

INTELLIDRIVESM

Designing a better transportation system through Vehicle Infrastructure Integration

Update

Editors' Note

by *Jim Schultz and Greg Larson*

One of our immediate needs is to define from the state and local perspective the roles for different U.S. Department of Transportation agencies. These include the ITS Joint Program Office in the Research and Innovative Technology Administration (RITA), National Highway Traffic Safety Administration (NHTSA), and Federal Highway Administration). A second priority is to develop an "elevator speech," and find a champion.

Next, we need to formulate a deployment plan and associated costs to incorporate into the next transportation reauthorization bill. By comparison, we need to provide a level of detail comparable to similar efforts for Smart Grid, Next Gen Air Traffic Control, Enhanced 911, and High Speed Rail. Finally we need to visualize what a Smart Transportation/City will look like and how it can address our fundamental transportation goals of safety and mobility, while addressing national priorities such as reducing the nation's carbon footprint, managing health care costs, and promoting energy efficiency and independence.

The title and format for our former *VII Update* newsletter has changed. First, we do not have a front-page feature article and hope to have a standing article from a champion who surfaces in the com-

ing months. In this issue, we present examples of recent well-known champions and appeal to others who may be well suited to champion the IntelliDriveSM cause. Second, we are adopting the new brand name of IntelliDrive¹. The name IntelliDrive was created by a USDOT task force. We hope that this becomes the global brand name that encompasses other efforts in the United States under the banner of Connected Vehicles, and similar efforts in Europe and Japan.

For the first time, we have contributions from our partners in the American Association of State Highway and Transportation Officials (AASHTO), including USDOT, Auto OEMs (original equipment manufacturers), and the supplier community. In particular, we welcome both Toyota and NAVTEQ as contributors. We believe it's indicative of a more inclusive discussion on IntelliDrive.

Finally, we have drawn comparisons between IntelliDrive and several other high profile national initiatives. We suggest that we need to tie all of these initiatives together, perhaps under an umbrella such as the one being advertised by IBM, dubbed Smart Planet/Smart Cities. In any event, we need to reaffirm how IntelliDrive not only improves safety and mobility but also addresses other national priorities related to ensuring a healthy environment and society.

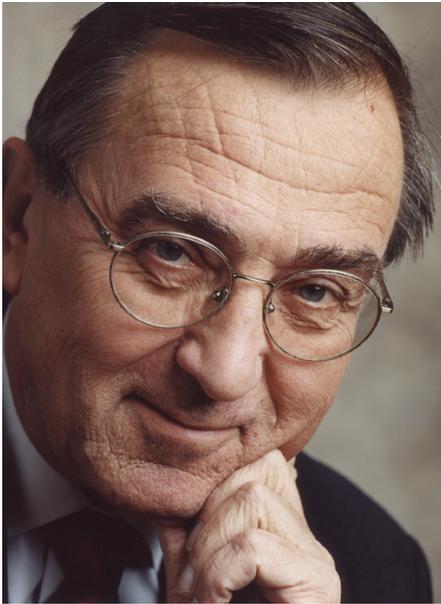
What is IntelliDrive?

IntelliDrive, formerly known as Vehicle Infrastructure Integration (VII), has the potential to transform travel as we know it. It combines leading edge technologies—advanced wireless communications, on-board computer processing, advanced vehicle-sensors, GPS navigation, smart infrastructure, and others—to provide the capability for vehicles to identify threats and hazards on the roadway and communicate this information over wireless networks to give drivers alerts and warnings.

At its core, it is a networked environment supporting very high-speed transactions among vehicles (V2V), and between vehicles and infrastructure components (V2I), or hand-held devices (V2D) to enable numerous safety and mobility applications.

It offers the opportunity to know much more about traffic and roadway conditions than ever before. It may be possible for instrumented vehicles to anonymously send information that includes travel time and environmental conditions, making it possible one day to know traffic conditions along every major street in urban areas as well as along every interstate highway across the nation. This information could lead to improved traffic signal control, ubiquitous traveler information, better transportation plans, and reduced cost for existing transportation data collection methods, among other benefits.

For more information, contact Jim Wright, AASHTO, 651-271-1889
jwright@aahto.org



COURTESY OF NAVTEQ

Harry Voccola

VII/IntelliDrive Elevator Speech

VII/Intellidrive is three things:

- a vision,
- a suite of technologies, and
- a strategic public-private partnership.

