

Transportation Decision Making

POLICY ARCHITECTURE For the 21st Century



U.S. Department of Transportation

“Throughout the past century, America’s national transportation system has played a crucial role in strengthening our economy, protecting our safety, and improving the quality of life for all Americans. Interconnecting networks of railroads, ports, and waterways have transported millions of passengers and billions of dollars’ worth of freight. Our national highway system connected cities to rural communities and people to jobs. The Wright Brothers’ invention of the airplane gave birth to a world-class aviation system that revolutionized travel, created new industries, and brought the nations of the world closer. The quality and versatility of all these modes of transportation gave our Nation a powerful defense tool as well, enabling us to move troops and materiel swiftly and efficiently in times of conflict and crisis. Now, as we begin a new century, our national transportation system must embrace exciting new possibilities and new challenges.

If we make wise and informed choices today and in the years to come, we can make our communities more livable, give our citizens greater choice and mobility, protect our environment, and help create a truly global community. The 20th century was indeed a golden age for transportation; the 21st century can be an even brighter one.”

— President William Jefferson Clinton

Definitions

Policy Architecture:

The policy architecture is an overarching framework that supports effective transportation decision making. It offers a broad set of principles for decision making – principles that all members of the transportation enterprise can embrace.

Transportation Enterprise:

The transportation enterprise includes all people, organizations and infrastructure involved with transportation investment, labor, management, operations, and uses. It includes private companies, public agencies, citizen groups, and individuals.

Statement of the U.S. Secretary of Transportation

Transportation is essential to strengthening America for the untold challenges and limitless opportunities of the 21st century. America will need an integrated transportation system that moves people, goods, information, and services safely and efficiently as a means for spurring the economy, enhancing the human and natural environment and ensuring national security.

President Clinton, Vice President Gore and I have set a vision for building the transportation system of the future that is international in reach, intermodal in form, intelligent in character and inclusive in service. We have fostered a climate for innovation essential for bringing such a system into being.

The U.S. Department of Transportation and its 100,000 employees, working with our public and private sector transportation partners, provide visionary and vigilant leadership in creating the quality and character of our national and international transportation systems. It is crucial, as we enter this new century and new millennium, that we work together to achieve our national goals.

A common decision-making framework — a policy architecture — that allows us to reach sound and effective transportation decisions is key to our success. This framework is needed to address the challenges of the rapidly changing world as well as the complex transportation decision-making environment. It provides a common approach for the myriad decision makers and stakeholders in addressing complex decisions that transportation leaders face today and will face in the future.

U.S. DOT developed this policy architecture through a series of *2025 Visioning Sessions* with hundreds of stakeholders across the country — including industry, labor, academia, government, citizens, U.S. DOT employees, and other interest groups. I am extremely appreciative of the scores of groups and individuals who participated in these sessions and contributed to our work.

This report and its companion, *The Changing Face of Transportation* complement the works of former Secretary William T. Coleman, a visionary leader whose historic *National Transportation Needs and Choices Report* defined the choices for transportation from 1975 to the year 2000. These reports give decision makers a framework through which to consider needed changes in transportation organizations, structures and processes. The adoption and use of this policy architecture will lead the way to a 21st century transportation system that is truly safe and sustainable.



Rodney E. Slater
Secretary of Transportation
November 2000

Transportation Accomplishments

ISTEA/TEA-21

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) authorized \$151 billion over six years for highways, mass transit and safety programs. The Act emphasized intermodal planning and a greater role for Metropolitan Planning Organizations. In a major breakthrough, the Act created the Surface Transportation Program (STP) with flexible funding that provided new opportunities for state and local officials to establish transportation priorities. The STP provided set-asides for safety and transportation environmental enhancements.

The 1998 Transportation Equity Act for the 21st Century (TEA-21) guaranteed a record \$200 billion in surface transportation investment for highways, highway safety, transit and other surface transportation programs from FY 1998 through FY 2003. TEA-21 retains the basic structure established by ISTEA, with some important changes including: the guarantee of funding and the expansion of the landmark environmental programs. TEA-21 strengthens planning requirements, expands flexible funding provisions, and places a stronger emphasis on safety. It includes new programs to meet specific challenges, such as funding for border crossing and trade corridor activities and job access for welfare recipients, and innovative financing mechanisms for transportation projects of regional and national significance.

“And I submit that as we live in times of change, we must be architects of that change or we will most certainly be its victims.”

— John A. Volpe, June 6, 1972

Transportation — and the world — are rapidly changing. Transportation is increasingly viewed, not as an end in itself, but as a means to enhance the nation’s economic health, and the quality of life of its citizens. Transportation is more than concrete, asphalt, and steel. Transportation serves people and makes sure that no one is left behind.

Globalization and improved communications are increasing the demands on the transportation system and challenging us to meet the needs for additional capacity in light of concerns about safety, security, energy, and the environment. At the same time, transportation decision making has become more decentralized and complex. These changes demand new tools, new competencies, new alliances – in short, a new



“The policy architecture is a framework that allows all parts of the transportation enterprise to make more effective decisions.”

— Rodney E. Slater, U.S. Secretary of Transportation

framework for making decisions — a new transportation policy architecture.

Defining this architecture and applying it is a key part of the U.S. Department of



Transportation’s strategy for meeting the challenges of the next 25 years. The architecture is an overarching set of

principles to encourage more open, collaborative, and flexible decision making across the transportation enterprise. It will allow all parts of the enterprise — international, federal, state, regional, local, and private — to make more effective decisions.



Transportation Accomplishments

Marine Transportation System

The Coast Guard Authorization Act of 1998 required the U.S. Secretary of Transportation to prepare a report on the status of the marine transportation system and to offer recommendations for improvement. Under Secretary Rodney E. Slater’s leadership, DOT developed a bold and comprehensive plan to modernize our nation’s Marine Transportation System (MTS). The MTS Task Force was a highly collaborative effort of federal, state, local and private sector stakeholders in the marine transportation sector to develop a vision for the future, define the issues facing the industry, and lay out a course of action. The MTS vision is to be the world’s most technologically advanced, safe, secure, efficient, globally competitive, and environmentally responsible system for moving people and goods by 2020.

The MTS Task Force recommended, and the Secretary subsequently established, two standing committees: an Interagency Committee for the MTS (ICMTS) made up of officials from the Departments of Defense, Transportation, Commerce, Treasury, Agriculture, and Interior and the Environmental Protection Agency that is charged with improving the Federal Government’s coordination of MTS-related programs and ensuring that maritime policies, strategies and goals are consistent with national needs; and a Marine Transportation System National Advisory Council to address the different viewpoints of all the stakeholders and to make recommendations for action.

Transportation Accomplishments

Open Skies

United States policy has encouraged a historic expansion of the aviation system, particularly in the cargo area. In the last eight years, the United States has signed over 50 Open Skies agreements with countries on each continent around the world. These agreements, as well as other cargo-specific liberalization agreements, have removed many of the restrictions that prevented airlines from introducing cost-effective and flexible service initiatives to respond to changing traffic flows. Under Secretary Slater's leadership, the U.S. has opened more markets and created more opportunities for international air service than ever before, tripling the number negotiated before he took office. The improved market access and more vigorous competition have brought passengers and shippers better international service at lower fares and rates. Secretary Slater's historic Chicago conference, "Aviation in the 21st Century - Beyond Open Skies Ministerial Conference," 55 years after the landmark aviation conference in 1944, engaged the world's aviation leaders in a constructive dialogue to consider moving beyond bilateral agreements toward regional multilateral agreements. During the APEC meeting in Brunei (November 2000) President Clinton announced the first multilateral agreement of its type between the U.S. and Singapore, New Zealand, Chile, and Brunei.

Transformations and Challenges

"The challenge before us then will be to put together an effective decision-making framework that allows the entities of the transportation enterprise to make decisions that ensure the safe, effective, and efficient functioning of the enterprise as a whole."

— Rodney E. Slater, U.S. Secretary of Transportation

A policy architecture for transportation was never more needed than today. The transportation enterprise faces challenges and opportunities unmatched in any previous generation. Yet decision making is becoming increasingly complex. A number of changes within the transportation enterprise contribute to today's decision-making environment.



▲ Decision Making Transformations

“We can address all the technical issues...but the complexity of decision making is enormous.”

