



Intelligent Solutions to America's Transportation Challenges *The Intelligent Transportation Society of America (ITS America)*

Executive Summary

America's transportation system is facing significant challenges that must be addressed in the next surface transportation authorization bill, from financing our transportation system and reducing traffic fatalities to combating congestion and CO² emissions. Solving these challenges will require transportation agencies and private sector partners to use all of the tools at their disposal, including intelligent transportation systems (ITS), related technologies, and multimodal operational strategies that can help prevent accidents before they happen, reduce traffic congestion and freight bottlenecks, provide more effective incident and emergency response, reduce energy use and emissions, and enable innovative 21st century financing options.

Background on ITS America

The Intelligent Transportation Society of America (ITS America) was established in 1991 as a Federal Advisory Committee to the U.S. Department of Transportation. Eighteen years later, ITS America is a 501(c)(3) association that represents more than 400 member organizations including state and local transportation, transit and planning agencies, university research centers, and private sector companies of all sizes that are involved in the research, design, deployment and operation of intelligent transportation systems and technology solutions. On behalf of our members and affiliated partner organizations that helped create this plan, ITS America is pleased to present the following recommendations for improving the performance of our nation's multimodal transportation network in the next surface transportation authorization bill.

Priorities for Solving America's Transportation Challenges

Preventing Accidents Before they Happen and Improving Emergency Response – Before the day is over 110 people will die on U.S. roads, the equivalent of a 737 airliner crashing every afternoon. In addition to the tragic human cost, the economic impact of these 40,000 annual fatalities and 2.5 million injuries exceeds \$230 billion each year. The public and private sectors have invested billions of dollars in measures to protect drivers and passengers from the impact of crashes and to influence driver behavior. The next giant leap in reducing fatalities and injuries is to jumpstart the widespread deployment of vehicle collision avoidance systems and other smart technologies that can help drivers and operators detect dangerous situations and avoid accidents before they happen. Mark Rosenker, Acting Chairman of the National Transportation Safety Board (NTSB), recently posed the question, "How many of you would be willing to take the plane home tomorrow if there were 40,000 aviation fatalities each year in the United States?" He continued, "Personally, I'm concerned, baffled, and shocked because there seems to be little outrage about the tens of thousands of people who die in roadway crashes...it is time for us as a nation to stop accepting the costs of traffic accidents and instead put that money into making cars that can avoid potential accidents."

In addition, in-vehicle telematics and communications systems like Next Generation 9-1-1 and Emergency Vehicle Preemption are helping emergency personnel respond more effectively when accidents do occur, and ITS-enabled solutions are being used routinely to manage transportation systems more effectively during high-traffic situations such as hurricane evacuations, planned events including the Presidential Inauguration and major sporting activities, and catastrophic events like the September 11, 2001 terrorist attacks.

Reducing Traffic Gridlock – The average rush-hour commuter spends nearly a full work week stuck in traffic each year, time that could be spent at a ballgame or around the dinner table with family, at a barbeque with friends, or volunteering in your community. Traffic congestion in major metropolitan areas alone costs our economy more than \$78 billion each year in lost travel time and fuel, not to mention its harmful impacts on economic productivity, the environment, and its contribution to dangerous and frustrating driving conditions. Allowing traffic to grind our cities to a halt every morning and afternoon is unacceptable when we have tools available to manage our transportation system and utilize our infrastructure more effectively. Active traffic management and incident response systems, intelligent traffic signals, smart transit systems, congestion pricing, weigh-in-motion truck inspections, electronic tolling, ramp metering, real-time traffic information and navigational systems, high-occupancy toll (HOT) lanes, and Bus Rapid Transit are among the technology-enabled solutions available to help reduce traffic gridlock, provide drivers and operators with more efficient highways and travel options, and improve the reliability of goods and services.

Preserving the Environment – The transportation sector is responsible for almost one third of all U.S. CO² emissions, while also contributing significantly to our nation's oil dependence. In addition to alternative fuel solutions, technologies and strategies are available that can improve the fuel efficiency of vehicles, reduce traffic gridlock and other emissions-generating conditions such as poorly timed traffic signals, reduce unnecessary truck idling, facilitate shifts to transit and other transportation modes, and provide real-time information to commuters about the most fuel efficient routes and "green driving" strategies. Transportation has a significant impact on energy and the environment, but smart technologies and strategies can help save fuel, reduce emissions, and preserve our environment for future generations.

