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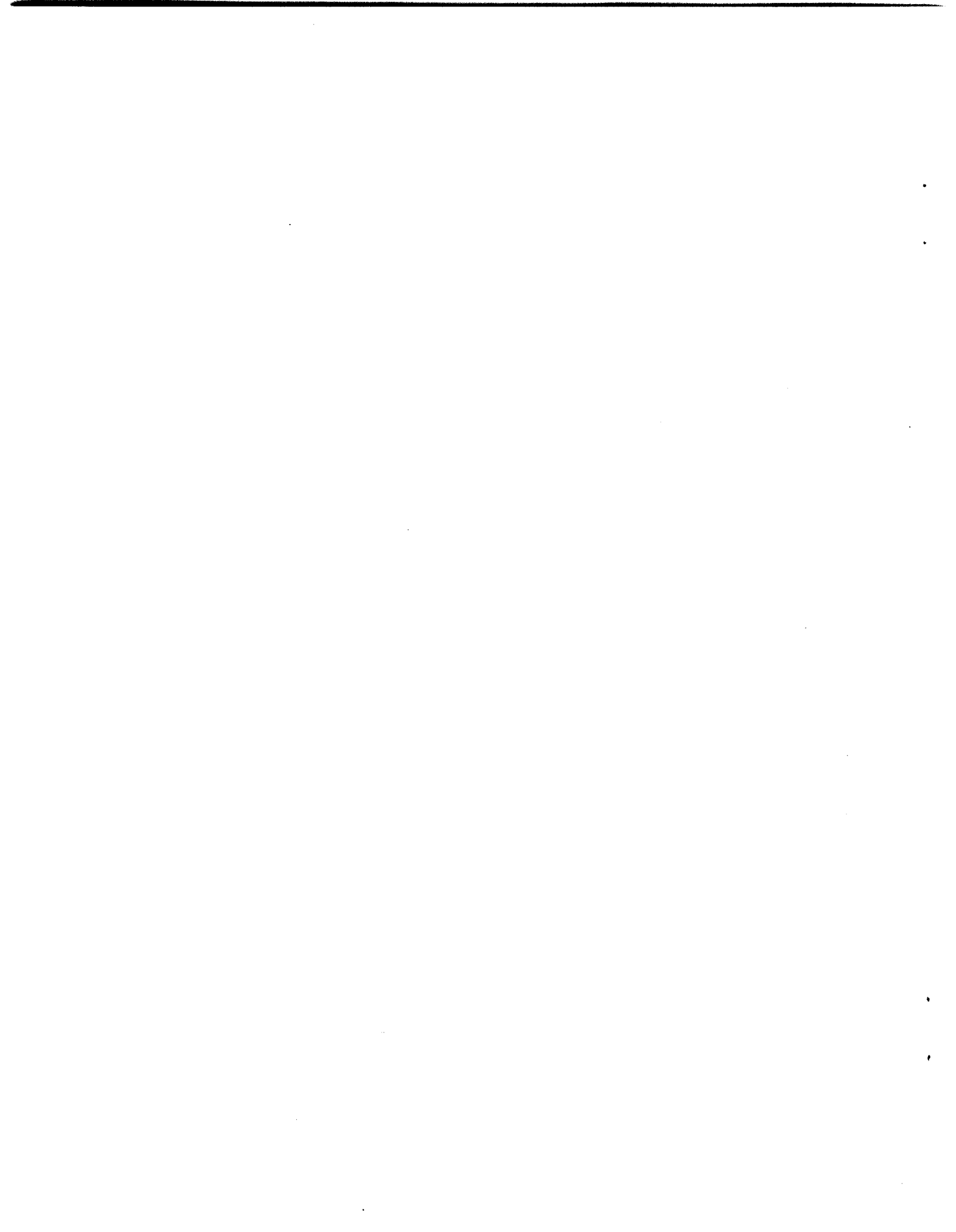


Environmental Futures and Transportation Roundtable

Meeting Summary

April 14, 1998
Washington, DC





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MEETING SUMMARY

Purpose

The Roundtable was convened to stimulate discussion among leaders from industry, environmental, transportation and community organizations, academia, and government on possible environmental challenges facing our nation in the next 30-50 years resulting from trends in transportation. To better prepare to meet these challenges, the Roundtable focused on strategies for developing tomorrow's transportation systems in ways that meet our needs for mobility and accessibility while also protecting public health and the environment.