— John Mason, Mayor, Fairfax City, Virginia

Today, decision makers are looking beyond transportation’s traditional mission of moving goods and people and addressing broader issues such as economic growth, the movement of information, land use, the environment, poverty, accessibility, and equity. The mission for transportation is expanding from the movement of goods and people to the improvement of quality of life.



Transportation Accomplishments

Transportation Infrastructure Finance and Innovation Act

The Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) provides federal credit assistance to major transportation investments of critical national and regional importance filling market gaps and leveraging private investment, epitomizing the importance of public-private partnerships under the Clinton-Gore Administration. TIFIA, authorized under the Transportation Equity Act for the 21st Century (TEA-21), provides direct loans, loan guarantees, and lines of credit to private and public sponsors of major surface transportation projects. The first two rounds of TIFIA projects in FY 1999 and FY 2000 provided \$2.24 billion in credit assistance to leverage \$8.5 billion in transportation projects, at a cost to the Federal Government of only \$98.4 million. Every TIFIA dollar will contribute to more than \$86 in capital investment.

TIFIA continues to advance the state of innovative financing for transportation investment. Innovative funding programs have helped finance nearly 200 projects worth more than \$13 billion. For example, the Department’s support for the \$2.4 billion Alameda Corridor project in California helped lay the groundwork for TIFIA. By providing a \$400 million loan, DOT is a minority-share investor in this 20-mile rail express line that will connect the nation’s largest port complex at San Pedro Bay to the transcontinental rail network near downtown Los Angeles.

Transportation Accomplishments

Highway Safety

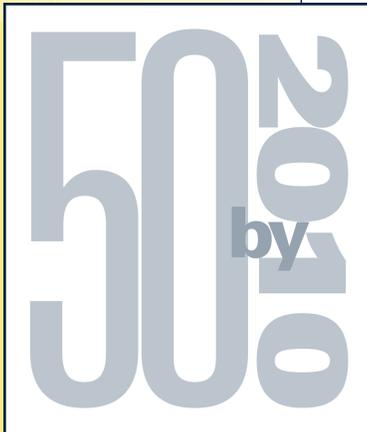
The highway fatality rate today stands at an all time low; seat belt and safety seat use rates are at all time highs. Secretary Rodney E. Slater has set a “stretch” goal of reducing fatalities to 33,000 by 2008, and an interim goal of moving below 40,000 by the end of 2002.

On December 10, 1999, President Clinton signed the Motor Carrier Safety Improvement Act of 1999, which created the Federal Motor Carrier Safety Administration.

This new agency will work to get dangerous vehicles off of our highways, save additional lives and help reach the goal of cutting motor carrier-related fatalities in half by 2010.

Through the Department’s efforts nationwide, seat belt use nationally rose to almost 70 percent in 1999, the highest seatbelt usage rate on record in the U.S. Each year, seat belts are estimated to save more than 10,000 lives. President Clinton has set a goal of 90 percent seatbelt usage by 2005.

Through the use of innovative public service announcements, the Department has already increased usage among such groups as African-Americans, Hispanics and Native Americans that have historically had low seat belt usage.



As a result, more groups than ever before have claimed a stake in transportation decisions, ranging from nongovernmental and international organizations to neighborhood coalitions and local businesses. At the same time, in the United States, devolution and deregulation have caused the locus of many transportation decisions to move from the Federal Government to regional and local entities and the private sector. In the private sector, many companies are becoming flatter organizations with less hierarchical decision making.

There are many benefits to these developments, which have empowered those affected by transportation. But they also add complexity and potential conflict. To address these challenges, a more effective decision-making process is needed — one that mediates the values and goals of different enterprise members, and emphasizes collaboration, flexibility, and informed decision makers and citizenry.

▲ Challenges



A number of societal forces and transportation issues will challenge transportation decision makers over the next 25 years.

Societal forces include globalization, continued economic growth, rapid technological innovation, and changing demographic factors such as the changing composition of the population, the aging of America and population growth in the South and West.

Among the emerging transportation issues, growth in travel, trade and tourism will strain the capacity of transportation systems, challenging the transportation enterprise to better manage existing facilities, increase service, and tap new technologies. Addressing transportation congestion will be a continuing concern. Moreover, the increased demand for freight transportation and the continuing shift to just-in-time delivery will place increasing cost and reliability requirements on transportation networks.

One of the greatest challenges to decision makers will be to provide adequate capacity in light of concerns about air quality, energy,

Transportation Accomplishments

AIR-21

The 2000 Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (commonly known as AIR-21) substantially increases funding for airport development both through the Airport Improvement Program and by allowing an increase in the Passenger Facility Charge. The Act also funds the continued redevelopment of the air traffic control infrastructure, providing the most significant change in technology and procedures in fifty years. AIR-21 provides



needed airport infrastructure grants that can result in competitive access for new entrant carriers across the nation.

AIR-21 continues implementing the goal of

modernizing and stabilizing FAA's critical air traffic services for the nation. It shifts FAA's air traffic management from a centralized command and control hierarchy to a more demand responsive and collaborative service model, managed by the expanded Aviation Management Advisory Council. The aviation consumer will benefit from the increased authorization to fund enforcement of consumer protection provisions.

Transportation Accomplishments

Accessible Transportation

The U.S. Department of Transportation is a leader in addressing public and private accessibility issues for people with disabilities. Examples of specific travel



advances include: increasing the nationwide fleet of accessible transit buses to 80 percent, and issuing: new rules requiring intercity bus service to be accessible, rules to increase accessibility to commuter aircraft service, a new rule to eliminate the \$2,500 cap on airlines' liability for loss or damage to wheelchairs and other assistive devices, and proposed rules to improve the safety of platform lifts used to enter motor vehicles. In addition, the Federal Transit Administration provided grants to support the installation of lifts and restraint systems in intercity buses.

global warming, and environmental justice. Sprawl development will continue to be a troublesome issue. Ensuring access for all citizens — for the elderly and persons with disabilities as well as for the transportation disadvantaged — will require hard decisions about economic development, land use, and the allocation of resources.

Over the next 25 years, steady growth in travel will lead to heightened concerns for transportation safety and security, with the resulting need to exert greater efforts to improve the safety of facilities and vehicles, and promote safer behavior of users. The risk of injury to drivers and pedestrians will increase due to the aging of the U.S. population. Other safety issues will arise from the growth of air transportation, which will stress an already burdened system.

As a consequence of the forces and issues described above, transportation decision makers throughout the transportation enterprise will be faced with increasingly difficult and complicated choices.

A Framework For Decision Making

“The policy architecture is a declaration of principles.”

— Rodney E. Slater, U.S. Secretary of Transportation

Visionary, inspiring and effective leadership at all levels of the transportation enterprise is key to sound transportation decision making. Visionary leaders foresee the changes that are coming and create ways to address these challenges. Visionary leaders have also worked to create the future of their dreams.

As part of the U.S. Department of Transportation’s journey to pursue visionary leadership, Secretary Slater convened over fifty 2025 Visioning Sessions around the country with hundreds of enterprise leaders, stakeholders and U.S. DOT employees. Participants in these forums were asked to offer suggestions for a new transportation policy architecture that would provide 21st century transportation leaders with a framework for an open, informed, and collaborative decision-making process.

The policy architecture that emerged from these sessions offers a broad set of principles for transportation decision making — principles to guide the decisions of all members of the transportation enterprise. These principles work together as a set supporting each other. While any one principle may appear more prominently in a specific decision-making process, the application of all of the principles together will yield better transportation decisions well into the 21st century.

Transportation Accomplishments

Project America – a New Partnership

On July 1, 2000, Ingalls Shipbuilding cut the first piece of steel that will eventually become the largest cruise ship ever built in this country and the first one in more than forty years. Project America, as it is known, includes the largest and most complex transaction ever completed by the Maritime Administration (MARAD). Project America involves more than \$1 billion in Title XI loan guarantees and permits Ingalls Shipbuilding the opportunity to return America to the large cruise vessel construction industry. This loan guarantee eclipses, by almost a factor of five, the previous largest MARAD project. To complete this project in a prescribed time period, MARAD staff had to develop new financial analysis skills and create new organizational structures. More importantly, MARAD has to maintain a strong business-based partnership with Ingalls Shipbuilding and the loan applicant.