Financing the Future of Transportation – The estimated cost to modernize and maintain our nation's infrastructure and provide safe, efficient multimodal transportation services far exceeds the revenues generated by the fuel-tax based financing system. Innovative financing mechanisms including increased private sector investment are needed to maintain our current infrastructure and create a smart transportation system that will be safer, cleaner, more efficient, and more globally competitive. States should be empowered to employ innovative strategies and financing methods that will provide financial sustainability while improving system performance, including improved flexibility to pursue tolling and pricing systems, public-private partnerships, and potentially a vehicle miles traveled (VMT)-based user charge. Open road tolling and VMT user fees can be implemented effectively using ITS solutions including GPS-based systems, electronic toll tags, and real-time traffic data. In addition, a portion of any revenues generated from a cap and trade program should be used to finance efficient transportation projects including ITS and transit.

Creating Jobs and Strengthening the Economy – Our nation is facing economic challenges unlike any in recent memory. In addition to reducing traffic congestion and improving safety and productivity, investing in ITS will create jobs across numerous industries including the high-tech, automotive, engineering, information technology, manufacturing, and environmental sectors. According to U.S. Department of Transportation (DOT), an average of 50 percent of ITS project funding is spent on direct labor as compared to 20 percent for new highway construction, multiplying the economic benefits of ITS investments. ITS projects can be deployed quickly and cost-effectively to put Americans to work building our nation's future.

Recommendations for the Next Surface Transportation Authorization

It is imperative that Congress approach the next surface transportation bill with a focus on the transportation user. The old way of doing business – to build transportation infrastructure, let traffic loose, and wait for something to crash or break before responding – is no longer acceptable when we have smart technologies and operational tools that can detect problems in advance, reduce accidents and emergency response times, eliminate unnecessary gridlock and emissions, and achieve higher performance and output from our existing capacity. The roles of federal, state and local governments must be redefined such that, in cooperation with the private sector, we can achieve delivery of real performance improvements. New sources of revenue and innovative approaches are needed to provide a smart transportation system that will have fewer fatalities, improved mobility for the traveling public, efficient and reliable movement of goods, and financial and environmental sustainability for future generations. Accordingly, special emphasis should be placed on:

Incentivizing Performance Improvements

Transportation funding should be linked to specific, aggressive performance goals to ensure that transportation users receive an appropriate return on their investment in terms of safety, mobility, efficiency and environmental improvements.

- **National Performance Goals** – To ensure accountability for federal transportation funding, performance goals should be established in areas such as traffic-related fatalities, traffic congestion, travel times, and other appropriate measures to encourage state and local agencies to set aggressive, achievable performance targets. To determine appropriate national performance goals, the Secretary should engage state and local transportation, transit and planning agencies, university research centers, and private sector companies including real-time data providers and technology integrators to quickly undertake a data-driven study and publish a report with recommendations on appropriate performance categories and measures that will be aggressive yet achievable.
- **State and Local Performance Targets** – To align state and metropolitan planning with national goals, Congress should require each state DOT and MPO to develop a performance management process to monitor progress toward meeting national performance goals. State DOTs and MPOs should establish short-term and long-range performance targets in areas including, but not limited to, traffic-related fatalities, traffic congestion, and travel times, and should provide regular performance reports on their progress in meeting established performance targets. To help state DOTs and MPOs meet these performance targets, the U.S. DOT should, after consultation with state and local transportation, transit and planning agencies, university research centers, and private sector companies, issue guidance on appropriate performance metrics to ensure uniformity of data; provide recommendations on the most effective technologies, strategies and best practices for data collection and achieving performance targets; and establish financial incentives to encourage transportation agencies to meet or exceed national performance goals.
- **Performance Incentives** – The Secretary should establish a financial incentive program that will reward state and local agencies for achieving or exceeding national performance goals, using a portion of funds set aside from the national highway system and surface transportation programs. The program should also make funding available to state DOTs, MPOs and local agencies that currently lack the ability to collect necessary performance data in order to fill the gap in their data collection systems.
- **National Scorecard** – Data on traffic-related fatalities, congestion levels, travel times, and other performance measures should be published by U.S. DOT at least once annually as part of a *National Scorecard*. U.S. DOT should also publish an annual report, based on measures developed in cooperation with state and local transportation, transit and planning agencies, university research centers, and private sector companies and from data submitted by state DOTs and MPOs, on effective strategies that have been employed at the state and metropolitan level to reach or exceed performance targets, factors that may have impacted performance outcomes, and any changes in national performance goals.

