What is Intelligent Transportation?

Smart Technology Solutions to America's Transportation Challenges

Intelligent transportation systems (ITS) include a broad range of technology solutions that provide and manage information to improve the safety, efficiency, and performance of our transportation network. These technologies include electronic tags that allow travelers to pay tolls without slowing down, real-time traveler information to help manage traffic congestion and provide travel choices, equipment on vehicles that alert drivers to dangerous situations, and much more.

Why is Intelligent Transportation Important?

Our nation's transportation system is facing significant challenges, from traffic-related fatalities and injuries, congested roadways and rising gas prices to deteriorating infrastructure, increasing costs and shrinking state and federal budgets. With a growing population challenging an already strained transportation system, we cannot continue to increase the capacity of the current transportation system enough to meet demand. ITS technologies enable us to make better use of the transportation network we already have while building smarter infrastructure to meet future demands.

Doing More with Less

As agencies are forced to do more with less, the evolution of intelligent transportation systems is providing a critical toolbox of cost-effective technology solutions for transportation managers as they seek to operate and maintain the system more efficiently and improve performance. For example:

- Installing smart traffic signals can return $40 in time and fuel savings to the public for every $1 invested, reducing travel delays by 25 percent and emissions up to 22 percent.

- The Government Accountability Office found the benefit-cost ratio of a nationwide real-time traffic information system to be 25 to 1, returning over $30 billion in safety, mobility and environmental benefits for a $1.2 billion investment.

- Many other ITS applications, from traffic management centers, bus rapid transit and weigh-in-motion truck inspections to smart parking systems and advanced infrastructure monitoring technologies, are generating significant cost savings for public agencies while providing the traveling public with a safer, more efficient and user-friendly transportation network.

- The overall benefit-cost ratio of ITS-enabled operational improvements has been estimated at 9 to 1 compared to an estimated 2.7 to 1 for the addition of new highway capacity.

Real-World Benefits

Reducing Traffic Gridlock –Traffic congestion in major metropolitan areas alone costs our economy more than $115 billion each year in lost travel time and fuel, not to mention its harmful impacts on economic productivity, the environment, and roadway safety. The good news is that technologies are available to manage our transportation system and utilize our infrastructure more effectively. Active traffic management and incident response systems, intelligent traffic signals, smart transit and parking systems, road pricing, weigh-in-motion truck inspections, electronic tolling, ramp metering, real-time information and navigation systems, high-occupancy toll (HOT) lanes, and Bus Rapid Transit are among the many ITS-enabled solutions available to help reduce gridlock, provide drivers and operators with more efficient travel options, and improve the reliability of freight movement.

Improving Mobility and Access: Many Americans are just a click away from real-time traffic, transit, parking and even routing information with which to make convenient and cost-effective travel decisions. And through the U.S. Department of Transportation's (DOT) ITS research program,

cooperative efforts like the Mobility Services for All Americans initiative are helping connect elderly and disabled Americans with a "one-stop" shop where they can arrange all of their transportation needs.

Preventing Crashes Before they Happen: The next great leap in improving safety and reducing traffic fatalities is to enlist smart technology to help prevent crashes before they happen. Collision avoidance technologies are now on the market that, if deployed more broadly, could prevent or reduce the impact of an estimated 31 percent of traffic crashes. There are also a growing number of infrastructure-based safety systems that can help warn drivers, operators and pedestrians about dangerous situations. A major focus of the U.S. DOT's ITS research program is the creation of a connected vehicle network that allows vehicles to communicate with each other and with the roadside in real-time. The deployment of such a network could potentially prevent or reduce the impact of four out of five non-alcohol related traffic crashes according to U.S. DOT estimates.

Providing Efficient Financing Alternatives: Electronic toll collection and integrated payment systems are providing agencies with traffic management tools that can also raise much-needed revenue, such as open road tolling, HOT Lanes, congestion pricing, and smart cards for transit, tolls, parking and other services. ITS also provides the capability for future financing alternatives such as a mileage-based user fee that could vary by pricing zone, time of day, congestion level, vehicle classification, or other factors.

Transitioning to a Performance-Based System: As policymakers seek to create a more efficient transportation network, ITS technologies are essential for providing the accurate, real-time traffic and transportation system information needed to measure the performance of our roadways and transit systems. In turn, cities and states can use that information to actively manage the transportation system to reduce congestion, make better use of existing capacity and meet performance goals.

Creating Jobs: Investing in ITS creates good jobs, with an average of 50 percent of ITS project spending going directly to wages and salaries as compared to 20 percent for new highway construction. Researchers from the Information Technology and Innovation Foundation have found that investing in ITS creates a network effect throughout the economy and stimulates job creation across multiple sectors, from the high-tech, automotive and consumer electronics industries to engineering and telecommunications. In addition, investing in ITS provides long-term benefits including government cost savings, economy-wide productivity, and an improved quality of life.

ITS Technology Makes It Possible To:

- Use a navigation system to find the best route based on real-time conditions
- Alert drivers of potentially hazardous situations in time to avoid crashes
- Be guided to an empty parking space by a smart sign
- Ride a bus that turns traffic lights green on approach
- Detect and respond promptly to traffic incidents
- Reroute traffic in response to road conditions or weather emergencies
- Give travelers real-time traffic and weather reports
- Allow drivers to manage their fuel consumption
- Adjust speed limits and signal timing based on real-world conditions
- Improve freight tracking, inspection, safety and efficiency
- Make public transportation more convenient and reliable
- Monitor the structural integrity of bridges and other infrastructure

Contact:
Paul Feenstra, Vice President for Government and Public Affairs
E-mail: pfeenstra@itsa.org
Phone: 202-721-4237