Transportation Accomplishments

Strategic Plan

Over the past three years, under the leadership of Secretary Rodney E. Slater and Deputy Secretary Mortimer L. Downey, U.S. DOT has put into place internal systems and processes to address the nation's future transportation needs. The Department's strategic planning process has resulted in broad organizational goals, outlined major strategies to achieve these goals, and set a framework for performance goals to measure progress. The Department issued a Strategic Plan in 1997 with a five-year time horizon and in September 2000 issued an updated plan for the period FY 2000 - 2005. The Department's Performance Plan, with a one-year time horizon, describes specific initiatives U.S. DOT will undertake to implement the Strategic Plan. The U.S. DOT Performance Report was issued in May 2000. All of these reports were judged the best in government.

Five core principles inform the transportation policy architecture:

A Holistic Approach: Transportation decision making should recognize and foster appropriate tradeoffs among individual transportation choices, industry forces and societal goals.

Collaboration and Consensus Building: Transportation decision making should use an open and inclusive process, providing an opportunity for all parties and stakeholders to engage the issues and influence the outcomes.

Flexible and Adaptable: The transportation decision making process should be able to respond quickly and effectively to changing conditions and unpredictable, unforeseen events.

Informed and Transparent Decision Making: Transportation decisions should be made openly and based on the best information and analysis available.

Innovation: Transportation decisions should promote a continuing climate of innovation that reflects vision and speeds the movement of new ideas and products into service.



Principles in Action

“A package can travel a lot better than a person between many origins and destinations.”

— Ann Rappaport, Tufts University

▲ A Holistic Approach

Effective transportation decision making takes a broad view, looking at all relevant aspects of the transportation system and carefully weighing tradeoffs among competing interests, views and goals. Such an approach considers a variety of connected relationships that can fit together to work harmoniously. A holistic approach gives full consideration to linkages, tradeoffs or impacts on other transportation entities, facilities, systems or users. Moreover, this approach considers issues broader than safety and mobility, such as the environment, economic development, accessibility, and equity.

All too often, existing institutions and processes prevent a holistic approach. The enterprise’s modal structure can prevent the broad framing of transportation problems — across modes and interests — that yield the best solutions for the transportation system and the broadest range of users.

The U.S. Department of Transportation’s Transportation and Community and System Preservation Pilot Program

Transportation Accomplishments

Walking, Bicycling, and Trails

In 1994, U.S. Secretary of Transportation Rodney E. Slater, as Federal Highway Administrator, set a national goal of doubling the amount of walking and bicycling in the U.S., while simultaneously improving bicyclist and pedestrian safety by 10 percent. Progress has been made in meeting the safety goal — from 1993 to 1997, there were decreases of 15 and 18 percent respectively in bicyclist and pedestrian injuries, a 6 percent decrease in pedestrian fatalities and a minor decrease in bicyclist fatalities. The resources in ISTEA and TEA-21 have enhanced efforts to make nonmotorized modes part of an integrated transportation system. Spending of federal transportation funds on bicycling and walking rose from \$6 million in 1990 to \$297 million in 2000. The U.S. Department of Transportation has also played a lead role in the Millennium Trails initiative, helping to create the vision of a coast-to-coast and border-to-border network of trails that honors our past and imagines our future.

Transportation Accomplishments

Garrett A. Morgan Technology and Transportation Futures Program

Garrett Morgan (1877-1963) was an African-American inventor whose lifetime of contributions include the invention of the traffic signal. This technology has been electrified, then computerized, but not replaced, because the basic idea still works well today. The Garrett A. Morgan Technology and Transportation Futures Program serves as a catalyst to enhance transportation education at all levels by leveraging the Department's current technology, education, and research program through public/private partnerships. The program has three goals: build a bridge between America's youth and the transportation community; support the development of improved educational technology that provides better ways for people to acquire new skills; and ensure that America's transportation workforce for the 21st century is technologically literate and internationally competitive. Through 2000, the Morgan Program has reached over 2.8 million students, far surpassing our goal of 1 million.

(TCSP), first authorized in 1998, is a good illustration of a holistic, regional approach. This program encourages the development of innovative strategies to improve the efficiency of the transportation system; reduce the environmental impacts of transportation; reduce the need for costly future infrastructure investments; ensure efficient access to jobs and centers of trade; and examine private sector development patterns and investments that support these goals.

In another example, two petroleum giants, BP Amoco and Royal Dutch Shell, have adopted a holistic approach to meeting the world's energy needs. These companies have programs to introduce cleaner fuels, conserve energy resources, cut greenhouse gas emissions from their operations, and develop energy alternatives, including solar electric and hydrogen fuel cells. For example, BP Amoco's "40 Cities Program" is making cleaner fuels available to more than 40 of the world's most polluted cities – from Raleigh-Durham to Istanbul. In California, a private-public partnership among Shell, state agencies, and car manufacturers is demonstrating the potential of fuel-cell electric vehicles.

A third example of a holistic approach, called "Super Optimality," is used in the Netherlands. This approach requires that transportation projects be cost-beneficial — not only in terms of transportation, but in terms of the environment, sustainability, and economic development. It's not enough that policies be neutral in these areas — they must be shown to produce positive and real benefits.

▲ Collaboration and Consensus Building

“Good transportation policy builds consensus or builds on consensus when and as it can.”

— Larry Susskind, Massachusetts Institute of Technology

Effective transportation decisions can best be reached through collaboration. This demands inclusive decision making with all parties involved at the earliest stages of the process, when issues and potential problems are first defined. Transportation decisions should reflect the needs and interests of a diverse population and diverse transportation entities. Collaboration and consensus building can be extremely effective in overcoming institutional obstacles and other barriers by shifting the focus to common goals and how best to achieve them.

In the private sector, collaboration and partnership are a key component of the strategy of modern companies. As companies begin to specialize in their areas

Transportation Accomplishments

Livability

Few actions of the Federal Government have greater influence over the character and growth patterns of communities than transportation investments. In conjunction with Vice President Gore’s focus on livable communities, the Department is providing communities with new tools and resources to preserve green space, ease traffic congestion, restore a sense of community, pursue regional smart growth strategies and enhance economic competitiveness. All of the Department’s programs affect the livability of our Nation’s regions and communities. We have success stories across the country showing how a relatively small investment in transportation can make a huge difference in making our communities more livable. To promote the development of more livable communities, the Department has formed a partnership with a single community in each of our ten regions. And we are establishing partnerships with other agencies to pursue smart growth initiatives. Through such activities, communities are using existing Departmental programs more effectively to link safety, growth strategies, environmental quality and economic development in an integrated manner.

Arlington County, Virginia, is a national model for such urban planning-transportation-land use connections. A new project demonstrating this, now being constructed, includes 300,000 square feet of retail space, and about 800 housing units — 500 of those above the shops — all virtually on top of a mass transit station and beside a major urban shopping center.



Transportation Accomplishments

International Transportation Symposium

In October 2000, U.S. Secretary of Transportation Rodney E. Slater hosted an International Transportation Symposium for over 1000 transport ministers and other key transportation officials from over 100 countries to review existing transportation practices and explore possibilities for a global strategic vision for the new century and the new millennium.



The participants reviewed best practices in transportation policies and management throughout the world that may serve as future models for countries that face similar challenges. Conference participants issued a Declaration of Principles to guide future transportation development.

of competitive advantage, they work with partners to accomplish the myriad tasks needed to develop, manufacture, market, and support products and services. *Business Week* summarized the trend noting that “business leaders once thought that creating intense rivalries among competitors motivated their employees and assured success. But in the days to come, a company’s fiercest competitor might also be its most important collaborator.”

In one example of a collaborative approach, the Federal Railroad Administration (FRA) instituted a collaborative, customer-focused approach to rail safety in its Safety Assurance and Compliance Program in 1994. This approach involves working with railroad labor and management as well as other segments of the railroad community — including states, manufacturers, contractors and suppliers — to identify and correct the root cause of safety problems across the entire railroad system. As part of a collaborative approach to safety rulemaking, FRA established a Railroad Safety Advisory Committee, composed of safety experts from all parts of the railroad industry, which provides advice and recommendations on the development of the railroad safety regulatory program and identification of non-regulatory alternatives for improving railroad safety.

Started by the private sector, Envision Utah is another excellent example of a collaborative approach to improving transportation. This public-private partnership has addressed the effects of too rapid growth in an area stretching 100 miles north and south of Salt Lake City. A broad group of organizations and citizens used an extensive outreach process to develop a land use and transportation “quality growth strategy” intended to keep that area

Emerging Technologies

MicroElectroMechanical Systems (MEMS)

Over the next 30 years, new functionality will be incorporated onto silicon chips — structures that will enable the chip to not only think, but to sense, act, and communicate. MEMS will enable this revolution.