Putting Smart Technologies to Work

When combined with constrained budgets, investment decisions are often made to satisfy immediate demands at the expense of performance-driven, cost/benefit-based solutions that will have lasting safety, mobility, and environmental benefits. To assist state and local agencies in achieving greater performance improvements, the next authorization bill should provide dedicated funding and incentives for public agencies and private sector partners to deploy smart technologies and invest in operational improvements that will prevent traffic accidents and fatalities, reduce gridlock, preserve the environment, and create a smarter, more efficient multimodal transportation network.

- **Planning for Performance** – To ensure cost-effective investment decisions in the state and metropolitan planning process, a cost-benefit analysis of ITS solutions and operational strategies should be performed by state DOTs and MPOs as part of their annual and long-range statewide and regional plans. These plans should include an evaluation of technologies and strategies that could be adopted to reduce accidents and fatality rates, improve passenger and freight mobility, reduce congestion and emissions, and provide other system performance benefits. Where a cost/benefit analysis shows performance benefits that outweigh other alternatives, ITS technologies and strategies should be integrated into transportation plans and projects and, where appropriate, implemented as standalone solutions for optimizing system performance and return on investment.
- **Addressing Strategic Challenges** – ITS and system operations and management solutions should be eligible for funding and encouraged as part of any congestion reduction, metropolitan mobility, air quality and climate change, highway safety, freight, transit, or other targeted programs or strategic initiatives funded under the new authorization in order to encourage rapid, effective and low-cost performance improvements. In addition, barriers to technology and innovation should be removed within existing programs such as the three-year time limitation on the use of funds under the Congestion Mitigation and Air Quality program, and procurement rules and contracting practices should be streamlined to encourage efficient deployment of technology solutions.
- **Technology, Operations and Systems Management Program** – To provide public agencies and private sector partners with the tools to effectively manage and improve the performance of their intermodal transportation systems, ITS America supports the \$3 billion per year Operations and Management program requested by the American Association of State Highway and Transportation Officials (AASHTO). From this amount, the authorization bill should provide at least \$1 billion per year to support deployment of ITS technologies and intermodal integration. ITS and operational strategies should be funded at 100 percent federal share in order to encourage rapid, effective and low-cost performance improvements and to support high-priority multimodal initiatives in areas such as urban congestion, rural safety, climate change, improved transit operations, and more efficient freight corridors, border crossings, and intermodal connectors.

The combined Technology, Operations and Systems Management program will ensure that adequate funding is available to state and local agencies through existing formulas to actively manage the intermodal transportation network to improve public safety, reduce traffic congestion, minimize emissions and environmental impacts, improve economic productivity, reduce project costs, and optimize the capacity, energy efficiency, and performance of the transportation system. U.S. DOT should provide technical assistance, training and deployment support to agencies as they work to integrate ITS solutions into their planning and operations. Eligible expenditures under the program would include deployment, operation, systems management and integration, training, and evaluation of the following intelligent transportation systems and operational strategies:

- Traffic signal timing and optimization, including transit preferential signals and emergency vehicle preemption;
- Congestion pricing systems, HOT lanes and other variably-priced electronic tolling systems;
- Active traffic management and incident response systems;
- Emergency management systems to improve evacuations and respond more effectively to natural disasters and other crisis situations such as the September 11, 2001 terrorist attacks;
- Vehicle and intersection collision avoidance technologies;
- Commercial vehicle operations and information systems;
- Real-time data collection systems to support state and local performance measurement;
- Smart transit systems including automated vehicle location and computer-aided dispatch;
- Electronic weigh-in-motion truck inspections;

- GPS-based location and navigational technologies and operational systems to support Bus Rapid Transit and dedicated transit and truck-only lanes;
 - Roadway monitoring and detection systems;
 - Snow and ice monitoring and management technologies;
 - Smart Parking Systems;
 - Electronic Border Crossing Systems;
 - Work Zone Management Systems;
 - Technology to support Safety Service Patrols;
 - Highway Ramp Metering;
 - Road Weather Information Systems;
 - Electronic, integrated reservation and payment systems for transportation services; and
 - Real-time traveler information through dynamic message signs, cell phones and handheld devices, 511, and in-vehicle signage that provides the public and transportation managers with real-time information about traffic conditions, safety hazards, transit schedules, parking availability, roadway and weather conditions, and alternative travel routes.
- **Smart Towns and City Streets Initiative** – Imagine a future where cars don’t crash, where rush hour gridlock is a thing of the past, and where vehicles have 24-hour, 360 degree connectivity to a wireless transportation network that provides an infinite range of information and services at your fingertips, from real-time transit schedules, available parking spaces, and advanced collision avoidance systems to the ability to reschedule a missed flight or even place a carryout order at your favorite restaurant. Sound like a cross between Knight Rider and the Jetsons? Maybe, but the technology to achieve this vision is here today.

