

## INVESTING IN ITS FOR ECONOMIC RECOVERY

### *Increase Labor, Create More Efficient and Safer Roadways, and Maximize the Benefits of Each Project*

Vaisala, Inc.  
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#### **Introduction**

The Obama Administration has been clear about its main objectives for the economic recovery and stimulus package. President Obama has stated that economic recovery plans must be implemented quickly, jobs must be created, the stimulus package should provide both short and long-term benefits for our country and workforce, and projects should maintain environmental integrity. The transportation industry, namely state and local governments, will be given billions of dollars for projects that support and promote President Obama's objectives.

Intelligent Transportation Systems (ITS) use technology to enable operating agencies and private users to keep transportation systems performing as efficiently and safely as possible.<sup>1</sup> Outlined below are statistics and benefits of ITS equipment that can maximize the usage of stimulus package funds, create jobs, improve the safety and flow of commerce on our roadways, and maintain a clean environment.

#### **Importance of ITS for Economic Recovery**

The Federal Highway Administration (FHWA) and the Federal Transit Administration have issued guidance to assist state and local agencies in preparing for implementation of ITS equipment for economic recovery. According to the FHWA, ITS projects and similar strategies can be included as part of larger projects, or as standalone projects within the stimulus package efforts. The ITS Joint Program Office has also prepared a white paper<sup>2</sup> to inform public agencies about investment opportunities in ITS and related operational strategies.

According to the U.S. Department of Transportation, Intelligent Transportation Systems Joint Program Office, investments in ITS and operations are fully consistent with the intent of the economic recovery plan and can be proffered as candidates. The U.S. DOT research states that ITS projects are quick to implement, create jobs, provide short and long-term benefits and provide environmental benefits. Projects that are candidates for stimulus package funds include Road Weather Information Systems (RWIS), traveler information/dynamic message signs, Highway Advisory Radio stations and traffic incident management programs, among others. These particular projects can turn project funds into jobs quickly. Plus, on average, about 50 percent of ITS project spending is for direct labor as compared with 20 percent for new highway construction.<sup>3</sup> Thus, job

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<sup>1</sup> U.S. Department of Transportation, Intelligent Transportation Systems Joint Program Office from "Investment Opportunities for Managing Transportation Performance through Technology," 16 January 2009. Reported on the ITS America web site: <http://www.itsa.org/itsa/files/pdf/ITSStimulusSummary.pdf>.

<sup>2</sup> U.S. Department of Transportation, Intelligent Transportation Systems Joint Program Office from "Investment Opportunities for Managing Transportation Performance through Technology," 16 January 2009. Posted on the ITS America web site: [http://www.itsa.org/industry\\_member\\_news\\_content/c219\\_d2632/News/Industry\\_amp\\_Member\\_News.html](http://www.itsa.org/industry_member_news_content/c219_d2632/News/Industry_amp_Member_News.html).

<sup>3</sup> Indirect labor multiplier effects not addressed here. Labor cost information from FHWA's Highway Statistics series (<http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm>) and RITA's ITS Benefits and Costs databases (<http://www.itsbenefits.its.dot.gov/> and <http://www.itscosts.its.dot.gov/>).

creation from ITS projects is far greater than with just building new roads alone. Further, with many different types of ITS projects already in the field, both short and long-term benefits have been identified. Long-term benefits include increased traffic flow and safety, while short-term benefits include reduced congestion during construction and informed travelers (up-to-date information).

### **ITS Equipment and Benefits**

The purpose of the U.S. transportation system is to move people and goods safely and effectively. ITS technologies provide operational benefits to the transportation system by reducing delays, which improves our commerce infrastructure and allows our country to grow.

Many state Department of Transportation agencies, as well as local municipalities, have a list of ITS projects that can only be completed if economic stimulus funds become available. These lists may include equipment such as RWIS, Highway Advisory Radio stations, or even an integrated ITS solution to solve a specific problem. Below are some facts about these particular technologies:

The FHWA recommends placement of RWIS every 30 miles. In addition, non-winter applications of RWIS have been identified by the FHWA as an important "next step" for RWIS deployment. This includes flood detection, air quality, high-winds, washouts and many more weather and traffic related phenomena that can occur in your region.

Some traveler communication systems are based on cell phone networks. Cell phone networks have proven to be an unreliable system during local crisis situations when everyone is trying to call home. Highway Advisory Radio uses AM radio found in most every car, and it is unaffected by demand.

Vaisala, Inc. understands the challenges faced by government agencies and their ITS programs. Below is a brief overview of equipment and solutions available from the company to assist with day-to-day operations and development of ITS programs.