Background

EPA traditionally has acted to reduce environmental threats that are immediate or near-term. The Agency's actions usually are driven by evidence of environmental deterioration, widespread public concern, federal laws, or a combination of the three. In "Beyond the Horizon," (EPA-SAB-EC-95-007) EPA's Science Advisory Board emphasized the value for EPA and all sectors of society in anticipating future environmental conditions as a guide for taking action now to reduce or avoid future environmental problems. The benefits of this foresight are economic, environmental, and social. For this reason, the Science Advisory Board urged the Agency, in concert with other stakeholders, to develop a "futures" capability, anticipating future environmental conditions and analyzing the actions needed to improve them.

The Environmental Futures and Transportation Roundtable was the fourth in a series of international and domestic fora organized by EPA in pursuit of this objective. Chaired by EPA Deputy Administrator Fred Hansen, the Roundtable was preceded by discussions among the G-8 countries on the long-range environmental implications of possible future directions of transport. (See EPA 160-R-98-002 for proceedings of the most recent G-8 meeting, and EPA 160-R-004 for proceedings of the first G-8 futures forum).

The following conclusions from the G-8 forum provided a point of departure for discussions at the Roundtable:

"... current trends in transport and technological innovation will deliver further improvements in local air quality from now to the first decade or two of the next century, if combined with appropriate fiscal or regulatory measures. However, additional measures are already needed, and will become more urgent in subsequent years, to achieve the goals outlined in Kyoto and to address impacts on land use, habitats, noise and urban environment. In the longer term, fundamentally new transport technologies must be found, combined with a successful effort to decouple transport growth from economic growth."

The Forum went on to recommend that G-8 Environment and Transport Ministers, in close consultation with the public:

- undertake research on environment and transport relationships, including behavioral factors;
- examine how best to integrate environment and transport policies; and
- establish a best practices program on environment and transport issues among the G-8 countries.

The Forum also recognized that no simple, single-faceted answer existed for addressing transportation and environmental issues. For example, technology development will be a key part of the strategy, but technology alone is not enough to create the fundamental changes that are necessary over the long-term. Additionally, pricing of fuel and transportation infrastructure so that true costs are internalized better is important. However, transportation has proven to not be a very price sensitive component of household budgets and even major price signal increases are also unlikely to, by themselves, generate the changes necessary.

Just prior to the Roundtable, the G-8 environment ministers endorsed this G-8 futures work and called on the G-8 countries to take steps to better understand the long-term impacts of transportation trends by identifying best practices in this area. The Roundtable therefore represents an important first step in the US effort to address the Ministers' mandate.

Opportunities for Progress

The Roundtable discussion resulted in the recognition of the need to address several issues in order to more effectively prepare and plan for the future.

Indicators of Progress

In addition to answering basic questions about sustainability, indicators for measuring progress or lack thereof should be determined, as well as methods for measuring those indicators. Potential indicator options discussed by participants include vehicle miles traveled, accessibility of choice, and time expenditures. These indicators will help measure performance as well as direction of current and future activities, especially as the need for mobility expands in ways that cannot now be clearly foreseen.

Innovative Policies and Leadership

Throughout history we have too often over or under estimated the nature of future problems, failed to predict key developments that change what is needed or what is possible, and looked to

technological solutions that were later shown to have adverse impacts of their own. Examples include the predictions of oil and natural gas scarcity and the car as a clean alternative to horses in urban environments. These experiences illustrate the need for designing a flexible approach to reaching our desired future.

Comprehensive approaches are also vital to the ability to effect long-term fundamental changes. Transportation policies in the United States are complicated by the fact that outcomes are determined by strong linkages with land-use patterns, economic activity, and more than 275 million individuals making complex choices. For any strategy to be effective it must pursue technological, market based, public policy, private partnership and public education approaches at the same time.

It was also noted that we often have a difficult time making progress on issues that are complex and do not have immediate consequences. Therefore, developing a road map of where we are going would be helpful. A strategic vision that articulates both why it is important to make fundamental changes and creates positive visions of how we get there will be needed to make progress.