Is VII the vision, and IntelliDrive the suite of technologies?

VII is a vision and a suite of existing, mature (and evolving) wirelessly enabled technologies capable of drastically reducing (and potentially eliminating) deaths from car crashes. These same VII technologies have also been proven to reduce traffic congestion and to be a tool to improve fuel efficiency for individual travelers and thus provide an overall environmental benefit.

Collectively, crashes and congestion drain the gross domestic product of more than \$300 billion per year, or 3 percent of GDP.

Once fully deployed, the VII network (infrastructure) can be the basic, national underpinning to support any of the transportation financing methodologies being considered to replace the current fuel tax over the next generation.

VII can begin to be deployed at any time on a regional basis, and the benefits would start to be realized shortly thereafter. The cost to deploy the public portion of the VII

has been estimated at \$ 5-7 billion, or about \$1 billion per year. Some, if not all, of this public investment could potentially be recouped from savings and efficiencies within the societal services arena.

Why hasn't it happened? The parties involved to date have been primarily from the research areas of their organizations. So, the issues today are not technology; the issues are primarily institutional, which includes financing as well as political.

What does it take to accelerate a realization and rollout? The vision needs to be escalated in terms of public awareness and political motivation and support. (A basic marketing tenet for a new product with value: public awareness generates demand.) Who is the leading force behind the vision?

The sooner we commit to a deployment plan, the sooner we will begin to realize the benefits.

For more information, contact Harry Voccola, senior vice president, NAVTEQ, 312-894-7197, harry.voccola@navteq.com

IntelliDrive is one component of the smarter planet concept, spearheaded by IBM, and described below by Naveen Lamba, Global Industry Lead, Intelligent Transportation at IBM.

The Roads to a Smarter Planet

In 2007, the world crossed an epochal threshold. For the first time in history, the majority of the human population lived in cities. And this urbanization is accelerating. By 2010, there will be 59 metropolitan areas with populations greater than five million – up 50 percent from 2001.

Many of those city dwellers will be driving cars, and the products they consume will be arriving in trucks. So if you think your day is plagued by gridlock now, what might the future hold? Quite simply, our transportation infrastructure and man-

agement approaches can't handle the world's traffic. In the U.S. alone, 3.7 billion hours are lost every year to people sitting in traffic. Meanwhile, 2.3 billion gallons of fuel – enough to fill 58 supertankers – burn needlessly, at a cost to the economy of \$78 billion per year.

This isn't smart—but it can become so. The systemic nature of urban transportation is also the key to the solution. We need to stop focusing only on pieces of the problem: adding a new bridge, widening a road, putting up signs, establishing commuter lanes, encouraging car-pooling or deploying traffic copters. Instead, we need to look at relationships across the entire system and all the other systems that are touched by it—our supply chains, our environment, our companies. . . the way people and cities live and work. Traffic isn't just a line of cars: it's a web of connections.

“Smart traffic” isn't yet the norm, but it's not some far-off vision of tomorrow. In many places, IBM is helping to make it happen today. In Stockholm, a dynamic toll system based on the flow of vehicles into and out of the city has reduced traffic by 20 percent, decreased wait time by 25 percent, and cut emissions by 12 percent. In Singapore, controllers receive real-time data through sensors to model and predict traffic scenarios with 90 percent accuracy. And in Kyoto, city planners simulate large-scale traffic situations involving millions of vehicles to analyze urban impact.

All of this is possible because cities can infuse intelligence into their entire transportation system—streets, bridges, intersections, signs, signals and tolls—which can all be interconnected and made smarter. These new traffic systems can improve drivers' commutes, give better information to city planners, increase the productivity of busi-

nesses and raise citizens' quality of life. They can reduce congestion, shrink fuel use and cut CO₂ emissions.

Our rapidly urbanizing planet depends on getting people and things from here to there. In the 20th century, that meant freeways from state to state and nation to nation. In the 21st century, "smart" traffic systems can be the new milestone of progress. Let's build a smarter planet. Join us and see what others are thinking.

For more information, contact Naveen Lamba, Global Industry Lead—Intelligent Transportation, IBM Global Business Services, 703-362-6037, naveen.lamba@us.ibm.com

Successful Champions: Who are They?

While most of us are familiar with champions in the world of sports, the word takes on a new meaning outside this realm. An alternate definition is "to defend or support a set of principles, to be an advocate, to champion a cause."

