

Intelligent Transportation Society of America

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Statement of

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Introduction

Thank you, Mr. Chairman and members of the Commission. It is an honor to appear before you today to speak about the contributions intelligent transportation systems (ITS) make to improving our nation's transportation network.

My name is Neil Schuster and I serve as President and Chief Executive Officer of the Intelligent Transportation Society of America in Washington, DC. For more than 15 years, ITS America has been the leading advocate for the development and deployment of intelligent transportation systems in the United States.

Our members include almost 500 private corporations, public agencies, academic institutions and research centers based throughout the United States. While our members have diverse interests, they share a common goal, our long-term vision: a future where people and goods are transported without delay, injury, or fatality by integrated systems that are built and operated to be safe, cost-effective, efficient, and secure. That long term vision – Zero Fatalities, Zero Delays – takes a personal expectation we have for each and every trip we take as individuals, that is, to arrive safe and on time, whether we travel across town or across the country, and expands it system-wide to include every one and every trip.

We face major challenges that threaten our transportation mobility, safety, security, and economic efficiency. While congestion and safety have been long-standing problems, recently, two new challenges took shape – the need to create a more secure transportation network and implementing effective disaster recovery systems in the event of hurricanes or other unexpected events.

ITS technologies enable a number of solutions that will overcome these challenges and allow us to achieve Zero Fatalities and Zero Delays. And we can make that progress with a reasonable investment, certainly an important criteria in an era of tight budgets and competing needs for limited transportation dollars.

In a recent report titled “2010 and Beyond: A Vision of America’s Transportation Future,” the Hudson Institute reached a similar conclusion: “The United States must advance the rapid deployment of technology in all aspects of its transportation system to achieve optimal safety, security, and operational benefits into the future.”

ITS is transforming transportation – how we finance, develop, and manage transportation facilities and capacity, and how consumers make choices to consume that capacity. These technologies have launched an exciting and promising chapter in our transportation history, and while we have seen much progress, so much more is available to us just over our horizon.

These challenges are significant and they directly impact our lives. There are answers at hand, given the willingness to consider the root causes of our transportation problems and to employ solutions that will make a real difference. We applaud the Commission for tackling these difficult issues at a critical time and we pledge our full support and assistance to the Commission and its members in the critical months ahead.

A Vision of Zero Fatalities and Zero Delays

Each year, more than 43,000 people lose their lives and 2.7 million people are injured on our roadways. Traffic crashes alone take a toll on our nation’s economy in excess of \$230 billion annually. These are staggering numbers, however, for those who have lost a loved one or been injured, the cost is immeasurable. We have made progress as a nation in reducing fatalities and injuries, but that progress has been largely at the margins. Last year, however, we unfortunately lost ground in this important area.

Congestion – based on wasted time and fuel – costs taxpayers more than \$63 billion each year. With dramatic increases in fuel prices since the congestion cost was last calculated at the national level, this number is likely to rise significantly when it is next compiled.

Taken together, safety and congestion drain our economy of more than \$300 billion each year. We have at hand a series of cost-effective solutions – for pennies on the dollar, ITS investments can dramatically reduce and ultimately eliminate that \$300 billion economic cost.

ITS technologies in vehicles and in the infrastructure – and through the combination of both – allow us to achieve a quantum leap in safety and mobility. ITS America’s dedication to safety and mobility – our “Vision Zero” – has gained support around the country and around the world.

Our Vision is based on the belief that crashes can be avoided. Our members have already demonstrated vehicles that do not crash, employing vehicle-vehicle and vehicle-roadside communications technologies. It is now time to take serious steps to address a broad range of policy, legal and institutional issues so that the crashless vehicle becomes a reality in the near future.

ITS also allows us to remove delay and uncertainty from the network. This does not mean that rush-hour travel will be just as fast as travel during non-rush hour times. We understand that supply and demand govern congestion in transportation as it does in every other area of our lives. We expect that it will take more time to drive to work at 8:00 am on a Monday morning than it would if we travel to work at 3:00 pm on a Sunday.

Vision Zero calls for the elimination of delays that can be avoided by the efficient use of information and technology, including real-time travel information and efficient traffic management. Our goal is that we know our travel time before we make the trip, so that we can plan accordingly.

As serious as our congestion problem is, without the current deployment of ITS systems, we would likely be at a standstill in many urban areas of the country, rush hours would begin earlier and end later, and the delays that grow out of non-recurring incidents would be that much greater. We have made progress, but again, we have not achieved the quantum leap we believe is available to us.

Zero Fatalities, Zero Delays also recognizes that there is a strong link between congestion and safety. Accidents cause congestion and congestion results in accidents. Statistics show that secondary road accidents are likely as drivers face sudden stop-and-go conditions caused by a vehicle crash. Responding to a roadway crash causes congestion and delay, which increases the likelihood of an additional road crash.