MEMS exploits the existing microelectronics infrastructure to create complex machines at the micron scale. (A micron is one millionth of a meter.) MEMS offers miniaturization (and therefore cost reduction), and also makes entirely new technologies possible. MEMS devices are already used in transportation, notably in automobiles (accelerators, pressure sensors, and inertial sensors). More advanced applications may include automobile collision avoidance; “smart suspension” in sport utility and other vehicles; remote sensing of methane and other hazardous materials; detection of chemical and biological weapons at airports; miniaturized radio frequency components in communications equipment; and “smart” sensors that continuously monitor the condition of roads, bridges, rail, and other infrastructure and act on this information.

Research shows that suitably designed MEMS hold promise for power generation and air transport applications. According to MIT investigators, an aircraft engine with a one-meter-diameter air in-take generates about 100 megawatts (100 million watts). At millimeter size, such an engine could produce tens of watts. The millimeter-size engine would have a thrust-to-weight ratio of about 100-to-1, compared to 10-to-1 for the best aircraft engines today — a performance enhancement with profound implications for tomorrow’s air- and space-craft.

of Utah beautiful, prosperous and neighborly for future generations. The goals include more land conservation and more housing choices, as well as less air pollution, water consumption, and traffic congestion.

The commitment to build consensus on a regional scale is critical to solve tough transportation issues that are outside of individual local jurisdictional boundaries. San Diego’s successful TransNet local ballot funding for transportation facilities is another example of such a successful cooperative effort. After two years of analysis and discussions with elected officials and community groups, the San Diego Association of Governments put a proposition on the ballot that would provide \$4 billion over 20 years for local transportation improvements. This proposition passed because a strong region-wide consensus had been built.

Transportation Accomplishments

National Transportation Safety Conference

In March 1999, the U.S. Department of Transportation held the first ever national safety conference in Washington, D.C. to develop a Transportation Safety Action Plan that identifies specific strategies to save lives and reduce injuries in all modes of transportation. The conference included a national town hall meeting of 440 participants in Washington, and 140 people in Atlanta, Detroit, and San Francisco via satellite teleconference to gather suggestions for strategies to improve transportation safety. U.S. Secretary of Transportation Rodney E. Slater, Surgeon General Dr. David Satcher, and chiefs of industry, labor, and law enforcement organizations signed a memorandum of understanding pledging to work as partners to improve safety. It was there that the Secretary developed the pledge: Safety — A promise we make and keep together.

▲ Flexible and Adaptable

“The problem with decision making that we have today is that we’ve taken a structure that’s 25 years old and said, ‘Now let’s make decisions on what’s right for the future.’”

— Ronald L. Barnes, Central Ohio Transit Authority

Transportation organizations at all levels need to be flexible and adaptable. Changing issues, the rapid pace of today’s world, and unforeseen events require a decision-making process that minimizes rigid rules and procedures and fosters the acceptance of new approaches.

As an example, states and localities have growing flexibility in their use of federal transportation funds. Legislation has consistently increased funding flexibility among program categories, allowing transportation investments to better respond to locally-determined needs and priorities. The gradual acceptance of airport project financing by means of direct passenger charges is an example of removing federal barriers to local decision making. In 1990, this prohibition [that airports receiving federal funds were prohibited from using local revenue sources for airport improvements] was modified by allowing airports to collect Passenger Facility Charges (PFCs) for projects that improve aviation safety, security or system capacity. Similarly, in 1994 Congress reduced the strictures placed on airport operators that had prevented the use of airport funds for non-aviation purposes. Finally, the Aviation Investment Reform Act for the 21st Century (AIR-21), passed in 2000, increased the maximum PFC that could be imposed.

An organization's responsiveness to unforeseen events is another aspect of flexibility. The Voluntary Intermodal Sealift Agreement (VISA) and the Civil Reserve Air Fleet (CRAF) are two outstanding examples of preparation for such response. Through these programs, the U.S. DOT is partnering with the commercial maritime and aviation industries to coordinate the use of civilian assets (vessels and aircraft) and worldwide logistics networks to meet National Defense requirements in times of emergency.



Emerging Technologies

Sustaining a Climate of Innovation

The capacity to transform new knowledge, concepts, and ideas into new products, processes, and services is a top priority for the Department and the entire transportation enterprise. This process of *innovation* provides the linkage between new technologies and the realization of their benefits for society. Secretary Slater brought together leaders from the transportation and technology communities to explore how the transportation enterprise might work together to ensure a climate that supports innovation. Participants at this *Spirit of Innovation in Transportation* conference held at the renowned Volpe Center agreed that three elements were critical: (1) a well-educated population and a highly trained and motivated workforce; (2) continuing investment by both government and industry in cutting-edge research; and (3) strong partnerships among all levels of government, academia, and industry.

The innovation conference generated a number of ideas for action for the Department, the government, and the entire technology and transportation community. U.S. DOT has taken the lead in fostering a climate of transportation innovation through a number of actions. The development of the policy architecture presented in this report is one of U.S. DOT's key contributions to advancing innovation. In addition, U.S. DOT has: established the Garrett A. Morgan Technology and Transportation Futures Program, initiated a broad partnership to define and advance a national transportation education and research agenda, sponsored high-level focus group sessions to identify transportation requirements resulting from the growth in electronic commerce; participated in the Administration's Partnership for a New Generation of Vehicles (PNGV) and the Advanced Vehicle Technologies Program (AVP) to improve medium- and heavy-duty trucks, and participated in the Aviation Safety Research Alliance to attain critical aviation safety goals in the next century.

Emerging Technologies**Information Technologies in Future Transportation**

As researchers improve the intelligence capabilities of computers – particularly the ability to imitate the human process of reasoning – they will become an integral part of safety-related decision processes involved in transportation. The next 25 years hold great promise for the evolution of information and wireless technologies in future transportation. Decisions that include large numbers of factors involving natural and human processes — for example, driving a motor vehicle — will benefit from this capability. Vehicles will be equipped with wireless devices that will “read” their surroundings – traffic congestion, road conditions, air quality, weather, and compass direction – perhaps even the driver’s own vital signs. This information will be updated continuously as part of an ongoing, real-time decision-making process of identifying the most efficient route, identifying unsafe speeds and movements, and either alerting drivers or taking actions automatically.

▲ Informed and Transparent

“We need to learn the lesson of transparency.”

— Joseph Giglio, Northeastern University

Transportation decisions must be based on sound technical analysis and objective facts. Performance measures are needed to allow an assessment of the entire transportation system. Informed decision making requires that we to the degree possible assess



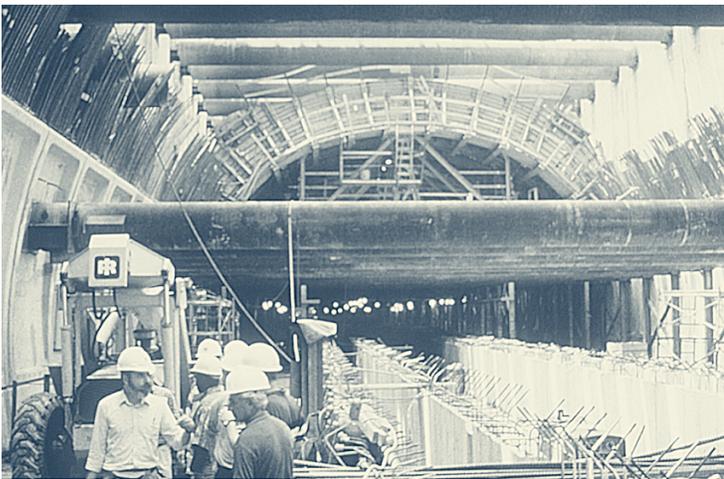
the consequences of transportation policies before they are implemented. In some cases, policies may have unintended consequences or may neglect important considerations.

As importantly, all levels of decision making must be open and transparent. Such transparency is essential for the legitimacy of the decision-making process. Stakeholders must have access to sound information about the issues in order to participate effectively in the process.

Even private companies are subject to public scrutiny about their decision making: The ease with which reliable information on companies is disseminated,

including the prices they charge and the impact of their products on the environment and society, is leading some businesses to be more open with customers about their decision-making processes.

U.S. DOT's program implementing the Transportation Infrastructure Finance and Innovation Act (TIFIA) is an excellent illustration of transparent decision making. TIFIA applications for federal loans, loan guarantees, and lines of credit are ranked



openly in terms of clearly established evaluation factors.