Spreading Innovation

An encouraging current trend is the development of a number of locally based innovations that take a fresh approach to addressing transportation and environmental quality issues. However, these innovations are generally spread at a slow pace, effecting the rate of the adoption of these innovations elsewhere. The increased pace at which regional economic and land development patterns are changing adds urgency to "increasing the pace at which the system is able to learn and adapt."

Vital to improving transportation and environmental problems is the development of better mechanisms to disseminate information with respect to best practices. Also, education of both the policy makers and the public is important to effectuating change. Participants agreed that this education should most likely begin with the creation of a common vocabulary regarding goals, drivers, and the nature of solutions. Citizens should also be educated in order to comprehend the relevance of transportation and environmental issues to their everyday lives.

Research

Further research is required to better understand and clearly define relevant factors and drivers in transportation decisions, both individually and institutionally. Individual variables in the system need to be identified as well as influencing factors on those variables. These include, but are not limited to: 1) technological innovations that reduce impacts and increase system efficiencies; 2) understanding behavior and how choices are set up or influenced; and 3) policies that provide appropriate incentives and/or information and/or options for people to respond to. To further complete the level of understanding, a critical examination of the trends in transportation and

related environmental impacts and possible implications of these trends needs to continue in order to direct a path towards the desired future.

The Path Ahead

Strong leadership by both the public and private sector will be needed to create the fundamental changes required to meet growing demands for mobility through transportation systems that are environmentally tenable. At the same time better planning and flexible approaches are needed in addressing the challenge. Transportation and its impact on the environment is an extremely complex issue. There are no single solutions that will create the change that is needed. Instead, a set of effective solutions that balance public policy, public and private investments, market based strategies and community based efforts must be initiated locally and spread nationally.

Discussion Summary

Deputy Administrator Hansen provided opening remarks on EPA's interest in finding areas of environmental policy in which we can look beyond the horizon and toward long-term issues. The urban form and its impacts on the environment and quality of life is one of the most important areas for long-term thinking.

There are a mixture of scientific and policy questions that must be answered in looking far out into the future. The examination of these questions will lead us to think about what each of us can do to respond now in anticipation of future challenges.

The objectives for this Roundtable discussion as described by Deputy Administrator Hansen were to:

- stimulate each other's thinking about the future of our environment and how transportation influences this future;
- envision cooperative efforts that could arise from our insights;
- focus on novel environmental issues rather than the issues that pre-occupy us today.

A series of insights emerged from the discussion that followed about challenges we are likely to face over the next thirty to fifty years. The importance of developing a common understanding of the problems we face, indicators to define progress, better knowledge of underlying forces that shape transportation systems, improved understanding of preferences that influence transportation and location choices, as well as increasing the pace of change and dissemination of innovative approaches across the country were key issues identified by Roundtable participants.

The following summary organizes participant comments by themes that emerged during the discussion. These themes are not statements of Roundtable participant consensus, nor are they

intended to fully characterize the range of participant comments on the transportation trends that will shape future environmental challenges. Instead, they provide an organizing framework to convey a sense of the dynamic interaction that occurred among participants at the meeting.

The Challenge of Looking into the Future

Although participants described their vision of the future in individual terms, commonalities did emerge throughout the discussion. The importance of striking the right balance between futures thinking and progress in solving today's problems was consistently raised. Progress in achieving transportation and environmental improvements is essential to properly foster momentum towards future solutions. By striking the correct balance, futures thinking can help the United States to better prepare for the environmental and transportation challenges of the twenty-first century while ensuring that current efforts to move forward continue.

Participants recognized that policies and actions related to the transportation sector have historically been reactive. As a result, transportation problems and challenges have often outstripped those efforts designed to address them. This was noted as one of the important reasons to focus on futures thinking with respect to transportation.