Technology enables us to eliminate both congestion and crashes. However, we need certain programs, policies and funding in place to make this happen. I would like to address several evolving concepts that hold great promise, and discuss what is necessary for them to evolve and succeed.

Networks of Transportation Information:
Fully Connected and Protected Travel

In 2001, ITS America presented the U.S. Department of Transportation with a comprehensive 10-year ITS program plan, outlining the steps necessary in the coming decade to achieve major long term improvements in transportation. In that plan, ITS America unveiled the concept of integrated networks of transportation information – the collection of data from a variety of sources, the integration and analysis of that data so that it is transformed into valuable information that enables effective decision-making by transportation providers and consumers, and then the dissemination of that information in a multitude of ways.

Just a few short years later, we see the concept of integrated information networks becoming reality with the development of 511 travel information systems, real-time route navigation based on current conditions, the national Vehicle Infrastructure Integration (VII) program, and others. We are well on the way to a fully-connected transportation network, linking facilities and the people and products on the network.

VII, a program that involves federal and state transportation officials, automobile manufacturers, and a variety of stakeholders, including ITS America, envisions a future where vehicles and infrastructure are in communication to deliver critical safety applications and related mobility and information services. The result will be safer and more efficient travel.

Last year, ITS America's members demonstrated vehicle-vehicle and vehicle-roadside communications applications, in a parking lot and on the streets of San Francisco, during our 2005 ITS World Congress. Our Innovative Mobility Showcase was a \$20 million demonstration, made possible by the partnership between public and private sector, to prove that the technologies envisioned in VII and related programs are within reach. We showed that it is possible to warn a driver when it is safe to enter an intersection, that vehicles can serve as data collectors and anonymously transmit traffic and road condition information from every major road within the transportation network, that travelers can be connected and informed, whether they are behind the wheel of a car, riding a bus, or delivering freight by truck.

VII and related technologies will enable a variety of applications that will improve transportation, including:

- Rear-end collision avoidance systems sense the presence and speed of vehicles ahead, providing warnings to avoid collisions;
- Intersection collision avoidance systems monitor a vehicle's speed and position, along with the speed and position of other nearby vehicles, informing the driver of appropriate actions to avoid a right-of-way violation or impending collision;
- Road departure collision avoidance systems track the lane or road edge and suggest safe speeds for the road ahead.

Faster emergency response time means a better chance of survival to crash victims through VII and related systems:

- Mayday systems automatically contact a call center when a driver presses a button or an airbag deploys;
- Telemedicine systems inside ambulances and medical helicopters enhance the ability of emergency physicians to direct the medical care of crash victims in route to the hospital or trauma center;
- Automated signal controls emitted from ambulances and fire trucks turn traffic signals red or green, transmit instructions to civilian vehicles to clear a path, and could help re-direct vehicles away from streets leading to or from the hospital or incident.

In addition to safety applications, VII also will help reduce travel delay and improve system reliability. Traffic flow through signalized intersections will likely be more efficient, thanks to improved signal re-timing based on real-time traffic counts or queues at the intersection. Re-routing of traffic due to construction, accidents, or planned special events is likely to be more effective when traffic managers and drivers have real-time information about traffic conditions on freeways and arterials.

Another ITS-related network is the use of Global Positioning System (GPS) to improve transportation. GPS is already in use as a navigation aid in cars, airplanes, and ships. Sales of Personal Navigation Devices (PND) are growing, including systems installed in new vehicles, after-market products and hand-held devices. Many cell phones and PDAs also are able to provide location-based information and route guidance using GPS.

Cell phone probes and services are another example of an ITS-related network. Now that cellular operators are upgrading their networks to advanced wireless and other third-generation (3G) services, many new communications services are becoming available. Anonymous monitoring of the movement of cell phones in a corridor can yield information about traffic and travel speed.

Still another network is based on fixed and mobile broadband wireless access, both Wi-Fi and WiMAX technologies. Wi-Fi was developed largely for mobile computing devices, such as laptops, in local area networks (LANs). It is now increasingly used for other applications, including Internet and VoIP phone access, and basic connectivity of consumer electronics. Future Wi-Fi and WiMAX systems are likely to be available to travelers in support of ITS safety and travel information systems.

With some 100 U.S. cities implementing or exploring urban Wi-Fi networks, and with millions of consumers regularly using Wi-Fi today, this technology is rapidly taking hold for a variety of municipal services, including transportation mobility, safety and security.

Last month, Portland, Oregon announced its intention to become the first “synthetic city” to help it meet a variety of needs, including homeland security. The plan promises a digital information platform that fuses data from various real-world sources, including traffic management centers, 911 centers, weather sensors, smart buildings and health networks, then will display that data in a simulation environment to generate predictive models that enable Portland citizens to prepare for and manage emergencies, increase public safety, and quality of life.

