The Maureen and Mike Mansfield Foundation, collaborating with the Intelligent Transportation Society of America (ITS America) and ITS Japan, convened a workshop in October 2013 in Sendai, Japan among Japanese and American transportation experts, practitioners, and officials.

The meeting, which culminated a series of seven U.S.-Japan workshops, compared the experiences of the Great East Japan Earthquake and tsunami in 2011 and Hurricane Sandy in 2012. Both disasters highlighted the basic and critical role that the transportation system plays in facilitating social welfare, not only in the regular course of life, but particularly in times of emergency. Within this context, workshop participants examined shared transportation challenges, with emphasis on those highlighted by Japan’s earthquake and tsunami and Hurricane Sandy.

The Sendai workshop culminated in the drafting of the following conclusions and policy guidelines for the transportation industries and policy bodies of the United States and Japan. While not an exhaustive list, these conclusions and guidelines highlight several shared areas most opportune for Japan and the United States to move forward, in parallel and collaboratively, on an integrated approach to transportation.

February 2014
TRANSPORTATION CHALLENGES
Japan and the United States, two of the world’s three largest economies, are also the world’s two largest automobile manufacturers. Despite this, as has been recently underscored by major natural disasters in both countries, automobile transportation infrastructure in each country demands national attention in order to address demonstrated shortfalls in safety, efficiency, and effectiveness. Correcting such shortfalls requires addressing contemporary policy challenges, many of which are shared by transportation planners in Japan and the United States alike.

BILATERAL OPPORTUNITIES
Japan and the United States are, in many ways, ideal partners in confronting common transportation challenges. The two countries share core national interests such as concern for personal liberties, free enterprise, and environmental sustainability. Japan and the U.S. also enjoy deeply integrated economies and auto industries, as well as strong ties between expert and political communities. Therefore, Japan and the United States have a natural opportunity to collaborate on forward-looking policy for transportation systems that are at the same time more cost effective, while also safer, cleaner, faster, and more reliable. Such an approach to transportation must seek efficiencies by taking advantage of existing assets, resources, and knowledge, while integrating new approaches and technologies that help both countries realize benefits to society whose returns far outweigh the public costs.

GLOBAL ROLE
By nature of the particular assets of the bilateral relationship, a Japan-United States partnership is uniquely positioned to provide global leadership on transportation. By moving forward together on an integrated approach to transportation, the two countries can affect global transportation standards, helping to unlock the potential for an integrated approach to transportation to yield economic, public safety, and environmental benefits not only in the world’s first and third largest economies, but also worldwide.

SHARED POLICY CONTEXT
Today’s circumstances present transportation planners in both Japan and the United States with several social and political realities that must be recognized and embraced in setting an effective transportation policy for tomorrow:

- New fiscal realities inhibit national- and local-level investment in transportation priorities.
- Previous policies and models for funding transportation initiatives are no longer sustainable.
- Transportation investments are taking a back seat to other priorities nationally.
- Demographic shifts require new approaches to transportation.
- Recent developments have lessened the salience of climate change as a driver in transportation policies.
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Conclusions and Guidelines

Key opportunities for Japan and the U.S. to move forward, in parallel and collaboratively, on an integrated approach to transportation that maximizes sustainable economic, public safety, and environmental benefits

1 Integrated policies lead to cost-effective investment

The effective integration of transportation policies, technologies, and investment across the transportation system can achieve relatively quick return on investment, while simultaneously generating economic growth, providing quality of life improvements, and reducing environmental impact.

In order to maximize the value of public investment in transportation infrastructure, transportation policy should:

- Promote eco-driving through both policy incentives and policy-enabled technology as a particularly cost-effective measure for reducing fuel consumption and mitigating greenhouse gas emissions. Studies also suggest that an increase in eco-driving corresponds to a decrease in traffic accidents.

- Integrate diverse efforts, such as emerging vehicle and information technologies, effective construction of infrastructure, and behavioral changes of organizations and individuals as an essential means of tackling transportation challenges.

- Prepare for and respond to natural disasters and climate change by thoughtfully integrating transportation technologies with infrastructure policies.

- Recognize and accommodate the increasing willingness of local government and the private sector to play the role of building and sustaining public transportation infrastructure.
2 Good data dissemination facilitates good decisions

With evolving priorities and pressures influencing transportation policymaking, understanding options and outcomes will facilitate good decisions. In order to demonstrate public benefits of investment in our transportation systems, Japan and the U.S. have a great deal to learn from each other in terms of data sets, experiences, modeling, etc. However, effective collaboration requires harmonized standards for data collection and dissemination, as well as proactive sharing of knowledge.