One technology that can make this vision a reality is known as *IntelliDrive*SM, also referred to as the Vehicle Infrastructure Integration (VII) system. *IntelliDrive* combines leading edge technologies – advanced wireless communications, vehicle sensors, on-board computer processing, GPS-based navigation, and smart infrastructure – to enable real-time communication between moving vehicles and infrastructure-based sensors. The U.S. DOT and public and private sector partners including the automobile manufacturers have worked collaboratively and invested millions of dollars to develop *IntelliDrive*, with test facilities and vehicles operating successfully in California, Michigan, New York and Virginia. Using the 5.9 MHz bandwidth designated by the FCC and other commercially-available wireless technologies, *IntelliDrive* can provide transportation managers and the public with the next generation of advanced safety, mobility, e-commerce and consumer applications.

The Smart Towns and City Streets Initiative would provide \$1.2 billion over the 6-year authorization for the Secretary to make competitive awards to between 4 and 6 cities, towns or regions – to be designated as Smart Cities, Smart Towns, or other appropriate designations – to create model deployment sites for the implementation of a wireless communications network that will dramatically improve highway and vehicle safety, passenger and freight mobility, the environment, and traveler convenience. Each deployment site would be required to perform rigorous data collection and analysis and prepare an annual report to Congress with costs, benefits, lessons learned, and recommendations for future deployment strategies. Each award recipient should have maximum flexibility to adopt innovative financing strategies including public-private partnership arrangements to supplement federal funds, and should partner with automotive manufacturers, telecommunications and technology companies, and stakeholder organizations to design and deploy the most effective system to optimize the public benefit. In addition, the Secretary should establish and publish criteria by which towns, cities and regions can qualify for the “smart” designation on their own initiative.

- **VMT-Based User Fee Demonstrations** – The Smart Towns and Cities would provide ideal locations to conduct real-world demonstrations and operational testing of a vehicle miles traveled (VMT)-based user charge demonstration program.

According to the *National Surface Transportation Infrastructure Financing Commission*, a VMT-based system “should be designed to facilitate integration with intelligent transportation systems, such as traveler information systems, and with emerging IT-based safety applications such as vehicle infrastructure integration programs” and “existing vehicle GPS systems.” The Commission further notes that “Pricing technology could be implemented in conjunction with a program such as IntelliDriveSM...” which, as envisioned, “will support secure communication between the vehicle and roadside to support mobility, traffic management, and traveler safety.” The Commission concludes that using technological advances to improve how people pay for their use of the transportation system “will enable the delivery of a host of other benefits, including real-time information to vehicle drivers to help reduce congestion, improve safety, and reduce emissions, to transit operators to improve the convenience and reliability of public transit, and to system managers to better monitor and manage the system and improve the allocation of transportation infrastructure resources.”

Congress should provide towns and cities receiving funding under the Smart Towns and City Streets Initiative with incentives to conduct broad-based demonstration programs of mileage-based user fees that could vary by time of day, pricing zone and other factors; be interoperable with other tolling, pricing, and intelligent transportation systems; and accommodate multiple forms of payment including cash, credit and debit cards, the Internet, and other integrated payment systems.

- **Mainstreaming Vehicle Collision Avoidance Systems** – Each year in the U.S. 40,000 people die and 2.5 million more are injured in traffic accidents, causing untold pain and suffering and costing our economy at least \$230 billion each year. Many of these accidents could have been prevented with vehicle collision avoidance systems and other advanced safety technologies that can help drivers and vehicles detect dangerous situations and avoid crashes before they happen.

Acting NTSB Chairman Mark Rosenker told participants at the 15th World Congress on ITS in November, “It is our firm belief that advanced technology is a major ingredient in reducing accidents, saving lives, preventing injuries and lessening the immense emotional and monetary toll of these accidents. I am encouraged by the rapid proliferation of new safety technologies over recent years and I would like to encourage both government and industry to work together to find innovative ways to get new technologies into the public faster and at lower costs.”

