional Commission

Martin H. Weiss (Martin.Weiss@fhwa.dot.gov), Principal Official for the Economic Development Highway Initiative, Federal Highway Administration: Brief History of Interstate-Era Transportation and Economic Development

Aurelia Jones-Taylor (aurelia.taylor@access.gov), CEO, Aaron E. Henry Community Health Service Center: Rural Transportation Access and Health Services

Edward A. Terry (eterry@arc.gov), Senior Transportation Planner, Appalachian Regional Commission: Transportation for Development in Appalachia

Linda B. Darr (ldarr@buses.org), Vice President of Policy and External Affairs, American Bus Association: Essential Need for Passenger Carrier Services to Rural America

Lessons to Be Learned from Major Urban Areas

Around the World (Queen Marie Ballroom)

Moderator: Dr. Jean-Claude Ziv, President of CODATU and Professor at the Conservatoire National des Arts et Metiers in Paris

Ravi Gurumurthy (Ravi.Gurumurthy@cabinet-office.x.gsi.gov.uk), Social Exclusion Unit, Cabinet Office, London, United Kingdom: Incorporating Wider Social Objectives into Transport Policy: Health Care Costs and Educational Achievement

Jeffrey Zupan (jnzupan@optonline.net), Regional Plan Association, New York: Transportation in New York: Past Is Prologue

Joseph Berthet (joseph.berthet@iaurif.org), Director, Division Infrastructure et Transport, Institut d'Aménagement et d'Urbanisme de la Région d'Ile de France (IAURIF), Paris, France: New Policies of Transportation for the Paris Metropolitan Region: How to Reach Sustainable Development

Alejandro Villegas-Lopez (villegas@mit.edu), Visiting Senior Scientist, Massachusetts Institute of Technology: Metropolitan Mexico City: Transportation Policies and Economic Development

Planning for Transportation in Urban Areas (*Gevurtz Ceremonial*)

Moderator: Jim Gillespie, Virginia Transportation Research Council

Judith A. Gray (jgray@kittelson.com), Engineering Associate, Kittelson & Associates, Inc.:

Access and Parking Management in Downtown Corvallis, Oregon

Tony Grayling (t.grayling@ippr.org.uk), Senior Research Fellow, Institute for Public Policy Research, London, United Kingdom: Traffic Impacts and Inequality Pedestrian Accidents in Britain

Todd A. Litman (litman@vtpi.org), Director, Victoria Transport Policy Institute, British Columbia: Economic Development Impacts of Transportation Demand Management

Transportation Perspective on Economic Development and Vice Versa (*Eric Hauser*)

Moderator: R. Leo Penne, AASHTO

Brian J. Gregor (brian.j.gregor@odot.state.or.us), Senior Transportation Analyst, Oregon Department of Transportation: Oregon's Integrated Statewide Model

R. Leo Penne (lpenne@aaashto.org), Program Director, Intermodal and Industry Activities, American Association of State Highway and Transportation Officials: What Does It All Mean and Who Says So?

David Rose (david@dyemanagement.com), Vice President and Director Consulting Services, Dye Management Group and Steven Landau (slandau@edrgroup.com), Economic Development Research Group, Inc.: Mutually Reinforcing Transportation and Economic Development: The Montana Case

Valuing Freight Linkages for Economic Development (*Fireside Room*)

Moderator: Kathleen H. Quinn, FHWA

Sergio Ostria (sergioostria@icfconsulting.com), Vice President, ICF Consulting: How Do Freight Transportation Improvements Affect Economic Development? An Overview of Linkages

John C. Falcocchio (jfalcocc@poly.edu), Professor of Transportation Planning, Polytechnic University: Why is Freight Improvement the Neglected Child of the Transportation Improvement Program?

Susie Lahsene (lahses@portptld.com), Transportation Planning Manager, Port of Portland, Oregon: Freight, Logistics, and the Economy

Monday 8:00 a.m. to 10:00 a.m.
PLENARY 2

Transportation and Economic Development: A New View for the 21st Century (*Colonel Lindbergh Room*)

Moderator: Glen Weisbrod, Economic Development Research Group, Inc.

David J. Forkenbrock, University of Iowa Public Policy Center: Ten Keys to Using Transportation Investments to Promote Economic Development

Alan E. Pisarski, Transportation Consultant: Transportation and Economic Development: Making the Reauthorization Case

Francis B. Francois, Consultant: 21st-Century Linkage Between Transportation and the Economy

James A. Dunn, Jr., Department of Public Policy and Administration, Rutgers University—Camden: Will the 21st Century See the “End of Automobility”?