Consider former vice president Al Gore. While the issue of global warming was observed (and its causes debated) for many years, it was Gore who successfully brought the topic to the public's attention. He accomplished this through live presentations, talk show appearances, as well as the nationwide release of the movie *An Inconvenient Truth*.

Gore not only elevated our knowledge about the issue but, more importantly, the level of concern, both among legislators and the general population. The end result is one of empowerment. That is, many of us now feel motivated to take action, to play a role—whether by choosing vehicles with high fuel efficiency, turning down the thermostat, or simply reducing overall consumption.



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Former U.S. Vice President Al Gore effectively champions the view that action is needed to reduce global warming.

Another successful champion: T. Boone Pickens. A few years ago, the wealthy businessman's name was probably unfamiliar to many individuals. Now, however, when legislators discuss the prospects of renewable energy, Pickens' name is closely linked. Pickens, who made his fortune in the oil and gas industry, has become a well-known advocate of clean and renewable energy. The Pickens' Plan envisions a country that eventually moves away from fossil fuels to energy independence, making use of wind power and other clean energy sources.

These are just two examples of the many champions, or successful spokespeople, who have brought public attention to important causes. Other names could include Jimmy Carter and his work with Habitat for Humanity, and Oprah Winfrey and her work in promoting education and leadership for young girls in South Africa. The list goes on.

That said, it's worthwhile to consider a few questions: What makes a champion successful? What do they have in common, and how do they succeed in getting their message to a new audience?

Several factors are probably at work—name recognition (in many cases), access to media, as well as the financial ability to capitalize on it. But there are other important qualities as well. These are the intangibles, the character qualities that succeed in motivating others: passion, enthusiasm, dedication, and leadership. It may be that when these qualities intersect with the right issue, the *champion* begins to succeed in promoting and elevating his or her chosen cause.

Wanted: IntelliDrive Champion

If we add IntelliDrive to the list of globally important causes, we can begin to consider a potential champion—a person in a position to bring support, recognition and a voice to this vital initiative. IntelliDrive combines leading edge technologies to create a networked environment with the potential to transform travel as we know it, leading to the development of many safety and mobility applications.

The best champion for IntelliDrive will be a renaissance spokesperson who understands the global implications of vehicle infrastructure integration to transportation and how, in a broad context, it affects energy usage and the environment—a tall order, for sure. Personal qualifications for our champion will doubtless include proven leadership—a visionary and motivator who is well respected in the transportation arena.

There are many potential candidates who would be qualified to champion the IntelliDrive cause. In the coming months, we hope the next champion steps forward—or is recruited—to help raise the IntelliDrive initiative to a new importance—on par with climate change and renewable energy.

Send comments and creative suggestions to Jim Schultz, ITS Program Manager, MDOT, 248-483-5131, schultzj3@michigan.gov

Next Generation Air Transportation System (NextGen)

Champions: Glenn Tilton, United Airlines CEO and Chairman of the Air Transport Association.

Vision: The development of a new, satellite-based, air traffic control system, called NextGen. The next-generation of air navigation systems will modernize the way commercial airliners take off, fly, and land at the nation's increasingly crowded airports. Designed to improve safety and efficiency of the antiquated air-traffic control system through 2025, NextGen has significant environmental benefits, promising to cut fuel consumption as well as emissions from airliners.

Benefits: The NextGen system allows aircraft to fly straighter routes guided by satellites, rather than taking longer routes over the current network of ground-based navigation-

al radio beacon and radar sites that controls flights.

NextGen would replace a system that dates back to the 1950s, when the federal government began building the current network of air traffic control radar sites around the nation. The sites were located largely along paths that airlines already were flying. The paths tended to follow highways between cities so that pilots in pre-radar days could find their way, in part, by following the roads below.

Currently, it takes three sweeps of conventional radar — each taking 4.5 seconds, or nearly 14 seconds total — for an air traffic controller to determine a plane's location.

With the GPS-driven satellite system that's part of NextGen, planes would receive a satellite signal at the rate of one pulse per second, then triangulate that signal against

the known position of small GPS ground stations to pinpoint a plane's position.

It also would instantly know a plane's altitude, speed and direction. That kind of precision would let planes fly more closely together, greatly increasing the capacity of the nation's airways.