In envisioning a cleaner environment in the future, with fewer impacts from both transportation and other potential environmentally detrimental activities, participants noted the importance of a healthy balance of government, public, and industry action with respect to providing, operating, and leveraging transportation systems. These systems would be more efficient, allowing for more trips on the same system. Transportation options would also be readily accessible, providing transport users with genuine choices when making decisions as to how to achieve desired levels of mobility. This accessibility would include, but not be limited to, locating public transport in a greater number of places, creating greater flexibility in scheduling, and planning social and economic services in close proximity to transit stations as well as enabling more pedestrian friendly transport. The true costs of using different modes of transport would also be readily apparent to all users. External costs to health and the environment would play a role in transportation decision-making and pricing. This would allow for the consequences of transportation practices and decisions to be widely known.

The Path to the Future

Roundtable participants agreed that the path to this envisioned future should begin with a clearly articulated definition of transportation and environmental problems and a measure of their scope. Defining the problem would require comprehensive assessments of the behavioral, technological, and economic factors effecting both transportation and the environment. All stakeholders could then be "on the same page" when addressing transportation and environmentally related issues. With this common understanding of the issues, stakeholders would be able to proceed towards the future from a common reference. Participants stressed that this exercise itself will not necessarily reveal, in the present, all the decisions that need to be made to achieve the desired future. This process could instead be the basis for beginning a more iterative process in planning and achieving mobility which would also respond quickly to new information and the need for adaptation.

Roundtable participants discussed several approaches for moving towards the future. One consisted of a series of smaller steps, adjustments and improvements to present practices in order to redirect the current path toward the desired future. Such an adjustment might, for example, consist of providing more and better public transit options with increased service. A second approach required major structural and institutional changes that might redefine or eliminate current practices that are detrimental to the environment. One example of a significant change might be increasing the cost of fuel. Price signaling through a price increase would raise the total cost of travel, thereby creating the basis for a possible change in travel decisions. Others suggested that the path to the desired future may be a combination of both smaller adjustments and major realignments. It was agreed that the definition of both the problem and a measurement of the scope of the problem would help identify the best approach.

Regardless of the character of the approach chosen, Roundtable participants generally agreed that it should embrace more proactive steps, breaking the historical tendency to address transportation issues largely in a reactive manner. The types and numbers of choices that must be considered should also be comprehensive, addressing the full series of interlocking economic and environmental issues and drivers. Among those issues, participants listed land use patterns, technological innovation, patterns of economic and trade related transportation choices, and changes in personal travel decisions. Key drivers influencing the environmental response to transportation impacts include climate change, air quality, congestion issues, and habitat loss/fragmentation. In addition, another driver raised was the quality of life overall, especially with respect to length of time spent commuting and personal safety associated with other modes of travel (biking, walking, etc.).

While needing to be comprehensive, it was agreed that the path towards the envisioned future also needs to be flexible, allowing for necessary adjustments and adaptations to unforeseen consequences. An example raised was that of the introduction of the car in the early 20th century. At the time cars were viewed as the answer to solving the sanitation and public health problems created by the use of horses; however, the nature and amount of pollution to be created

by the car was not foreseen. Any approach taken in the future needs to allow for adjustments to address the inevitable appearance of unforeseen consequences.

Creating/Influencing the Desired Future

In moving toward this desired future, participants generally agreed that it is imperative to also address more immediate environmental and transportation problems. Solving specifically defined current problems would have a positive environmental effect both in the present and future. The development of unleaded gasoline was raised as a historical example. In that scenario a clearly defined problem existed - lead in air - and was targeted for resolution - removing lead from gasoline. The resulting success in doing so had positive health and environmental consequences for both the present and future. In this context, it was noted that an important aspect of engaging in these immediate steps is that interim successes develop confidence and momentum by creating positive change now.

Also important is the role of different stakeholders in addressing the impact of transportation on the environment. Environmentalists and public interests play an important role in bringing current and potential environmental problems to light. Government then can create the policy to further address those problems and encourage and/or regulate responses that can fix the problem. Business and the public must embrace these policies and respond to them by taking appropriate action.

Understanding and Promoting Change

Technological Change: Participants discussed several influences on the development and direction of the desired future. Participants agreed that among the most important of these influences is the development and application of innovative technology, affecting both transportation and the environment. These positive technological innovations include both environmentally beneficial specific applications and transportation system oriented developments. Technologies such as fuel cells, alternative fuel vehicles, and global positioning systems could significantly affect how and in which way people travel in the future. It was stressed, however, that although technology is a critical element of future change, it cannot be solely relied upon to achieve the desired future. Technological innovations can also replace one known problem with a yet to be discovered problem, and hence should not be viewed as a panacea.