The Federal Transit Administration's (FTA's) evaluation and rating of major new transit investment projects is another example of informed and transparent decision making. The FTA openly evaluates and rates proposed fixed guideway systems and extensions using several pre-established

Emerging Technologies

Improving Transportation Efficiency With GPS

Over the past decade and a half, the transportation sector has been using Global Positioning Satellites (GPS) for navigation. GPS is a space-based global radionavigation system operated by the U.S. Air Force. Until recently, the two GPS services provided dramatically different accuracy levels. The military Precise Positioning Service provided full system accuracy, while the civilian Standard Positioning Service intentionally degraded the signal to limit accuracy to about 100 meters. Transportation providers and users have been using civilian GPS technologies to improve transportation safety and efficiency. Bus companies, taxicab fleets, and trucking companies use GPS-based automatic vehicle location systems to locate their equipment on a real time basis. Railroads and ocean shipping companies track the movement and location of individual cars and containers using GPS receivers.

On May 1, 2000, President Clinton ordered that the intentional degrading of the civilian GPS signal be discontinued immediately. This change improves the GPS' accuracy and dramatically increases the scope of potential uses by individuals and businesses. The more accurate signal will lead to greater consumer confidence, higher adoption rates and millions of dollars in savings throughout the economy. In the future, enhancements to the GPS system may result in accurate position information to within millimeters, increasing the cascade of benefits that can be achieved in all sectors of the economy, including many transportation applications.

Emerging Technologies

Fast Ships and Mega Ships

Over the next 25 years in order to keep up with the growth in world trade, a new generation of ocean-going freight carriers are being developed. This next generation of ocean freight liners will include ships that are dramatically larger than those currently in operation. In 1990, less than six percent of U.S. containerized cargo was handled on ships of 4,000 Trailer Equivalent Units (TEUs) or more. At least one study forecasts that by 2010, between 20 percent and 30 percent of ocean freight traffic may be carried on liners in the 4,000 to 6,000 TEU class, with more than nine percent in the 6,000 to 8,000 TEU class.

Ocean liners are being built with high-speed hull designs that will reduce their transit and turn-around time. Fast ships are being designed that will dramatically increase the speed of relatively large container ships. These new designs will result in a class of ships that, while slower than air travel, are much faster than conventional ocean shipping. Market demand for these vessels is expected to be significant. However, major improvements to the marine transportation infrastructure, including channels, landside facilities, and intermodal connections with surface transportation, will be required to take full advantage of their benefits.



justification criteria. These ratings form the basis for the FTA's funding recommendations to Congress.

The Portland (OR) Metro planning organization makes crucial decisions about the region's long-range transportation and land-use planning in an environment of openness and transparency. As stated by David Rusk, "Portland area citizens... know when and how such decisions will be made: in well-advertised public meetings after extensive public hearings....And citizens know who will make the decisions: the seven Metro councilors and Metro chief executive who are directly elected by the region's citizens."¹

1 "Growth Management: The Core Regional Issue," in *Reflections on Regionalism*, Brookings Institution, 1999).

▲ Innovation

“There is a lot of capacity left in the current transportation network if we get better at using technology and new approaches.”

— Michael W. Wickham, Roadway Express, Inc.

One clear reality of the 21st century is the power of new ideas and new technologies. The creation of a visionary, entrepreneurial culture within organizations and across the transportation enterprise is encouraging the development of innovative approaches. Advances in information systems, materials, and vehicles can achieve dramatic improvements, making the transportation system safer and more efficient.

Yet, challenges remain to using technology effectively, particularly the risk of new applications. Demonstrations are key to proving the feasibility of these new approaches. On a large scale, such demonstrations can help to break existing patterns, creating new markets and gaining critical financial and administrative support.

The Intelligent Transportation System (ITS) public/private partnership provides a superb example of technological innovation advanced by demonstrations. ITS represents a next step in the evolution of the nation’s

Emerging Technologies

Partnerships for a Cleaner Environment

Partnerships among government, industry, and educational institutions can generate new technologies that will grow our economy and help our environment at the same time. The Federal Government has taken a leadership role in initiating partnerships designed to fulfill all of these objectives.

The Partnership for a New Generation of Vehicles (PNGV) joins seven federal agencies and 19 federal laboratories with the U.S. Council for Automotive Research (USCAR), which represents Daimler-Chrysler, Ford, and General Motors. This partnership is exploring new technologies that will lead to a new class of vehicles with a fuel efficiency of up to 80 miles per gallon while maintaining performance, safety, and cost comparable to today’s cars. The PNGV partnership ultimately will help create new jobs, improve global competitiveness, reduce U.S. dependence on foreign oil, and decrease greenhouse gas emissions.

Researchers expect the next 25 years to bring strong new growth in development of alternative fuels and other renewable energy technologies for transportation that are friendlier to the environment and that will be economically competitive with current fossil-fuel technologies. This market also presents a remarkable opportunity for America’s transportation enterprise, by developing such technologies, to support mobility while reducing our dependence on fossil fuels and their associated environmental impacts.

Emerging Technologies

Virtual Manufacturing of Aircraft

Designing, testing, and manufacturing future aircraft requires many human and material resources.

Information technologies help integrate computer design tools with models and simulations of manufacturing processes for more efficient design, analysis, and testing of products. These virtual tools greatly reduce the investment required for product prototyping, testing, and validation. A major example of this approach is illustrated by the development and production of the Boeing 777, which was completely designed and pre-assembled virtually – that is, by computer.

Performance and strength of the plane were analyzed and tested through complex computer models. Of its three million parts, more than 100,000 are unique; these parts were precision-engineered from computer models. The parts were manufactured separately at sites spread around the world, then shipped to a central plant, where they were assembled, fitting together perfectly on the first attempt.

highway and transit systems applying new technologies from computers, electronics, and communications to make transportation safer, more efficient and more effective. These technologies offer promising solutions to the problems of congestion, crashes, and environmental impacts. Already in use in areas across the country, ITS is improving how transportation providers offer services to the public. Recently, the focus of the federal ITS effort has shifted from primarily research and demonstrations to a balanced program that includes support for deployment.

The Coast Guard's Deepwater Project uses a new acquisition approach to procure state-of-the-art systems. Instead of purchasing a single piece of equipment or specific service in the traditional manner, the Coast Guard is working with industry and stakeholders to purchase complete systems through an innovative Mission-Based Performance Acquisition approach.

The innovative Positive Train Control (PTC) effort consists of integrated command, control, communications, and information systems for controlling train movements with safety, precision, and efficiency. PTC brings together a number of technologies including digital communications networks; continuous and accurate positioning systems such as GPS; and onboard computers, displays, and speed control interfaces. Soon to be introduced in the Northeast Corridor, Illinois, and Michigan, PTC will improve rail safety by significantly reducing the probability of collisions between trains, casualties to roadway workers, and overspeed crashes.

A New Direction for Effective Transportation Decision Making

The transportation enterprise is moving toward an increasingly flexible, multimodal association of organizations that invests in the creation and operation of locally and globally responsive systems. However, it is clear that the way decisions have been made in the past will not be sufficient to meet the challenges of the future.

The continuing evolution of effective transportation decision making includes such actions as the following:

- Actively engaging all stakeholders throughout the process from beginning to end.
- Giving greater attention to techniques for consensus building and conflict resolution.
- Forging global cooperation and new partnerships to identify the best practices for solving transportation problems.
- Increasing integration of local and regional transportation planning with commercial concerns, environmental and equity issues, and other social needs and national priorities.
- Changing structures, organizations, and processes — perhaps even developing new organizations — so they are more responsive to customers and more appropriate to new methods of operation.

Emerging Technologies

Nanotechnology

Today's research provides a glimpse of the future in transportation manufacturing, construction, and operations. Scientists are rapidly gaining the ability to build devices and materials at the nanoscale (the level of atoms and molecules) and to exploit their unique properties. A nanometer is one-billionth of a meter, or about ten times the size of an individual atom. The unique properties are due to the different behavior of things at the nanoscale as compared with either isolated molecules or larger structures. In the emerging field of nanotechnology, researchers are working to exploit these properties to develop devices and materials with vastly improved performance and characteristics — for example, materials that are ten times stronger than steel but only a fraction of the weight. In transportation, the potential benefits are broad and pervasive. Among the breakthroughs that we may see are custom-tailored materials for infrastructure and vehicles; materials that monitor their own health and repair any defects; “brilliant” vehicles that avoid crashes and improve operator performance; tiny traps that remove pollutants from emissions; and fuel cells that use carbon nanotubes as hydrogen “supersponges.”