The system also allows an aircraft to glide to a gentle landing, reducing throttle use and cutting fuel consumption.

By industry calculations, these changes may save the U.S. economy more than \$40 billion a year through fuel and labor cost savings for the airlines, and time savings for the 740 million fliers a year. Savings could begin showing up by 2012, according to the industry.

For more information, see: www.faa.gov/about/initiatives/nextgen

The IntelliDrive initiative can be compared to these two national initiatives.

High-Speed Rail in America

Champions: Ray LaHood, Joe Biden, and Rahm Emanuel; as well as Jim Oberstar and Rob Andrews, two senior members of Congress who understand that investing in the nation's infrastructure and transportation system pays enormous dividends over the long term.

Vision: Development of a smart transportation system equal to the needs of the 21st century. The system would reduce travel times and increase mobility; reduce congestion and boost productivity; and reduce destructive emissions and create jobs. This is the vision for high-speed rail in America, which would

transport travelers to their destinations at speeds topping 100 miles per hour.

The idea is to upgrade existing rail lines to support the operation of comfortable trains that travel close to 110 miles per hour, instead of the current top speed of 79 miles per hour (in most places), reducing travel time and transporting passengers from one downtown to another that may be hundreds of miles away.

Benefits: Benefits include a cleaner energy and a cleaner environment, a reduction in the need for foreign oil, and elimination of more than 6 billion pounds of carbon dioxide emissions annually—equal

to removing 1 million cars from our nation's roads.

With a high-speed rail system, fewer individual drivers would lower the nation's dependence on foreign oil, and lower gas bills. The system would loosen traffic congestion, which has a great impact on productivity.

Funding: The industry has begun by identifying potential corridors for the creation of world-class high-speed rail. To make this happen, they've already dedicated \$8 billion of Recovery and Reinvestment Act funds to this initiative, and have requested another \$5 billion over the next five years.

For more information, see: www.fra.dot.gov

IntelliDrive Principles

IntelliDrive is a major research program focused on enabling and using wireless connectivity with and between vehicles, between vehicles and the roadway, and with devices in the vehicle to achieve strategic goals.

A coalition has been established to support IntelliDrive (formerly VII) research and determine the feasibility of widespread deployment. Coalition partners include the U.S. Department of Transportation, light vehicle manufacturers, state and local governments, and their representative associations. The coalition consists of an executive leadership team, a technical and policy level working group, and special task forces. The coalition also works with other sectors and industry experts on specific aspects of IntelliDrive, such as applications development.

The partners are committed to an IntelliDrive research program based on the principles listed below. The IntelliDrive Principles were approved by the executive leadership team on Friday, May 8, and they will be announced at 2009 ITS America's Annual Meeting. The principles document the common ground/framework for the coalition.

Overarching Principles

1. The IntelliDrive initiative envisions the deployment of an information-rich surface transportation system that:
 - a. enhances safety, mobility and convenience; and, greatly reduces or eliminates vehicle crashes;
 - b. changes the way transportation is managed, operated and utilized;
 - c. fosters and supports livable communities and environmental stewardship.
2. The IntelliDrive program is ultimately focused on deployment.
3. IntelliDrive program activities are focused on technical and institu-

tional research and planning leading to such deployment.

4. IntelliDrive research is important for advancing goals of the public and private sectors.
5. IntelliDrive research will be conducted in a collaborative environment with primary leadership provided by the United States Department of Transportation (USDOT), American Association of State Highway and Transportation Officials (AASHTO) with local agency partners, and the automobile manufacturers.
6. IntelliDrive research will address needs of passenger, commercial, transit, and public fleet operators and users.
7. The following safety and security requirements apply to the system and all applications:
 - a. Must not compromise safety. Applications shall be designed in a manner that will not interfere with the safe and reliable operation of the vehicle.
 - b. Must not compromise security. Unauthorized access, whether malicious or inadvertent, must be prevented in order to protect the integrity of connected devices, vehicles, and systems.
 - c. Must protect privacy. The involuntary divulgence of personally identifying information must not be compelled (whether deliberately or incidentally) by IntelliDrive applications.