Portland’s approach is another example of our concept of networks of information, and introduces an important element – transportation technology as one of a variety of municipal services driven by state-of-the-art technologies and high-speed fiber and wireless communications networks.

In the next two sections, I will outline some of the benefits of these technologies and the integration of networks they enable, including greater transportation choice and new revenue models to sustain needed investments.

Delivering Benefits and Enabling Transportation Choice: Empowering the Transportation Consumer

Robust, accurate, detailed travel information makes it possible for consumers to be fully aware of their travel choices in real time, and allows them to make rational decisions in real time. ITS enables travel time prediction, route guidance based on current and expected traffic conditions, seamless movement between bus and rail transit, railway, highway and arterial systems and the elimination of missed connections, and reduced confusion in the case of detours and diversions. Information, collected from a variety of sources and available through a variety of media, brings these benefits to us.

In cities around the nation, data is collected through roadside devices (including cameras and sensors), by electronic toll collection readers, by vehicles (probe data), through cell signals, and by satellite. That data is analyzed and transformed into information that is delivered to us via the web, the radio, television, telephone, and electronic message signs. Other information services add this data to their platforms including online mapping and driving directions, en-route variable message signs and kiosks and personal subscription services, as well as real-time information for pre-trip planning, ride-sharing and en-route modifications, covering the current and expected conditions for all relevant modes.

The goal is universally available information that supports seamless, end-to-end travel choices for all users of the transportation system. The Hudson Institute, in the report cited above, envisions a future where “all modes operate as one in a Mobility Management environment.” ITS enables that future.

The benefits are not solely reserved for commuters, travelers, and pedestrians – ITS enables improvements in the movement of goods through enhanced information-sharing. The next ten years will see the creation of an environment where timely and

accurate commercial vehicle and freight data are shared electronically among authorized stakeholders to support safety, productivity, mobility and environmental goals. Key priorities include:

- The integration and expansion among the public and private sectors of motor carrier safety information systems to enable a coherent overall approach to safety management;
- The deployment and expansion of electronic systems for application, processing, issuance and payment of registrations, permits and other motor carrier credentials;
- The tracking of cargo ships as they cross oceans by equipping containers with transponders to help manage port operations;
- The linking of safety, credentials, and other databases among the United States, Canada and Mexico.

**Enabling New Revenue Models and Sources:
Nothing Less Than a Revolution**

The Hudson Institute calls for “a set of revenue sources that are sustainable and reflective of consumer choice” to fund transportation investments. ITS technologies will enable us to efficiently tap those revenue sources.

While the history of traffic technology goes back many years, electronic toll collection (ETC) was clearly the first ITS application to be put into service. Wireless electronic toll collection replaced manual systems throughout the world, and we have come to expect that any new toll facility will provide for free-flow, non-stop toll collection at highway speeds. As ETC matured, new applications were added to the in-vehicle transponders and roadside readers, including ETC tags as vehicle probes (reading transponders to determine corridor traffic speed and volume information) and electronic commerce. The result is much greater toll plaza capacity, improved safety and significant gains in efficiency.

Additional emerging technologies will allow ETC to continue its growth, providing even greater functionality, including toll transactions conducted through built-in devices in vehicles, tolls calculated using GPS, and toll collection by cellular or satellite communication links.

ITS enables toll financing to move from static toll structures to flexible schedules that can help achieve policy goals and level the demand during peak periods. As this occurs, tolls move from simply a supplemental collection mechanism to finance road construction and operation, to an instrument of policy, transportation management and a potential alternative to existing user fee mechanisms.

Road pricing is possible, in a way that does not slow traffic or involve cumbersome payment processes. Systems to augment or even replace the current fuel tax are within reach. A pilot program in Oregon has already proved this concept – vehicle tags are read at the gasoline pump, with road use taxes calculated (and someday, potentially charged) based on a variety of factors that can serve as incentives to reduce congestion, including vehicle miles traveled and how many of those miles were during peak periods.

The result is that we are beginning to think about transportation capacity as a commodity which we consume and pay for. Transportation can become market-based through policy changes and the implementation of transportation technologies.

In his recent book “Mobility: America’s Transportation Mess and How to Fix It,” Northeastern University Professor Joseph M. Giglio summarized it best when he said, “Recent advances in electronic technology have opened the door to nothing less than a revolution in the way we operate and finance our roadway systems. For the first time, we’re able to price roadway use with the same flexibility as private business firms have traditionally enjoyed in pricing access to their services.”

We have the technologies; we now need the policies and programs to move forward. Federal funding and programs can set the course for future success.

National Transportation Legislation: Beyond the Build vs. Operate Dilemma

The funding available for transportation pales in comparison to our needs, and numerous studies have documented the gap. Given limited resources, those who make transportation decisions are forced to choose among alternatives, often forced to decide between road and rail, highway and transit, and build or operate.