To meet the transportation challenges of this century, all members of the transportation enterprise must adopt the core principles of a holistic approach, collaboration and consensus building, flexibility and adaptability, informed and transparent decision making, and innovation. This framework — the transportation policy architecture — will allow a common approach to the complex decisions that transportation leaders face today and in the future. It will provide a framework for considering needed changes in transportation structures, organizations and processes, and lead the way to a transportation system that is truly safe and sustainable for all citizens.



“My fellow Americans, on this day, with high hopes and brave hearts, in massive numbers, the American people have voted to make a new beginning. This election is a clarion call for our country to face the challenges of the end of the Cold War and the beginning of the next century, to restore growth to our country and opportunity to our people, to empower our own people so that they can take more responsibility for their own lives, to face problems too-long ignored, from AIDS to the environment to the conversion of our economy from a defense to a domestic economic giant.”

— President Elect William Jefferson Clinton, November 3, 1992

APPENDICES

Appendix I The Evolution of U.S. Transportation Policy Development

Appendix II Participants in the National Policy Architecture Forum, Volpe National Transportation Systems Center, Cambridge, MA, May 23, 2000

Appendix III Participants in the Department of Transportation Secretaries' Event, National Press Club, Washington, DC, May 15, 2000

Appendix IV Participants in Secretary Rodney Slater's Stakeholder 2025 Visioning Sessions

Appendix V Department of Transportation Participants in Secretary Rodney Slater's 2025 Visioning Sessions

Appendix I

The Evolution of U.S. Transportation Policy Development

Transportation policy development in the United States has evolved in response to national challenges and opportunities, shifts in ideology on the role of government, and changes in the nation's transportation systems, networks, and technology, as our society has changed.

In 1962, President John F. Kennedy described the American approach to transportation as "(a) chaotic patchwork of inconsistent and often obsolete legislation and regulation." President Lyndon B. Johnson wrote that "(t)he country's transportation facilities respond to the needs of an earlier America," and asked that the Congress establish the U.S. Department of Transportation to create a "coordinated transportation system."

Formation of the U.S. Department of Transportation

The U.S. Department of Transportation Act of 1966 tied the creation of the Department to the economic growth and stability of the Nation. The U.S. DOT was established in 1968 to:

- assure the coordinated, effective administration of the Federal Government's transportation programs;
- facilitate the development and improvement of coordinated transportation service, to be provided by private enterprise to the maximum extent feasible;
- encourage the cooperation of federal, state, and local governments, carriers, labor, and other interested parties toward the achievement of national transportation objectives;
- stimulate technological advances in transportation;
- provide general leadership in the identification of transportation problems; and
- develop and recommend to the President and the Congress for approval national transportation policies and programs to accomplish these objectives with full and appropriate consideration of the needs of the public, users, carriers, industry, labor and the national defense.

Many U.S. DOT programs originated in other Executive cabinet departments or as independent agencies. The highway grant programs, for example, originated as Department of Agriculture programs to improve access for farmers to markets in urban areas. The

aviation programs were started to nurture and ensure the safety of air travel. Maritime programs were created to enforce revenue laws during the 18th century and to ensure domestic sealift and shipbuilding capacity for national defense. The U.S. Department of

Recent Federal Transportation Legislation Leading to Major Changes in Transportation Decision Making

Legislation

Deregulation:

- 1976 Railroad Revitalization and Regulatory Reform Act of 1976 (4-R Act)
- 1977 Air Cargo Deregulation
- 1978 Airline Deregulation Act of 1978
- 1980 Motor Carrier Act of 1980
Staggers Rail Act of 1980
Household Goods Transportation Act of 1980
- 1982 Bus Regulatory Reform Act of 1982
- 1984 Shipping Act of 1984
- 1986 Surface Freight Forwarders Deregulation Act of 1986
- 1994 Trucking Industry Regulatory Reform Act of 1994
Federal Aviation Administration Authorization Act of 1994
- 1995 Interstate Commerce Commission Termination Act of 1995
- 1998 The Ocean Shipping Reform Act of 1998
Maritime Security Program

Reauthorization:

- 1978 Surface Transportation Assistance Act of 1978 (STAA)
- 1982 Surface Transportation Assistance Act of 1982 (STAA)
- 1991 Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)
- 1995 National Highway Deregulation Act of 1995 (NHDA)
- 1996 Federal Aviation Reauthorization Act of 1996 (FARA)
- 1998 Transportation Equity Act for the 21st Century (TEA-21)
- 2000 Wendell Ford Aviation Investment & Reform Act for the 21st Century (AIR-21)

Impact on Decision Making

Bipartisan legislation enacted in each of the past three decades codified a new regulatory principle that competition is the best regulator of transportation. Federal economic regulation has increasingly been reserved for major market failures or as a tool to pursue broader social purposes.

Consequently, the decision-making process covering entry, exit, control, pricing, and quality of service has been relinquished by the Federal Government and turned over to the carriers and their customers.

The Federal Government is more stringently enforcing safety and environmental standards.

STAA of '78 first combined highway, transit and safety into a single law. It increased highway funding flexibility.

STAA of '82 created the Transit Account of the Highway Trust Fund.

ISTEA strengthened state and local planning requirements, increased public participation requirements, and provided unprecedented funding flexibility for state and local officials to tailor transportation investments to meet local needs.

NHDA created the National Highway System and State Infrastructure Bank Pilot Program.

FARA instituted FAA reform on cost accounting of federal aviation expenditures. It established airport privatization pilot programs.

TEA-21 affirms President Clinton's key priorities: improving safety, protecting public health and the environment, and creating opportunity for all Americans. It provides record levels of investment to continue rebuilding America's highways and transit systems, doing so within a balanced budget. TEA-21 expands the proven strategies of public participation in the planning process to even greater levels.

The 2000 Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (commonly known as AIR-21) substantially increases funding for airport development both through the Airport Improvement Program and by allowing an increase in the Passenger Facility Charge. The Act also funds the continued redevelopment of the air traffic control infrastructure, providing the most significant change in technology and procedures in fifty years. AIR-21 provides airport infrastructure grants that can result in competitive access for new entrant carriers. AIR-21 emphasizes modernization of air traffic system management.

Transportation was created in 1966 to bring order and cohesion to federal transportation policy and agencies, and to move towards a comprehensive and coordinated transportation decision-making process. Since then, a number of federal transportation legislations have had a significant impact on transportation decision making.

As a part of its leadership responsibility, the U.S. DOT periodically assesses the status of the transportation system to determine whether it is prepared to meet emerging challenges and opportunities. Since 1968, the Department has undertaken six such major, comprehensive, intermodal assessments. Other independent commissions have prepared additional system-wide reports. A common theme in these reports is the desirability of greater coordination among programs and the need to bring a more intermodal, or multimodal, perspective to transportation policies and programs.

National Multimodal Transportation Studies prepared by U.S Department of Transportation

1972 <i>National Transportation Study</i>	John A. Volpe
1974 <i>National Transportation Study</i>	Claude S. Brinegar
1977 <i>National Transportation Trends & Choices</i>	William T. Coleman, Jr.
1980 <i>National Energy Transportation Study</i>	Neil Goldschmidt (DOT) and Charles Duncan, Jr (DOE)
1990 <i>National Transportation Strategic Planning Study</i>	Samuel K. Skinner
1996 <i>A Progress Report on the National Transportation System Initiative</i>	Federico F. Peña

Other National Multimodal Transportation Studies

1979 <i>National Transportation Policies Through the Year 2000</i>	National Transportation Policy Study Commission
1985 <i>Freight Transportation</i>	Eno Foundation
1988 <i>Fragile Foundations: Report on America's Public Works</i>	National Council on Public Works Improvement
1991 <i>Delivering the Goods: Public Works Technologies, Management and Financing</i>	Office of Technology Assessment
1994 <i>Toward a National Intermodal Transportation System</i>	National Commission on Intermodal Transportation

One of the most comprehensive and far-reaching studies was *National Transportation Trends and Choices* released in 1977 by then Secretary William T. Coleman Jr. Trends and Choices was prepared during a period of major energy shortages, high inflation, slow economic growth, and extensive economic regulation of transportation operations. The report

emphasized the importance of: (1) a comprehensive transportation policy, (2) competition among transportation modes, and (3) the role of the U.S. Department of Transportation in making program and resource allocation decisions to serve broader national objectives. The world has changed substantially since that report was issued. The Nation is in a period of globalization and economic growth with relatively low inflation and rapid technological transformation. Policy processes must change to meet these new realities.