Monday 10:15 a.m. to Noon
CONCURRENT SESSIONS

Economic Development in Rural Regions (*Chief Poker Jim*)

Moderator: Ron Poole, formerly North Carolina DOT

Robert S. Juravich (juravich@danc.org), Executive Director, Development Authority of the North Country, New York: North Country Case Study of the Economic Development Potential of Transportation Improvements Serving a Rural Distressed Area

Greg A. Bischak (gbischak@arc.gov), Senior Economist, Appalachian Regional Commission: Issues for Examining Economic Development Impacts Using a Networked Model of the Appalachian Development Highway System

Don R. Rychnowski (drychnowski@southerntierwest.org), Executive Director, Southern Tier West Regional Planning and Development Board, New York: Identifying Opportunities Arising from Highway Development in Rural Areas

Planning and Analysis Tools and Methodologies (*Fireside Room*)

Moderator: Adjo Amekudzi, Georgia Tech

Albert J. Racciatti (aracciatti@louisberger.com), Senior Planner, The Louis Berger Group, Inc.: Estimating the Indirect Effects of Proposed Transportation Projects

Daniel R. Pitzler (dpitzler@ch2m.com), Consulting Economist, CH2M HILL: Multimodal Benefit–Cost Analysis Using STEAM: Is STEAM the Tool for You?

Francis Wambalaba, PhD, AICP (wambalaba@cutr.eng.usf.edu), Senior Research Associate, Center for Urban Transportation Research, University of South Florida: Least Cost Planning: Improving Identification and Implementation of Transportation Investments to Maximize Economic Development

**Considering Economic Development in Transportation Decisions:
Views from Various Countries** (*Gevurtz Ceremonial*)

Moderator: David Forkenbrock, University of Iowa

Martin H. Weiss (Martin.Weiss@fhwa.dot.gov), Principal Official for the Economic Development Highway Initiative, Federal Highway Administration: U.S. Economic Development and Benefit–Cost Policy for Transport in the Era of TEA-21

Nilam Bedi (nilam.bedi@mto.gov.on.ca), Team Leader, Strategic Policy, Ontario Ministry of Transportation: Impact of Institutional Factors on Transportation Investment Decisions

Paul G. Chapman (Paul.Chapman@dtlr.gsi.gov.uk), Economic Advisor, Department for Transport, Local Government and the Regions, United Kingdom; and John Stephens, Head of Economics Group, Steer Davies Gleave: The Economic Impacts of Transport projects: Developing Guidance in the United Kingdom

Using Joint Development Effectively (*Eric Hauser*)

Moderator: Rob Ritter, Eno Transportation Foundation

George McLean Hazel (georgehazel@mcleanhazel.com), Managing Director, McLean Hazel, Ltd., Edinburgh, Scotland: Innovative Approach to Financing a Rail Project Using Increased Land and Development Value Around Stations

Laurel A. Land (land@cutr.eng.usf.edu), Senior Research Associate, Center for Urban Transportation Research, University of South Florida: Managing Interchange Areas

Rick Rybeck (rick.rybeck@dc.gov), Deputy Administrator for the Transportation Policy & Planning Administration, District Division of Transportation, Washington, D.C.: Using Value Capture to Finance Infrastructure and Encourage Compact Development

Port Development and Intermodal Connections (*Queen Marie Ballroom*)

Moderator: Shirley Loveless, Coleshill Associates

Shirley M. Loveless (sml23@cornell.edu), President, Coleshill Associates: Port Development and Intermodal Connections for a Just-In-Time Economy: A Real World Example in Philadelphia

Mark L. Burton (burtonm@marshall.edu), Director, Center for Business and Economic Research, Marshall University: Improving Access to Rail–Highway Intermodal Transport: Lessons from West Virginia

Melissa Grimm (MGrimm@drpa.org), Delaware River Port Authority: Optimizing Port Access for Maximum Regional Economic Development: Challenges Facing a Bi-State Port Authority

Mary Gibson (gibsom@portptld.com), Senior Planner, Port of Portland, Oregon: Port of Portland and Smart Growth

Monday 1:00 p.m. to 2:00 p.m. (*Colonel Lindbergh Room*)

Introduction: Norman S. J. Foster, Minnesota Department of Finance

Bill Scott, Oregon Economic and Community Development Department, and Bruce Warner, Oregon Department of Transportation: Oregon's Economic Development Policies and Programs from the Points of View of Two State Departments

Monday 2:00 p.m. to 3:30 p.m.**PLENARY 3****Alternative Perspectives on Transportation and Economic Development:
Views from the Private Sector and Local Economic Development Community****Moderator: Randy Eberts, W.E. Upjohn Institute for Employment Research**