In order to harness the full potential of data to enable the most effective use of public investment in transportation systems, transportation policy should:

• promote consistent and transparent sharing of data, analysis, and modeling techniques between researchers, government, and other stakeholders, domestically and internationally, in order to benefit from the widest body of experience. Such sharing optimizes public investment by enabling informed policy decision-making.

• recognize and utilize the increasingly vital role of local regions in demonstrating problems, solutions, and benefits through collection and provision of transport statistics and traffic data.

• enhance the precision and utility of traffic information by facilitating real-time data such as GPS and probe data utilizing Intelligent Transport Systems (ITS). Real-time and probe data enable better highway toll pricing (such as real-time pricing), which can reduce congestion, fuel consumption, carbon emissions, and traffic accidents.

• leverage private sector technical ingenuity and capability in developing the most advanced and effective transportation technologies and policies. This can be achieved by compiling and sharing transportation data through strategic partnerships with commercial entities.

3 Existing transportation infrastructure holds untapped value

The current fiscally constrained environment creates strong incentives for innovative transportation policy and technologies that optimize new investment by maximizing the utility of existing infrastructure.

In order to fully leverage the value of existing transportation infrastructure, transportation policy should:

• embrace new technologies such as connected vehicle and autonomous vehicle technologies, and channel investment to integrating them into existing infrastructure.

• enable and encourage appropriate private sector investment in and management of, public transportation infrastructure in order to yield societal benefits at minimal public cost.

• optimize existing infrastructure through encouraging better use of new data and data analytics (such as probe data, dynamic messaging, push messaging, contra-flow routing).
Good transportation policy does not stop at institutional or administrative boundaries

Inter-regional and inter-agency collaboration through fluid sharing of traffic, transit, and emergency information facilitates nimble decision-making that maximizes the performance of existing transportation infrastructure. Furthermore, collaboration among institutions in neighboring regions is a critical element of a safe and effective transportation system, requiring constant care and maintenance.

In order to eliminate bureaucratic and administrative obstacles to effective regional transportation management, transportation policy should:

- make substantial contributions to public safety and welfare by investing in transportation technology that facilitates new decision-making models and coordination across diverse regions and institutions.
- create incentives for agencies to share data, in turn enhancing working relationships and trust between regions and agencies in times of emergency.
- encourage local governments to share transportation data to optimize regional transportation activities. Doing so will ensure that in emergencies, relationships are developed that will enable optimal collaboration.
- facilitate the ability of governments at all levels to foster the constant care and maintenance of relationships necessary to create a cooperative environment conducive to data sharing for enhanced situational awareness.
- positively reinforce cooperative efforts by officials at all levels, particularly recognizing that current budget constraints and organizational (and political) turnover can otherwise serve as a disincentive to engage in such cooperative efforts.

Japan is a role model for incentivizing emissions reductions

Japan has led the way in recognizing and incentivizing greenhouse gas-reduction contributions from the transportation sector in the context of the Kyoto Protocol. Opportunities will exist under future greenhouse gas (GHG) emissions control initiatives for the United States to play an important role in supporting and enhancing Japan’s leadership in this area.

Reflecting and building on Japan’s leadership in incentivizing emissions reductions through the transportation sector, transportation policy should:

- explicitly recognize, under any global, national, or subnational GHG emissions control regime, the role played by transportation technology, infrastructure improvements to improve traffic flow, and eco-driving measures that result in reduced GHG emissions.
- reflect the necessity of carefully integrating general and transportation-specific policy between national and local levels in order to maximize GHG reduction efforts.
- treat emission reductions from transportation technology for meeting international targets consistently across regions.
Good transportation policy saves lives in times of emergency

The recent experiences of Hurricanes Rita and Sandy, and the 2011 Great East Japan Earthquake and tsunami demonstrate the real world public safety value of smart investments in transportation technology and policy. The same transportation investments that in daily life mitigate traffic, emissions, and fuel consumption, save lives in times of emergency and natural disaster.

In order to optimize the role of transportation infrastructure in mitigating damage in times of emergency and natural disaster, transportation policy should:

- fully recognize the value of the transportation system, not only in the context of transit time, environmental impact, and resource efficiency, but also for its central role in mitigating damage and loss of life in emergency situations.

- prioritize infrastructure investments that can not only withstand disaster, but also serve double duty in helping to mitigate damage. For example, as the Great East Japan Earthquake demonstrated, elevated expressways constructed on mounded earth co-functioned as engineered dykes that spared many communities devastation from the ensuing tsunami.

- leverage partnerships with the private sector in developing and deploying technological solutions to efficient advance-evacuation in times of natural disaster.