Appendix II: Participants in the DOT Policy Architecture Forum

▲ Volpe National Transportation Systems Center Cambridge, MA • May 23, 2000

Secretary Of Transportation Rodney Slater

Ronald L. Barnes, General Manager, Central Ohio Transit Authority

Ellen Bell, Volpe Center

Bernard Blood, Volpe Center

Edith Boyden, Volpe Center

Sarah Campbell, President, TransManagement, Inc.

Eugene Conti, Jr., Assistant Secretary for Transportation Policy

Kelley Coyner, Administrator, Research & Special Programs Administration

Nuria Fernandez, Administrator, Federal Transit Administration

Professor Joseph Giglio, Senior Academic Specialist, College of Business Administration and General Management, Northeastern University

Professor Daniel F. Hastings, Department of Aero & Astronautics, Massachusetts Institute of Technology

Richard John, Director, Volpe Center

Norma Krayem, Deputy Chief of Staff

Robert D. Krebs, Chairman and Chief Executive Officer, Burlington Northern Santa Fe Railway

Linda Lawson, Director, Office of Transportation Policy Development

Professor David Luberoff, Kennedy School of Government, Harvard University

Thomas E. Marchessault, Office of Transportation Policy Development

John Mason, Mayor of Fairfax City, VA

Oliver McGee, Deputy Assistant Secretary for Transportation Policy

Deborah Meehan, Chief Operating Officer, SH&E

Dr. Ralph Merkle, President and CEO, Zyrex, Inc.

Jolene Molitoris, Administrator, Federal Railway Administration

Jack Murray, Deputy Administrator, Research & Special Programs Administration

Professor Ann Rappaport, Department of Urban & Environmental Policy, Tufts University

Robert Roach, Jr., General Vice President, The International Association of Machinists and Aerospace Workers

Ashish Sen, Director, Bureau of Transportation Statistics

Professor Lawrence E. Susskind, Department of Urban and Environmental Planning, Massachusetts Institute of Technology

Michael W. Wickham, Chairman and CEO, Roadway Express, Inc.

Ed Weiner, Office of Transportation Policy Development

Kenneth Wykle, Administrator, Federal Highway Administration

Appendix III: Participants in the Department of Transportation Secretaries' Event

▲ National Press Club, Washington, DC • May 15, 2000

DOT Secretaries and their terms of service:

Secretary Alan S. Boyd

January 16, 1967-January 20, 1969

Secretary William T. Coleman

March 7, 1975-January 20, 1977

Secretary Samuel K. Skinner

February 6, 1989-December 13, 1991

Secretary Rodney E. Slater

February 14, 1997- Present

Moderators:

Stephen Van Beek, Associate Deputy Secretary

David Winstead, National Transportation Week Chair

Appendix IV

Participants in Secretary Rodney Slater's Stakeholder 2025 Visioning Sessions

Aron, Mark, Executive Vice President, CSX

Ackermans, Faye, General Manager, Safety Regulatory Affairs, Canadian Pacific Railways

Acuna, Roger, Team Leader, California Foundation for Independent Living Centers

Adams, Alisha, sophomore - Biology major, Spellman College, Atlanta, Ga.

Amekudzi, Dr. Adjo, Georgia Institute of Technology

Anthony Clarence, Mayor of South Bay, FL

Archer, Dennis, Mayor of Detroit, MI

Arnold, Meredith, Berkeley Commission on Aging

Bannister, Dan, Chairman, DynCorp; Business Roundtable

Baptiste, Gerald, Deputy Director, The Center for Independent Living, Berkeley, CA

Barnes, Brian C., sophomore - Mathematics major, Morehouse College

Barry, Anna, Director, Railroad Operations, Massachusetts Bay Transportation Authority (MBTA)

Barry, Greg, VP of ExxonMobil Refining & Supplies; Chairman, Fairfax County Economic Development Authority

Bauer, Ken J., Acting President, MTA - Long Island Rail Road

Beardsworth, Randy CAPT., Director for Defense Policy, National Security Council

Becker, Bill, Executive Director, State and Territorial Air Pollution Program Administrators and Association of Local Air Pollution Control Officers

Bender, Rick, Washington State Labor Council AFL-CIO

Berglund, Steven W., President & CEO, Trimble Navigation Limited

Bernhardt, Dr. Robert, Professor and Director, Ray W. Herrick Laboratories, Perdue University

Berns, Dr. Scott, Hasbro Children's Hospital, Providence, RI

Berry, Marion, Member of Congress U.S. House of Representatives, Arkansas 1st Congressional District

Betcher, Charlie, President, Bus Riders Union

Blake, Joe, President, Denver Metro Chamber of Commerce

Blue, Mary, Chair, RTD Board

Bohlinger, Linda, Executive Director, Tri-County Commuter Rail Authority

Boylan, Christopher, Deputy Executive Director, NY-MTA

Boyle, Robin, Associate Dean - CULMA: Chair, Geography and Urban Planning Dept., Wayne State University

Braaten, Kaye, County Service Representative, National Association of Counties

Bradshaw, Thomas W., Managing Director, Salomon Smith Barney

Branche, Dr. Christine M., Director, Division of Unintentional Injury Prevention Centers for Disease Control

Bravo, Raul V., Raul V. Bravo & Associates

Bray, Robert, Chairman, American Association of Port Authorities, Executive Director, Virginia Port Authority

Breau, Pat, Omni Trak

Breckner, Terrie, Transit User

Brennar, Summer, Contra-Costa Commute Alternative Network

Bridges, Melissa K., Little Rock Board of Directors Office

Brightfill, Tom, Para-transit coordinator for Alameda County

Brinson, Ron, President and CEO, Port of New Orleans

Brooks, Roberta, Assistant District Administrator, Office of U.S. Rep. Barbara Lee,

Brown Lee, Mayor of Houston, TX

Browning, Dr. Jess, University of Washington

Bruccoleri, Theodore A Managing Director, StratfordGroup

Brunkenhoefer, James, National Legislative Director, United Transportation Union

Buchanan, Donald, Director, Railroads & Shipyards, Sheet Metal Workers, International Association

Burgey, Will, Delta Pilots Representative.