Governmental Leadership: Governmental decision-making and leadership was included as an important factor influencing the future. A key part of that leadership is taking the lead in establishing the desired goals and initiating policies that allow the public the flexibility to determine solutions to meet those goals. The federal government should also serve as a role-model by sending the right messages through both action and policy. One example of public sector leadership that is troubling is the number of employees in the D.C. area who currently have free or subsidized parking. This practice does not encourage employees to choose alternative

means of transit to travel to work. Participants agreed that government must lead in policies that support and encourage the right kind of behavior.

Government also has an important role in public education. In order to create changes in behavior, the public should be aware of the issues and costs associated with transportation and its impact on the environment. Positive examples of government-lead nationwide campaigns that have affected behavior include those against cigarette smoking and drunk driving, and for seat belt use. By engaging in education and awareness campaigns, the government can have a profound influence on the development and use of transportation in the future.

In addition, governmental institutions should lead and manage change. Government may have an impact on the future by restructuring those governmental institutions created to address nineteenth century issues in a manner which will more effectively address the challenges of the twenty-first century. For instance, in the United Kingdom, a single, unified Department of the Environment, Transport, and the Regions was created in 1997. This consolidation represented a recognition of the need to integrate environmental and transport planning. A transformation in the way the government engages its citizens in decision-making will also be necessary to enlist support for a forward-looking, rather than reactive, approach to developing transportation options.

Influencing Supply and Demand for Transport: Also influencing the future will be the response of the transportation system to the demand for and supply of different modes of transportation. Although these responses are not readily quantifiable at this time, there are several important behavioral factors that affect demand and supply, and the response of the transportation system to them.

Among those factors discussed were the range of incentives and disincentives that influence behavior and choice. The need for incentives with longer life spans was raised in order to encourage commitment to long-term actions and allow for those investing to see a return on those commitments. For instance, companies considering investing in modes of transport now that will be used for the next 25 years need strong incentives to invest up-front in cleaner, more efficient modes of transportation. By providing strong incentives now, the benefits of transportation decisions will span over the greater lengths of time needed for return on investment. In addition, more policies are needed that create the opportunities for the right incentives to emerge. One participant shared how his organization responded to a state law requiring reduction in single occupancy vehicle use by implementing a company-wide policy that provided incentives to employees to use alternative methods of transport (e.g. car pools and van pools). The policy was implemented through educating employees about options available to them, allowing employees to make their own choices based on those options, company leadership and benefits, and forming partnerships with local transportation providers. By providing modest incentives to employees, the company realized a dramatic shift in transport behaviors, at little overall cost. Participants noted that these types of programs had a positive

effect on both the environment and business, and that benefits can be provided to the employees of the company who shift their transportation choices.

In addition to providing those using transportation with the right incentives, discussion also focused on the responsibility of the public and private sectors to provide incentives to researchers, academics, and industry to solve specific transportation and environmental problems. Policies should also be applied consistently across different modes of transport. For example, a policy that creates incentives to reduce truck transport should not be met with restrictive rail regulations that are a disincentive to choosing that mode of transport. Participants stressed that disincentives to responsible transportation and environmental choices need to be identified and addressed in order to have a coherent positive effect on behavior.

Consumer Preference: Roundtable participants addressed the important behavioral element of consumer preference, recognizing that everyday there are over 275 million people in the United States making choices related to transportation. Many factors influence consumer preference, including the convenience and/or safety of using alternative modes of transportation. In addition, the perceived status of different transportation modes also influences the choices made by individual consumers. To exemplify the impact of status perception, an example with respect to the use of buses in affluent East and West Hampton, New York was raised. Buses are frequently perceived as an undesirable means of transportation, however in the Hamptons, buses were redesigned and called jitneys, thereby increasing ridership by a large percentage.