To help realize the NTSB’s vision, tax incentives should be provided to mainstream the availability of life-saving collision avoidance systems and other advanced safety technologies in cars, trucks, transit vehicles and passenger rail systems. Tax credits should be provided for the adoption of a range of safety technologies including, but not limited to: advance collision warnings, lane and roadway departure warnings, blind spot detection, and *IntelliDrive*–enabled systems that can detect dangerous conditions, provide real-time warnings, and even apply the brakes if necessary to avoid a crash.

- **Advancing Efficient Transportation Systems through Cap and Trade** – As Congress considers a potential cap and trade program, it is critical that the system be designed to reinvest revenues generated from the sale of emissions credits back into smart infrastructure that will reduce congestion and emissions and make our transportation system more efficient and sustainable for the future. At least 10 percent of the cap and trade revenues should be invested in transportation technologies and strategies that are shown to reduce emissions including, but not limited to, traffic signal synchronization, smart transit systems, congestion pricing, electronic tolling systems, active traffic management operations, and real-time travel information and navigational technologies that facilitate shifts to transit and other modes of transportation.

Advancing Next Generation Transportation Solutions

In addition to optimizing currently available technologies to improve the transportation system, the next authorization bill should provide \$250 million per year in non-earmarked funding for ITS research programs conducted through the U.S. DOT’s ITS Joint Program Office (JPO) in order to advance the next generation

of transportation innovations in cooperation with state and local agencies, private industry, university research centers, and public-private stakeholder organizations. The ITS JPO should have flexibility to pursue new areas of innovation that have significant potential to advance national transportation objectives, and should be empowered to provide meaningful guidance to modal administrators within U.S. DOT and state and local agencies on effective technologies and strategies to achieve agency performance objectives.

- **Focused Federal Research Program** – The Federal ITS research program should focus on advancing next generation solutions in areas including, but not limited to: vehicle and intersection collision avoidance technologies, congestion management and emergency response systems, a national VII or *IntelliDrive* network, ITS environmental solutions, and effective approaches for collecting and disseminating real-time traffic, transit, road and weather condition, and multimodal traveler information to the public and transportation managers. Other priorities should include performance evaluation; innovative financing systems including a VMT-based user fee; driver distraction and other human factors research; and continued architecture and standards development including harmonization of standards within the U.S., and between the U.S. and other countries, to promote interoperability of technologies and efficient data sharing between jurisdictions.
- **Completing *IntelliDrive*SM** – The ITS Joint Program Office should complete the technical and policy research necessary for the deployment of a nationwide VII or *IntelliDrive* network including identifying estimated deployment and operational costs, recommended business models and governance structure, privacy standards, potential liabilities, spectrum issues, potential private sector incentives, necessary enabling legislation or rulemakings, and any other barriers to deployment. A nationwide deployment strategy should be developed in conjunction with the automotive industry, state and local transportation officials, other public and private sector partners, and key stakeholder organizations including ITS America and AASHTO.
- **ITS Costs, Benefits, and Deployment Strategies Report** – The U.S. DOT should undertake a comprehensive, data-driven study to determine the deployment and operational costs of various ITS applications; measure their quantifiable economic, social and environmental benefits; identify best deployment and operational practices, and identify data gaps that should be remedied to help guide state and local investment decisions. The study should provide recommendations to state and local agencies on the most effective ITS tools for addressing high-priority transportation challenges, and should provide guidance on strategies for deploying and operating ITS solutions to yield optimal results. The U.S. DOT should contract with an ITS-focused organization that represents constituencies across the public and private sectors and academia within three months of enactment, and the organization selected should issue a report within two years of contract award. This report should be updated annually and the information contained therein provided as part of an online, interactive web-based tool that will enable collaboration and sharing of research results and best practices between state and local agencies, private sector partners, university experts, and other transportation professionals. Funding in the amount of \$1 million should be provided to conduct the study during each of the first two years, with ongoing annual funding in the amount of \$400,000 to be provided thereafter for continued research, data collection, publication of results, and management of the online collaboration resource.
- **Conducting a VMT User Fee Research, Development and Demonstration Program** – The *National Surface Transportation Infrastructure Financing Commission*, in its recently released report, unanimously called for an aggressive research, development and demonstration (RD&D) program to address technical and policy challenges associated with the possible deployment of a VMT-based user fee as a potential financing mechanism for our nation’s transportation system. The Commission recommends that the RD&D program be overseen by a multimodal body within U.S. DOT that combines technology, policy, tax administration, and systems expertise, with the ITS Joint Program Office cited as an example of one such body. The Commission further recommends the

creation of an expert independent advisory committee to help review and advise on funding of R&D and pilot programs, to further explore policy issues, and to make specific recommendations to Congress regarding the best option(s), system design, required technology, and implementation plan.