Burke, Rubin, United Auto Workers

- Burnley, Jim**, Senior Attorney, Winston & Strawn
- Burrell, George**, Deputy Mayor of Philadelphia, PA
- Butcher, George**, Goldman Sachs and Company
- Caldwell, Linda**, Unicoi Turnpike Trail
- Caldwell, Ray**, Great Western Trail Association
- Cantrell, J. T.**, Training Chief, Little Rock Fire Department
- Cardinet, George**, Juan Bautista de Anza Nat'l. Historic Trail
- Carlin, Mike**, Public Affairs Director, Washington Gas, Chair of REGION Coalition (Responsible Economic Growth In Our Nation)
- Carlson, Steven**, Securities Industry Association
- Carlstrom, Terry R.**, National Park Service – NCR
- Carney, John**, American Consulting Engineers Council
- Carpenter, A. R.**, Vice Chairman, CSX Corporation
- Carroll, Charles**, Executive Director, National Association of Waterfront Employers
- Carroll, David**, AMTRAK
- Carson, Jeff**, Commission of Fine Arts (CFA)
- Cauthen, Wayne**, Chief of Staff, Mayor Webb's Office
- Chang, Kevin**, Engineer, Project Management and Design Unit, King County Department of Transportation, King County, Washington
- Chase, Robert**, Vice President, The DCM Group
- Chin, Joyce**, Center for Independent Living, Desk Services Department
- Cisco, Judge Carl**, St. Francis County Arkansas County Judge
- Cole, Mike**, Administrator, Orientation Center For the Blind
- Coleman, William T.**, Former Secretary, U.S. DOT
- Cook, Michelle**, Human Resources, Daimler Chrysler
- Cook, Robert**, Washington Interdependence Council
- Copeland, Guy**, Vice President, Information Infrastructure Advisory Programs, Special Assistant to the CEO, Computer Sciences Corporation
- Corbitt, Colonel Harry**, Deputy Superiintendent, New York State Police
- Corley, Walter**, President, CORE Logistics
- Coughlin, Joseph**, Director, University Transportation Center at the Massachusetts Institute of Technology
- Craig, Larry**, Chief Engineer, Noise and Emissions, Boeing
- Cross, Nancy Jewel**, AC Transit Board of Directors
- Cummings, Ezra C.**, Washington Interdependence Council
- Czuczman, John**, International Vice President, Transport Workers Union of America
- Dailey, Jim**, Mayor of Little Rock, AR
- Dana, Greg**, Vice President, Environmental Affairs for the Alliance of Automobile Manufacturers
- Daniel, Janice**, Assistant Professor, Department of Civil and Environmental Engineering, New Jersey Institute of Technology
- Daniels, Rolanda**, Master's student in City Planning, Georgia Institute of Technology
- Davis Jr., Dr. Lawrence**, President University of Arkansas at Pine Bluff - HBCU
- Dean, Shirley**, Mayor, of Berkeley, CA
- Dear, Joe**, Chief of Staff, Office of the Governor of Washington
- Dearien, Dr. John A.**, CEO, CyberTran
- DeCicco, John**, Transportation Manager, Senior Associate, American Council for an Energy Efficient Economy
- DePaepe, Timothy**, Director – Research, Brotherhood of Railway Signalmen
- Decker, Michael**, The Bond Market Association
- Delaney, Richard**, Director, Urban Harbor Institute, University of Massachusetts
- Deno, Stanford**, Director of Technical Operations, International Council of Cruise Lines
- Derath, Richard**, Executive Director, Access Services
- Dermody, James**, Senior Vice President Operations, MTA - Long Island Rail Road (LIRR)
- Derrick Jr., John M.**, President & CEO, Pepco
- Diamond, Leonard**, Manager of Emergency Management and Support Services Division, NJ Transit Authority,
- Dinsmore, Mic**, Port of Seattle
- DiPrinzio, Raymond A.**, Managing Director, Scully Capital
- Donohue, Jr., Thomas**, Managing Director, The Adelphi Group
- Dowd, Bill**, National Capital Planning Commission
- Driver, Michael**, Patton Boggs
- Dukakis, Governor Michael**, AMTRAK
- Dyke, Jim**, Partner, McGuire, Woods, Battle & Boothe; Chairman, Metropolitan Washington Coalition of Chambers of Commerce
- Dubinski, Rick**, United Pilots Representative.
- Duperron, Tim**, Chief Operating Officer, Focus-Hope
- Duffy, Dennis**, Executive Vice President Operations, Union Pacific Corporation

- Duffy, Dr. Gloria**, CEO, Commonwealth Club/Silicon Valley
- Dwinnell, W. Ben**, Assistant General Manager, Railroad Division, Southeastern Pennsylvania
- Dysart, Mark R.**, President & CEO, High Speed Ground Transportation Association
- Ebbert, Mike**, Jonesboro Coalition
- Eckles, Karyl**, Program Administrator, World Institute on Disability (WID)
- Edmonds, Al**, Vice President, EDS
- Ellis, Jack**, Mayor of Macon, GA
- Emerson, Monica**, Human Resources, Daimler Chrysler
- Emig, Larry**, Kansas Department of Transportation
- Esmaili, David**, Director, Advanced Transportation Technologies, West Valley College
- Everett, Claude**, Senior Assistant Manager, Bay Area Jobs Consortium
- Felder, Wilson**, Vice President, Aviation Systems and Services, TRW
- Felkins, Charles**, Union Pacific Railroad
- Fernandez, Jose**, Vice President - System Safety, MTA - Long Island Rail Road (LIRR)
- Ferrington, Howard**, Northwest Airline Pilots Representative.
- Filipovic, Mark**, Vice President, International Association of Machinist & Aerospace Workers
- Finberg, Jack**, General Services Administration - NCR
- Finn, Deborah**, Niagara Frontier Transportation Authority
- Fleming, Mac**, President, Brotherhood of Maintenance Way Employees
- Flowers, Dan**, Director, Arkansas State Highway and Transportation Department
- Flynn, Cathal (Irish) RADM**, Associate Administrator for Civil Aviation Security, FAA
- Foran, Robert E.**, Senior Managing Director, Bear Stearns
- Forlaw, Blair**, Director, Policy Programming, East West Gateway Coordinating Council
- Forrest, Craig**, Chairman, Baltimore Regional Transportation Board
- Frausto, Marta**, Cal Transit in Fresno
- Game, R.**, Arkansas Boating Law Administrator
- Garcia-Sinclair Neil**, Vice President, CyberTran
- Garret Jan**, Executive Director, Berkeley Center for Independent Living
- Gerston, Larry**, Professor, Political Science, San Jose State University
- Giacopini, Dorene**, Board Member, Metropolitan Transportation Commission (MTC)
- Gibbs, Kenneth**, Director, Public Finance, First Albany Corporation
- Giglio, Joseph**, Senior Academic Specialist, College of Business Administration and General Management, Northeastern University
- Giulietti, Joe**, Deputy Executive Director, Tri-County Commuter Rail Authority
- Gokche, Zeki**, Graduate Student, GWU
- Goldberg, Arthur**, Transport Workers Union
- Golden, Marilyn**, Senior Attorney, Disability Rights Education and Defense Fund (DREDF)
- Gray, Beverly**, Friends of the Freedom Society-UGRR
- Gray, Judy**, FC CofC, President/CEO
- Griggs Jr., Leonard L.**, Director, Lambert-St Louis International Airport
- Grow, Robert**, Director of Transportation, The Greater Washington Board of Trade
- Guensler, Dr. Randy**, Georgia Institute of Technology
- Hale Jr., Lewis D.**, Vice President Transportation Services, Norfolk Southern Corporation
- Hall, Wade**, General Manager – Amtrak, Washington Commuter Services
- Hamberger, Edward**, President & CEO, Association of American Railroads
- Hammers, Dave**, National Park Service - NCR
- Hammerschmidt, John**, NTSB Board Member
- Hanif, Abdelaziz (Abdul)**, Realty & Regional Transportation Specialist, NASA-Ames Research Center
- Hanlon, Dan**, Architect of the Capitol - Dir. of Engrg.
- Hanson, Dr. Carl**, Senior Vice President, Harris, Miller Miller & Hanson
- Harlow, Ilana**, International Express
- Harris, Edward**
- Harvey, Robert A.**, Regulatory Research Coordinator, Brotherhood of Locomotive Engineers
- Haverty, Michael R.**, President and CEO, Kansas City Southern Railway Company
- Heatley, Kathryn**, CEO, Outreach
- Heimowitz, Daniel**, Managing Director, Lehman Brothers
- Heitman, Diedre**, MTC's Welfare to Work Project Manager

Herrity, Pat, CFO, Dimensions International, Chair of NVTC Transportation Committee

Hillebrand, Don, Manager, Regulatory Affairs, Daimler Chrysler

Howard, Darrell, Master's City Planning, Georgia Institute of Technology

Hodges, Sue, Commissioner, Oakland Commission on Disability

Hoey, Ann, Vice President - Service Operations, National Railroad Passenger Corporation

Hooper, Fran, American Public Transit Association

Howard, Darrell, Master's student in City Planning, Georgia Institute of Technology

Ice, Carl, Vice President - Operations, Burlington Northern Sante Fe Railway

Inclima, Rick, Director - Education & Safety, Brotherhood of Maintenance Way Employees

Irwin, Thomas J., Executive Director, Bi-State Development Agency

Isaki, Paul, Governor's Special Trade Representative

Jacobi, Tom, Senior Assistant Vice President Safety and Operations, Union Pacific Corporation

Jester, Norm, Vice President and General Manager, Herzog Transportation Authority

Johnson, Harvey, Mayor of Jackson, MS

Johnson, James, Dean of the Engineering Department, Howard University

Johnson, Joyce, Transportation Institute, North Carolina Agricultural & Technical State University

Johnson, Lawrence, Chief, Little Rock Police Department

Johnson, Muhammad, student, Morehouse College

Johnston, Phil, Fire Chief, Little Rock Fire Department

Jones, Keith, Central Arkansas Transit Authority

Jones, Leroy, Vice President & National Legislative Representative, Brotherhood of Locomotive Engineers

Jones, Susan, Mississippi River Cycling & Hiking Corridor

Jordan, Cedestra, Jordan Consulting Group

Kaliski, John, Senior Associate, Cambridge Associates

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