Karen Goddin, Executive Director, Pacific Northwest International Trade Association: Don't Let the Economy Pass You By: Transportation Needs in the 21st Century

Robin Roberts, Governor's Regional Coordinator, Metro/Northwest, Portland, Oregon: How Economic Development Relates to Transportation: A Local Economic Development Perspective

Monday 3:45 p.m. to 5:30 p.m.**CONCURRENT SESSIONS****Transportation and Rural Connections (*Chief Poker Jim*)****Moderator: Richard Begley, Marshall University, Appalachian Transportation Institute**

Lisa M. Petraglia (lpetraglia@edrgroup.com), Director of Economic Research, Economic Development Research Group, Inc., and Dr. Barbara Koth, National Scenic Byways Resource Center: Grappling with the Regional Economic Impacts of National Scenic Byway Designation

Michael J. Hicks (hicksm@marshall.edu), Director of Research/Assistant Professor of Economics, Center for Business and Economics Research, Marshall University: Impact of Appalachian Highway Corridors on the Scope of Small Business Activity

Robert B. Walker (kinney@marshall.edu), Professor and Chairman of the Department of Family and Community Health, Robert C. Byrd Center for Rural Health at Joan C. Edwards School of Medicine at Marshall University: Transportation-Related Barriers to Medical Care: A Grant Supported Study of a Rural West Virginia County

Economic Development and State DOT Practices (*Queen Marie Ballroom*)**Moderator: Glen Weisbrod, Economic Development Research Group**

Glen Weisbrod (gweisbrod@edrgroup.com), President, Economic Development Research Group, Inc.: Survey of Economic Development Tools and Policies Among Transport Planning Agencies

David G. Williams (david.g.williams@odot.state.or.us), Oregon Department of Transportation: Economic Development Policies at Oregon DOT

Dennis Leong (dennis.leong@dot.state.wi.us), Chief, Economic Development and Planning, Wisconsin Department of Transportation: Economic Development Practices at Wisconsin DOT

Richard D. Albertin (ralbertin@gw.dot.state.ny.us), Director of Resource and Risk Management, New York State Department of Transportation: Role of Transportation in New York State and the New World Economy

Urban Redevelopment Projects (*Gevurtz Ceremonial*)**Moderator: Abe Farkas, Portland Development Commission**

Carmen Morosan (cmorosan@bul.org), Coordinator, Equity Project, Baltimore Urban League:
Transportation Investment, Environmental Justice, and Social Equity

William W. Lee (Bill.Lee@econres.com), Economics Research Associates: Portland Downtown
Retail Strategy Study

Robert F. Baker (rbaker@tid1s0.engr.cuny.cuny.edu), Research Program Manager, University
Transportation Research Center, City College of New York: Airport Access and Community
Redevelopment: Jamaica, New York

Making Airports Support Economic Development (*Eric Hauser*)**Moderator: Michael Lawrence, Jack Faucett Associates, Inc.**

J. David Innes (innesd@frederictonairport.ca), Professor of Civil Engineering, University of
New Brunswick, Fredericton, Canada: Fredericton's Airport and the Knowledge Industry

Steven Coons (steven.coons@dot.state.wi.us), Aviation Planner, Bureau of Aeronautics,
Wisconsin Department of Transportation: Airport Improvements to Support Just-in-Time Auto
Assembly Processes

Brian Campbell (campbb@portptld.com), Planning Manager, Port of Portland, Oregon:
Portland's Airport Light Rail Project

Business Locations, Distribution, and Productivity (*Fireside Room*)**Moderator: Stewart Butler, Volpe National Transportation Systems Center, U.S. DOT**

James R. Held (jheld@empire.state.ny.us), Empire State Development: Warehouse Distribution:
An Economic Development Case Study

Joseph Cortright (jcortright@impresiconsulting.com), Economist, Impresa, Inc.: Transportation,
Industrial Location, and the New Economy

Maggie Cusack (mcusack@gw.dot.state.ny.us), GIS Coordinator, Hudson Valley Transportation
Management Center: Geographies of Cyberspace and Transportation

Bahar B. Barami (barami@volpe.dot.gov), Senior Economist, Volpe National Transportation
Systems Center, U.S. Department of Transportation: Productivity Gains from Pull Logistics:
Trade-Offs of Internal and External Costs

Tuesday 8:00 a.m. to 9:45 a.m.