- enable information-sharing schemes among public agencies, private operators, and communities that facilitate effective cooperation to rescue, recover, and re-construct affected communities. Sustained public education campaigns, including emergency evacuation instructions and drills, can play an important role in reinforcing information-sharing efforts.
APPENDIX: OUTLINE OF PROGRAM PROCESS AND EVENTS

**Meeting 1** Improving Efficiency and Reducing Emissions from Passenger Vehicles
April 2010, Washington, D.C.

**Meeting 2** Japan Seminar and Site Visit
October 2010, Tokyo and Toyota City, Japan

**Meeting 3** Cooperative Approach Towards Technology, Policy, and Research on Reducing Emissions through Eco-Driving
June 2011, Ann Arbor, MI

**Meeting 4** ITS World Congress Panel
October 2012, Orlando, FL

**Meeting 5** Lessons Learned in the U.S. and Japan: Integrated Approach to Transportation and Emergency Evacuation
March 2012, Houston, TX

**Meeting 6** U.S.-Japan Cooperation on Market Mechanisms for Promoting an Integrated Approach and Enabling Technologies
October 2012, Seattle, WA

**Meeting 7** Making the Case for the Integrated Approach in the Language of Today’s Policy Priorities
October 2013, Sendai, Japan

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**Meeting 1: Improving Efficiency and Reducing Emissions from Passenger Vehicles**

**Location:** Washington D.C.

**Date:** April 26, 2010

**Participants:** 25 group members representing AASHTO and the Association of Metropolitan Planning Organizations (AMPO); the American and Japanese national governments; the Bipartisan Policy Center; Institute for Transportation and Development Policy; ITS America; Maureen and Mike Mansfield Foundation; McKinsey & Company; Regional Plan Association; Toyota Motor Corporation; University of Southern California and Tsukuba, Nagoya, and Duke Universities; and the U.S. Congress
Key themes:
1) Measurement of the potential impact of advanced, integrated approaches to transportation
2) Fiscal realities in Japan and the U.S. constraining funding for new transportation measures
3) Strategies to educate the public on the benefits of advanced, integrated approaches to transportation

Conclusions:
1) Prioritization is the key when funds are limited.
2) Demographics should also be considered where impacting areas such as land use, community planning, etc.
3) Fostering exchange is beneficial. Ideas worth further exploring include: sister cities programs, government exchanges and academic exchanges.
4) Demonstrative success in one locality can be a powerful incentive for other localities to follow.
5) Time scale is important as changes need to happen quickly, both from an environmental standpoint and policy standpoint.
6) Although funding is difficult to secure, there is great potential payback for smart transportation investment.
7) Education is the key. The expansion of a smart and integrated approach to transportation needs to be both top-down with government policies, and bottom-up with public awareness and support.

Meeting 2: October 2010 Japan Seminar and Site Visit

Location: Tokyo & Toyota City, Japan
Date: October 20 – 22, 2010
Site Visit: Toyota City ITS infrastructure
Participants: 17 group members representing the American and Japanese national governments; Beveridge & Diamond, P.C.; Booze Allen Hamilton; Cisco Systems; ITS America; ITS Japan; Maureen and Mike Mansfield Foundation; Toyota Motor North America; Transcore Holdings, Inc.; Tsukuba and Nagoya Universities; and Willow LLC

Key themes:
1) How policy affects the expansion of Green Urban Design
2) Development of effective ways to demonstrate the benefits of advanced, integrated approaches to transportation
3) Strategies for overcoming barriers to implementation of forward-looking transportation policy and technologies

Conclusions:
1) Information technology will drive transformation of the transportation sector as it has many other sectors—the automobile, now a largely stand-alone device, will become increasingly networked.
2) Integrating transportation will require integrating transportation bureaucracy that is currently segmented between various transportation modes.
3) Interconnecting the various modes of transportation suggests the potential for a single catastrophic accident or well-targeted attack to impact an entire transportation system.
4) While a smart and integrated approach to transportation ultimately envisages a future transportation system that is fully automated, there are many individual technologies available now or in the near future that can be applied to enhance current vehicles and transportation systems.
5) Considering the torrid pace of technological innovation, any modern transportation scheme will need to include a method for adapting to and incorporating new technologies as they emerge.
6) In order to create the most conducive conditions for global innovation, development, and distribution of transportation measures, it is critical to establish international standardization at as early a stage as possible.

7) Developing domestic and international city-to-city cooperation will help speed global implementation of smart and integrated transportation measures; rather than reinventing the wheel, cities can learn from each other’s transportation technology and policy experiences.