#### **Road Weather Information Systems (RWIS)**

- RWIS are advanced weather stations, capable of sensing pavement and atmospheric weather conditions, and can be integrated with many other ITS technologies. RWIS has many applications, including: snow and ice detection; remote locations or problem areas; highways, expressways or city streets; flooding and visibility; high wind detection; and bridges and overpasses.
- An RWIS site can be installed quickly – two to three days standard.
- RWIS is proven to increase safety on roadways, and reduce labor costs and chemical usage.
- Evaluation data show that anti-icing programs can lower snow and ice control costs by 10 to 50 percent and reduce crash rates by 7 to 83 percent.<sup>4</sup>
- Winter maintenance personnel from several agencies indicated that use of RWIS decreases salt usage and anti-icing techniques limit damage to roadside vegetation, groundwater, and air quality (in areas where abrasives are applied).<sup>4</sup>
- The RWIS benefit to cost ratio ranges from 2:1 to 10:1 and RWIS ranks high in both safety and mobility impact.<sup>5</sup>

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<sup>4</sup> U.S. Department of Transportation, Intelligent Transportation Systems Joint Program Office from "Investment Opportunities for Managing Transportation Performance: Candidate ITS Technology Appendices" 16 January 2009. Posted on the ITS America web site: <http://www.itsa.org/itsa/files/pdf/ITSStimulusAppendices.pdf>.

<sup>5</sup> ITS Benefits and Costs database (<http://www.itsbenefits.its.dot.gov/> and <http://www.itscosts.its.dot.gov/>).

### Highway Advisory Radio/Traveler Information Stations

- Highway Advisory Radio (HAR) systems combine sensors, controllers, communication devices and software to inform the traveling public about travel conditions. Applications include: local road conditions, closures or delays; long-term construction projects; severe weather notifications; emergency evacuations; incident management; and bridges and overpasses.
- HAR systems create safer traveling environments, while utilizing readily available AM radio frequencies to broadcast messages.
- A permanent HAR site can be implemented in a matter of one to two days, and a portable site can be up and running in a matter of minutes.
- A simulation study of the system deployed on the John C. Lodge freeway in Detroit, Michigan estimated that HAR and dynamic message signs in combination with ramp metering may reduce vehicle delay by up to 22 percent.<sup>4</sup>
- Traveler Information/Dynamic Message Signs result in a 3% decrease in crashes and rank high in keeping mobility of traffic running smooth.<sup>5</sup>

### Weather and Traffic

- Vaisala is one of the few companies in the market that provide both weather and traffic sensors and solutions. Using an RWIS platform or roadside controller and pavement sensors that detect road and traffic conditions, roadways can be effectively managed and motorists will benefit from safer, less congested roadways during adverse weather.
- The Maryland Coordinated Highways Action Response Team (CHART) program is in the process of expanding to more automated [traffic] surveillance with lane sensors and video cameras. Lane sensors and freeway video cameras in the coverage area supported incident management and contributed to a 5 percent reduction in non-recurrent congestion.<sup>4</sup>
- Combining weather and traffic data allows for cost savings during installation and for communications and maintenance of the system.
- This deployment strategy can provide additional funding and resources for increasing the network of data collection sites. In addition, the value of the network increases when more sites are added.
- Weather and traffic systems directly contribute to reduced emissions and fuel consumption.

### Custom Solutions/IntelliZone

- Vaisala IntelliZone Automated Control Software is an advanced ITS software platform that allows for better traffic management and delivery of real-time messages to motorists in advance of various weather related concerns or traffic congestion. IntelliZone has numerous applications, such as: detour alert and curve warning systems; hydroplane detection and alert systems; flood level detection and alert systems; low visibility systems; snow chain advisory; and high wind warnings.
- Vaisala IntelliZone projects contribute to reduced emissions and fuel consumption because motorists are well informed and can make decisions to take alternate routes or anticipate their delay and act accordingly.
- Work Zone Management Systems, which IntelliZone can perform, provide a benefit to cost ratio range from 2:1 to 42:1 and rank high in safety impact.<sup>5</sup>

Investing in the above ITS equipment supports transportation management and operations, and can be funded as stand-alone deployments, part of larger infrastructure developments, or employed to assist with short-term traffic management during construction. In addition, jobs created using the above technologies include engineers; electronics technicians; customer support personnel; sales, marketing and administration personnel;

software developers; and system integrators. To read more about these applications and ITS solutions visit [www.vaisala.com](http://www.vaisala.com).