CONCURRENT SESSIONS**Economic Growth, Smart Growth, and Sustainability: Friends, Kinfolk, or Competitors?**
(*Queen Marie Ballroom*)**Moderator: Lewison Lee Lem, Jack Faucett Associates, Inc.**

Elaine C. Smith, AICP (lainie.smith@das.state.or.us), Community Development Liaison,
Governor's Office of Community Development: Oregon's Strategy Toward Livable and
Sustainable Communities

Richard Gilbert (richardgilbert1@csi.com), Research Director, Centre for Sustainable
Transportation, Ontario, Canada, and Kathleen Nadeau (kathleen.nadeau@ec.gc.ca), Policy
Analyst, Environment Canada: Decoupling Economic Growth and Transport Demand: A
Requirement for Sustainability

James A. Dunn, Jr. (jadunn@camden.rutgers.edu), Professor and Chair, Department of Public Policy and Administration, Rutgers University–Camden: Coping With The Car: Reconciling Automobility and Smart Growth

Technical Measurement of Effects of Transportation Projects (*Fireside Room*)

Moderator: Nilam Bedi, Ontario Ministry of Transportation

Mark L. Burton (burtonm@marshall.edu), Director, Center for Business and Economic Research, Marshall University: Assessing Transportation-Related External Costs: Valuing Decreases in PM-10 Emissions Due to Mode Switching

Robert Anderson Chase (bchase@huckellweinman.com), Principal Economist, Huckell/Weinman Associates, Inc.: Assessing Strategic Freight Corridors: Alternative Measures

Eric B. McClellan (emcclellan@wilbursmith.com), Senior Economist, Wilbur Smith Associates: Using Economic Development (and Other) Measures for Statewide Aviation Resource Allocation

Transportation Financing and Funding Allocation for Economic Development

(*Gevurtz Ceremonial*)

Moderator: Maggie Cusack, Hudson Valley Transportation Management Center

Marc W. Simpson (simpsonmw@marshall.edu), Assistant Professor of Finance, Division of Finance & Economics, Marshall University: Highway Financing: Alternatives, Mixes, Sustainability, and Public Policy

Todd Chase, AICP (todd.chase@otak.com), Planning Manager, OTAK, Inc.: Creative Uses of Federal Dollars to Leverage Private Investment Around Transit Facilities

Multijurisdictional Transportation Projects as a Tool for Economic Development

(*Eric Hauser*)

Moderator: Arno Hart, Wilbur Smith Associates

Arno Hart (ahart@wilbursmith.com), Director, Economics, Freight and Finance, Wilbur Smith Associates: Overview of Multijurisdictional Projects in the United States

Gordon Rogers (Gordon@wcog.org), Planning Director, Whatcom Council of Governments, Washington: Multijurisdictional Coalitions: Perspectives on Trends and Economic Implications

Natalie J. Harder (nharder@con1.com), Executive Director, Continental 1: Economic Development and Continental 1, An Eastern Seaboard Trade–Travel Corridor

Tuesday 10:00 a.m. to 11:30 a.m. (*Colonel Lindbergh Room*)

PLENARY 4

Transportation and Economic Development: The Way Forward

Moderator: Norman S. J. Foster, Minnesota Department of Finance

R. Leo Penne, American Association of State Highway and Transit Officials

Greg A. Bischak, Appalachian Regional Commission

Randall W. Eberts, W.E. Upjohn Institute for Employment Research

APPENDIX B

Acronyms and Abbreviations

Depending on their usage, the following acronyms and abbreviations are variously defined once or repeatedly in individual presentation synopses.

AASHTO	American Association of State Highway and Transportation Officials
ADHS	Appalachian Development Highway System
ARC	Appalachian Regional Commission
ASCE	American Society of Civil Engineers
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CODATU	Coopération pour le Développement et l'Amélioration des Transports Urbains
DARTS	Delta Area Rural Transit System
DOT	Department of Transportation
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GA	General Aviation
GDP	Gross Domestic Product
GIS	Geographic Information System
GPI	General Purpose Indicator
IMTC	International Mobility and Trade Corridor
ISTEA	Intermodal Surface Transportation Equity Act of 1991
ITS	Intelligent Transportation System
JVL	Rock County Airport, Janesville, Wisconsin
LCP	Least Cost Planning
LIRR	Long Island Railroad
LOS	Level of Service
MCMA	Mexico City Metropolitan Area
MPO	Metropolitan Planning Organization
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
PFC	Passenger Facility Charge
RABA	Revenue-Aligned Budget Authority
STEAM	Surface Transportation Efficiency Analysis Model
TDM	Transportation Demand Management
TEA-21	Transportation Equity Act for the 21st Century
TRB	Transportation Research Board

APPENDIX C

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