8) While collection and utilization of data is central to a smart and integrated approach to transportation, maximizing the value of consumer data without compromising consumer privacy is sure to be an area of controversy, particularly in the U.S.

9) In the U.S., implementation of a smart and integrated approach to transportation will probably require a top-down mandate; it is hard to imagine states allocating transportation resources to new technologies rather than improvements to existing infrastructure.

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**MEETING 3: Cooperative Approach towards Technology, Policy, and Research on Reducing Emissions through Eco-Driving**

**Location:** Ann Arbor, Michigan  
**Date:** June 20 – 21, 2011  
**Site Visit:** Toyota Technical Center Green Wave Demonstration  
**Host:** University of Michigan Transportation Research Institute (UMTRI)  
**Participants:** 21 group members representing the American and Japanese national governments; Cisco Systems; Ford Motor Company; General Motors; Intelligent Transportation Societies of America; ITS Japan; Maureen and Mike Mansfield Foundation; State of Michigan; Tokyo city government; Toyota Motor North America; Toyota Research Institute North America; UMTRI; and the University of California, Berkeley and Riverside

**Key Theme:**  
1) Obstacles and catalysts to near-term implementation of eco-driving

**Conclusions:**  
1) National policy goals are ambiguous.  
2) A next generation transportation system needs to reach a critical mass in order to achieve a network affect, enabling its effectiveness and compelling social change.  
3) User incentives for eco-driving and transportation technology investments are not being effectively articulated to the broader public.  
4) The U.S. should offer emissions credits to eco-drivers.  
5) Organizations must collect data from real world operations, aggregated in a way that makes sense, and analyze the economic impact analysis—particularly who pays and who benefits.  
6) Companies should rebrand in order to appeal to broader audiences with the aim of expanding eco-driving technology beyond electrics and hybrids (to traditional vehicles).  
7) The U.S. Department of Transportation must lobby the White House to enable eco-driving to become recognized as a creditable emissions abatement tool.  
8) Cooperation and standardization between original equipment managers (OEMs) is critical to realizing a smart and integrated approach to transportation.  
9) Organizations and OEMs should develop open protocols and common data standards.  
10) Policymakers and organizations should clearly delineate roles and expectations regarding government signals (such as a federal rating system on access to eco-driving accessibility) and private sector responses.
**MEETING 4: ITS World Congress Panel**

**Location:** Orlando, Florida ITS World Congress  
**Date:** October 18, 2011  
**Panelists:** L. Gordon Flake, Executive Director, The Maureen and Mike Mansfield Foundation (Moderator)  
Masayuki Kawamoto, Toyota Motor Corporation  
Jean Charles Pandazis, Head of Eco-Mobility Sector, ERTICO  
Susan Shaheen, Adjunct Professor of Civil and Environmental Engineering, U.C. Berkeley  
Michael Sivak, Director, Sustainable Worldwide Transportation, UMTRI  

**Description:**  
As a follow-on to the Ann Arbor Eco-Driving Workshop, the Mansfield Foundation hosted a panel at the 2012 ITS World Congress. Basing discussion on the obstacles and catalysts identified by the Ann Arbor workshop’s American and Japanese participants, this panel considered how these observations can be applied to a broader international agenda for promoting eco-driving globally.

**MEETING 5: Lessons Learned in the U.S. and Japan: Integrated Approach to Transportation and Emergency Evacuation**

**Location:** Houston, Texas  
**Date:** March 26-27, 2012  
**Site Visit:** Houston Tran Star operations center  
**Host:** Houston Tran Star  
**Participants:** 17 group members representing the American and Japanese national governments; Contra Costa County (CA) Transportation Authority; Ford Motor Company; Harris County (TX) Metropolitan Transit Authority; ITS America; ITS Japan; Maureen and Mike Mansfield Foundation; Toyota Motor North America; TRANSCOM, New York/New Jersey/Connecticut Region; and Tsukuba and Duke Universities  

**Key Themes:**  
1) The role of transportation technology and policy and cross-applicable lessons from Japan’s 2011 earthquake and tsunami; recent American experiences with Hurricanes Katrina, Rita, and Ike  
2) Technologies that can facilitate effective traffic and infrastructure management in the event of an emergency  

**Conclusions:**  
1) Though transportation management and emergency centers can demonstrate that investment in their facilities ultimately results in reduced costs to society (in terms of efficiencies in emergency evacuations, first responder calls, fuel use, vehicle maintenance, etc.), making the case for public investment is still a challenge.  
2) Emergency management must be viewed as a regional exercise rather than simply a local one.  
3) The increasing frequencies of natural disasters pose new challenges to transportation authorities because global warming portends an increase in disasters. Therefore, in many cases infrastructure managers must consider whether rebuilding or reinforcing certain vulnerable assets is more cost effective than abandonment.
4) The disposal of debris is the most pressing immediate problem in the aftermath of Japan’s 2011 earthquake and tsunami.