Moving forward on a mileage-based system will require extensive coordination and consensus building among the public and private sectors. ITS America's membership – which includes a broad cross-section of state and local transportation and planning agencies, university research centers, and industry leaders from automakers and tolling companies to GPS device manufacturers and real-time traffic data providers – provides a unique combination of research, technology, policy, and systems integration expertise that will be critical for advancing an effective mileage-based charging system. In addition, ITS America's role as a national 501(c)(3) association and former Federal Advisory Committee to the U.S. DOT presents a unique, independent resource for providing research, technology and policy expertise and building consensus across the public and private sectors.

To effectively implement the RD&D program, U.S. DOT should utilize ITS America's unique expertise and broad-based membership to review and advise on funding of R&D and pilot programs, to further explore policy issues, and to make specific recommendations to Congress regarding the best option(s), system design, required technology, and implementation plan. Furthermore, the U.S. DOT should engage ITS America in conducting a report that would identify:

- Necessary protocols and systems to accommodate concerns regarding personal privacy;
 - Impacts of such a system on rural drivers who have no choice but to drive long distances;
 - Options related to the method and point of collection of a national VMT fee;
 - Methods to ensure the feasibility of multiple forms of payment;
 - The administrative costs associated with such a national program;
 - Whether it is more logical to transition all vehicles simultaneously or some vehicle classes first as early adopters;
 - How to ensure individuals are not paying both the gas tax and the VMT fee under any phased-in transition approach;
 - Impacts of a voluntary or mandatory use of the system;
 - Whether different systems for different vehicle types will be necessary or appropriate, including pilot programs for automobiles and different classes of trucks;
 - How to provide the positioning accuracy and availability necessary to support state, local, or private charges based on specific areas or lanes traveled; and
 - Other benefits that could be gained through integration of a VMT-based user fee system with other intelligent transportation systems and technologies including IntelliDrive.
- **Strengthening University Research** – The role of University Transportation Centers (UTCs) in solving transportation challenges should be strengthened by ensuring a competitive selection process for qualifying universities, with at least half of the UTCs focused on advancing specific multimodal fields including ITS, operations, metropolitan mobility, rural safety, sustainable transportation, and innovative finance. Performance plans and measurable goals should be required of each UTC, to be approved by the U.S. DOT's Research and Innovative Technology Administration (RITA). The role of UTCs in training the next generation of transportation leaders, engaging in technology transfer, and pursuing relevant research should be strengthened through improved collaboration with RITA and other DOT agencies, and with public and private sector stakeholders that are advancing research and technology development and deployment. UTCs should have flexibility to use non-DOT federal funds and private sector funding to meet the local match requirement.
 - **Center of Excellence for Operations** – A Center for Excellence for Operations should be established to conduct research and serve as a resource for state and local agencies and other transportation professionals seeking technical assistance, training, information exchange, partnership-

building opportunities, and easy access to operational tools including ITS solutions. The Center should conduct research and provide technical assistance to state and local agencies in the fields of systems management and ITS deployment in order to optimize performance and safety.

- **Center of Excellence for Applied Transit Technology** – A Center of Excellence for Applied Transit Technology should be established to foster and support cooperative and collaborative efforts among transit agencies in deploying technology. Agencies will work together to evaluate, adapt, pilot and deploy technologies developed in other industries or otherwise ready for rapid deployment. The Center will provide structure in project formation, management, coordination and methodology along with overseeing documentation and evaluation so that results are easily and effectively transferable. It will thus provide mechanisms and support for technology transfer acceptance, adaptation and adoption among many transit agencies. The activities of this center must be closely aligned with the explicit needs and concerns of its participating agencies, and thus should be guided by a board or council of representative general managers. It needs to be especially concerned with non-technical issues associated with adoption and use of technology, such as open systems and standards and/or transferability of intellectual property rights, networking among agency peers at both developmental and deployment stages, and development of manuals and instructional materials.