Personal Choice in Transport Modes: Another important behavioral influence raised was access to transportation alternatives. True choice for the public implies accessibility to multiple, affordable and flexible modes of transportation. Ideally, public transportation systems would be affordable, provide regular routes and reliable service, and have adequate operating intervals and times of service. Equally important would be the need to ensure a certain level of safety while traveling via alternative modes of transport. For example, officials in Great Britain saw an increased percentage in single vehicle trips and discovered that a significant percent of that increase was due to parents driving children to school. Officials realized that the increase in school trips was due to parental concern about the welfare of their children when walking or bicycling between school and home. This concern effectively eliminated non-motorized transport as an option. In San Francisco, many schools terminated bus services because of high insurance costs and school district budgetary constraints. Without safe walking or biking alternatives, many children are now driven to school by parents there as well.

The link between social service programs and transportation illustrates another facet of accessibility. By providing public transport users with true choices, a percentage of the population (the aged, children, and low income) now effectively without access to adequate and affordable transportation would have greater opportunity to explore other choices. One participant noted that a company has been actively involved with a welfare to work program. It facilitated reverse commuting in order to bring inner city workers to suburban work sites and also to provide access to child care. By working with local transportation providers and day care

providers, the company has been able to ensure that these employees would be able to get to and from work as their schedules required.

In addition to accessibility and flexibility, another element of choice discussed by the group was information and education. By being fully aware of the available choices and the effects of those choices, transportation users have the ability to understand the choices they need to make for both adequate mobility and environmental protection to occur.

Land Use Practices and Transport Decisions: Participants discussed the influence of locational decisions on chosen modes of transport. Locating businesses, public buildings, shopping areas, child care facilities, and other services based upon proximity to public transport, has a positive effect on the use of public transportation. One example discussed was the construction of the MCI Center in downtown Washington D.C. The Capitol Center, located outside of Washington D.C. in Maryland, previously housed sporting events and concerts and was not centrally located to public transportation. Consequently, almost 100% of those attending events at the arena traveled via automobile. The new MCI Center was constructed in downtown Washington D.C., in close proximity to a metro rail station. Now 60-70% of those attending events at the center use public transportation to get there. Focusing appropriate mixed use planning around transit sites also ensures that communities have access to public transport. The significant effect of these types of locational decisions on behavior and choice, as well as on the overall vitality of city centers, was recognized by Roundtable participants.

“Smart Growth” practices were also discussed as having an important influence on transport behavior. One strategy was outlined where funds were invested, both transportation and other capital investments, in a manner consistent with smart land use practices. The goal of such policies is to re-direct spending toward designated areas of growth and away from sprawl development - on the fringe of urban or suburban areas. Recognizing and acting upon this important link between economics and land use could greatly affect infrastructure and land use patterns. For instance, approximately eighty percent of personal vehicle trips taken in the U.S. are non-work related. By improving the economic health, encouraging investment in mixed-use or transit oriented development in core areas, this number may be reduced as the necessity for automobile travel is diminished.

The importance of neighborhood design can also influence behavior and choice. Urban design that pays attention to the needs of pedestrians and bicycles rather than simply maximizing car traffic flows are essential to making non-motorized transportation a more viable option. If such infrastructure doesn't exist or travelers feel that the option is not viable because of personal safety concerns, then walking and/or riding will not be an effective transport option. Participants discussed the possibility of planning auto-free communities which would by default create safe pedestrian venues rather than auto dependent residential developments. By planning in a manner that is pedestrian friendly and incorporates public transit, communities will more likely be committed to planned land use patterns because of the transport benefits.

Information Dissemination: Critical to inducing change is the development and dissemination of best practices. It is apparent that there is a need to improve information sharing about what does and does not work. Important to improving transportation systems will be an acceleration of the pace of information sharing regarding best practices. Some experience does exist with respect to what practices work and do not work; emphasis therefore should be placed on effective dissemination of this knowledge. Concurrently, further practical experience and research is needed on the critical factors influencing the overall demand for transportation and the selection of system options.

Partnerships: The Roundtable explored different avenues for developing cooperative partnerships; not only within the government, but between the public sector, private sector, communities and non-profit organizations. An important outcome of the Roundtable was the recognition of the importance of building relationships that facilitate the joint development of flexible, forward looking approaches to future environmental challenges.

Appendix A: List of Participants

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