5) Policymakers must call for a more formalized and dependable platform for informational hubs, including the utilization of car navigation systems and mobile devices in combination with conventional traffic information systems.

6) A common challenge in Japan and the U.S. is the lack of emergency efficacy of the federal government. Emergency responses tend to work best at the local and regional levels.

7) While integrating smart technologies in vehicles results in a rise in the sticker price of the vehicle, the value is ultimately a win for the consumer—the same vehicle technologies that aid in disaster management offer valuable benefits such as enhanced resource efficiency and safety.

**MEETING 6: U.S.-Japan Cooperation on Market Mechanisms for Promoting an Integrated Approach and Enabling Technologies**

**Location:** Seattle, Washington  
**Date:** October 16-17, 2012  
**Site Visits:** Washington State Transportation Center (TRAC); Smart Transportation Application and Research (STAR) Lab  
**Participants:** 17 group members representing the American and Japanese national governments; Asia-Pacific Economic Cooperation (APEC) forum; Cisco Systems; IBM; ITS America; Maureen and Mike Mansfield Foundation; Toyota Motor Corporation and Toyota Motor North America; Waseda University and Universities of Maryland and Washington; and the State of Washington

**Key theme:**  
1) The issues and challenges faced by the public and private sector in implementing and bringing to market integrated approaches to transportation and enabling technologies

**Conclusions:**  
1) The public expects a payback on investment within two to three years but has less patience for investments that take longer to show results.  
2) Tax incentives help accelerate the development of energy-efficient vehicles by auto manufacturers.  
3) Integrating pricing mechanisms during peak traffic infrastructure use periods ultimately yields measurable social benefits that outweigh the costs.  
4) Climate change, shifting demographics, the growth of megacities, and availability of big data are significant trends that will shape future political decisions around transportation.  
5) Data that could be analyzed and utilized to enhance a smart and integrated approach to transportation technology and policy are often left unused or discarded. Greater cooperation among companies and agencies collecting this kind of data would be beneficial.  
6) Common standards are important for facilitating smart and integrated transportation policy. National governments can be supportive by enforcing and funding standards development, rather than developing standards themselves.
MEETING 7: Making the Case for the Integrated Approach in the Language of Today's Policy Priorities

LOCATION: Sendai, Japan
DATE: October 10-11, 2013
SITE VISIT: Sendai Airport; Natori City Disaster Reconstruction Area
PARTICIPANTS: 16 group members representing the Contra Costa County (CA) Transportation Authority; Florida Department of Transportation; Intelligent Transportation Societies of America; ITS Japan; i-transport Lab; Japanese national government; Maureen and Mike Mansfield Foundation; Raborn Consulting; Tohoku, Tsukuba and Waseda Universities; Toyota Motor Corporation and Toyota Motor North America; TRANSCOM, New York/New Jersey/Connecticut Region

KEY THEMES:
1) Cross-applicable lessons for transportation technology and policy from Japan's 2011 earthquake and tsunami, and the 2012 Hurricane Sandy in the U.S.
2) Harmonizing Japanese and American carbon abatement quantification models
3) Making the case for the integrated approach in the language of contemporary policy priorities

Conclusions from this meeting are listed on pages 4 - 7.
The Maureen and Mike Mansfield Foundation honors Mike Mansfield (1903–2001), a remarkable public servant, statesman and diplomat who played a pivotal role in many key domestic and international issues of the 20th century as U.S. congressman from Montana, Senate majority leader, and finally as U.S. ambassador to Japan. The Maureen and Mike Mansfield Foundation was created in 1983 to advance Maureen and Mike Mansfield’s life-long efforts to promote understanding and cooperation among the nations and peoples of Asia and the United States. The Foundation sponsors exchanges, dialogues and publications that create networks among U.S. and Asian leaders, explore important policy issues, and increase awareness of Asia in the U.S.

The Intelligent Transportation Society of America (ITS America) is the nation’s largest organization dedicated to advancing the research, development and deployment of Intelligent Transportation Systems (ITS) to improve the nation’s surface transportation system. Founded in 1991 as a Federal Advisory Committee to the United States Department of Transportation (U.S. DOT) and now operating as a 501(c)3 nonprofit association, ITS America’s membership includes more than 450 organizations comprised of public agencies, private sector companies, and research institutions. ITS America’s 27 State Chapter’s represent more than 40 states and more than 1200 member organizations.