Professor Giglio explained that we need “net new revenues” to solve the transportation challenges we face. He noted that we need additional investments to stem the tide of infrastructure deterioration, to improve modal connectivity, to meet the need for new transportation capacity, and to create a “technologically sophisticated, environmentally beneficial, properly integrated and strongly customer-focused national system.”

In the technology area, we need programs that allow us to fully develop integrated networks, to fully fund and deploy VII and other systems. We also need dedicated funding for these programs so that transportation planners have at their disposal a pool of funds to sustain the deployment and operation of ITS systems.

Our current program, SAFETEA-LU, expires in September 2009. As Congress begins to craft the next transportation program, it must provide funding for ITS research and deployment. A fund of \$500 million a year, less than 2 percent of total federal transportation funding, will help state and local governments deploy ITS. This investment will be leveraged with private industry investments for even greater success.

The potential for immediate return is very high, with proven technology and procedures ready to roll off the shelf and into action immediately. Yet, competing priorities for limited funds stand in our way. Our members have told us that deployment of ITS under SAFETEA-LU is showing only moderate signs of increasing. They urge support for protected funding for ITS in the core Federal-Aid Highway Funding Programs of the future.

History shows that continuing to compete with core transportation capital projects will always put ITS deployment at a disadvantage. The Commission comes together at a critical time, when we have the need, the desire, and the technologies to consider how best to achieve the funding levels needed to ensure future success. All that remains is the political will to ensure that we create protected funding programs for ITS deployment.

ITS at Work in the State of Texas:
Success on the Ground

ITS innovation took hold early in Texas, and the state has a strong track record of success in deploying ITS and reaping the benefits.

One of the first electronic toll collection systems in the United States is in Dallas, Texas. Recently, the Harris County Toll Road Authority in Houston, Texas began migration to a new multiple-protocol electronic toll tag that operates without batteries. The tag makes interoperability among toll agencies much easier, for the convenience of the customer and for improved agency efficiency.

One of the world's largest providers of telematics services to automobile manufacturers is based in Texas. Telematics systems provide motorists with travel information services and safety enhancements, including automatic emergency response services.

In Dallas, 34 percent of all freeway miles are covered by ITS systems, and 71 percent of signalized intersections along the arterials are connected to modern, efficient, traffic management systems. The use of service patrols, coordinated through these management centers, have a documented 36 to 1 benefit/cost ratio, according to federal studies.

Earlier this month, officials from the Texas Department of Transportation, the North Texas Tollway Authority, and the Dallas Area Rapid Transit system previewed plans for managed HOV lanes. ITS systems will allow these agencies to employ dynamic pricing. Every six minutes, the system will assess congestion and as traffic grows or falls, the toll charge will rise or drop.

A few months ago, Tom Lambert, vice president and chief of police of the Metropolitan Transit Authority in Houston, Texas, was elected chairman of ITS America's Board of Directors. Chief Lambert is responsible for directing and managing METRO's police and traffic management department which includes overall police operations, traffic

management activities, high occupancy vehicle lane operations and management, and ITS projects. As our chairman, he is dedicated to ensuring that ITS America continues to bring the benefits of new technologies and new concepts to transportation officials, the emergency response community, and homeland security administrators.

Conclusion

With the help of intelligent transportation systems, we are making significant improvements in safety, congestion, security and fuel efficiency. ITS technology already makes it possible for transportation managers in almost every major city to monitor conditions and operate the network with greater effectiveness. Millions of cars and trucks already have navigation and warning systems to give drivers added safety and tools to better choose their routes.

An increasing number of bus stops feature up-to-the-minute arrival information to inform passengers when their bus will arrive and if they are likely to arrive at their destination on time. Twenty-nine 511 travel information systems are in operation around the country, providing traffic, weather and incident information to travelers in real time. In July, more than 1.3 million 511 calls were placed nationwide and 511 services are available to more than 93 million Americans, just short of one-third of the total population.

Without these systems in place, congestion, delay and accidents on our road and transit networks would be even worse than it is at present. However, as we continue to make improvements in transportation through ITS, it is time to commit to a giant leap forward, to create a future where vehicles regularly communicate with each other and with the network in real time, and when there is genuine interaction among traffic management, emergency response, traveler information, and vehicle control systems, and where travelers are fully connected and protected.

With your support and recognition of the results ITS can achieve with appropriate programs, policies and funding, we are likely to reach this future that much sooner, saving tens of thousands of lives as a result.

I thank the entire Commission for allowing me and my colleagues to testify today. On behalf of the members of the Intelligent Transportation Society of America, I offer our full support and assistance to the Commission. I look forward to answering any of your questions at this time and hope you will consider ITS America as a resource in the months ahead as you continue and complete your important work.