Safety

8. One goal is to enable active safety applications, defined as cooperative and communications-based applications designed to assist vehicle operators in avoiding imminent crashes. The following

characteristics apply to active safety research and deployment:

- a. It will focus on 5.9GHz Dedicated Short Range Communications (DSRC) to enable necessary communications characteristics, including low latency, fast connection speeds, security and privacy.
- b. It includes both vehicle-to-vehicle and vehicle-to-infrastructure systems.
- c. Technical consensus standards will be developed and harmonized internationally.
- d. The feasibility of OEM approved retrofit strategies will be studied as part of the deployment solution.
- e. The program will allow for differences in execution within the vehicle environment.

Mobility, Environment, Productivity and Convenience

9. Another goal is to enable mobility, environmental, productivity and convenience applications. The following characteristics apply:
 - a. The feasibility of also using commercially available communications networks and devices not integrated with vehicle systems will be considered.
 - b. Consensus-based open standards will be established that enable access to a core set of non-sensitive data as agreed upon by the data source.
 - c. Mobility applications will require an understanding of and partnership with other industries, such as telecommunications and after market providers.

See: www.intelldrivetravel.org

For more information, contact Valerie Briggs, ITS Joint Program Office, Research and Innovative Technology Administration, (202) 366-5015, valerie.briggs@dot.gov

A New Analogy

When the vehicle infrastructure integration initiative began, the three-legged stool analogy helped highlight the involvement of three key partners: 1) the auto industry; 2) state and local DOTs, and 3) USDOT, represented by the ITS Joint Program Office housed in RITA. This joint partnership was seen as essential for safety applications. But times are changing and, upon reflection, it's time to be more inclusive.

For starters, the auto industry (the first leg of the stool) is under a lot of strain and preoccupied with surviving both the economic recession and its own painful restructuring. As a result, any commitments to deploy new technologies with no immediate payoffs have been postponed.

However, if we expand the definition of what the first leg of the stool encompasses, the partnership becomes stronger. For instance, if we use the concept of vehicles instead of "cars," it allows us to include bus, commercial vehicles, and emergency vehicles. These groups could easily be the early adapters we desire, as well.

State and local DOTs (the second leg of the stool) have been pretty

solid. They've moved to develop a strategic plan, and formed a pooled fund to assist in developing a Deployment Plan and Business Plan from the infrastructure perspective.

USDOT (the third leg of the stool) has been represented through the ITS Joint Program Office, housed in RITA. As such, it has rightfully focused on research such as that undertaken under the VII Proof of Concept (POC) testing. But now that the POC tests have provided confidence that the technical issues can be solved, which allows us to focus on institutional, privacy, business plans and the like, it seems that we need a broader focus.

To that end, we suggest that the USDOT itself needs representation and input from the following agencies: Federal Highway Administration (FHWA), National Highway Traffic Safety Administration (NHTSA), Federal Transit Administration (FTA), and Federal Motor Carrier Safety Administration (FMCSA), which will move us into multi-modal (transit) and the commercial vehicles arenas. To begin that process, we suggest that the USDOT research efforts of each agency in the area of vehicle infra-

structure integration be more clearly defined.

Finally, it's time to change our stool analogy. A better comparison may be to that of a four-legged animal—perhaps a tiger or a lion. After all, the Detroit area is still the U.S. automotive capital, and the IntelliDrive initiative should be represented by an analogy that suggests speed, aggressiveness and adaptability.

That brings us to our fourth leg. This leg will be dubbed the "supplier community" and includes consumer electronics, the telecommunications industry, auto suppliers (like Delphi and Visteon), content collectors and distributors, transit suppliers, and trucking vendors. We believe that the Connected Vehicle Trade Association (CVTA) can effectively represent this supplier community, and their participation suggests that the process is more open and supportive of early adapters. Their involvement acknowledges the new reality that we need to look at the aftermarket/nomadic devices to get vehicle infrastructure integration started in a much faster timeframe than one that relies on new vehicle purchases alone. Given the depressed state of new vehicle sales, this seems a prudent suggestion.

USDOT Agency Overview

There are 11 agencies within the U.S. Department of Transportation in addition to the Office of the Secretary. The five USDOT agencies listed below have been key partners in the IntelliDrive initiative.

■ *Federal Highway Administration*

The Federal Highway Administration (FHWA) coordinates highway transportation programs in cooperation with states and other partners to enhance the country's safety,

economic vitality, quality of life, and the environment. Major program areas include the Federal-Aid Highway Program, which provides federal financial assistance to states to construct and improve the National Highway System, urban and rural roads, and bridges. This program provides funds for general improvements and development of safe highways and roads. The Federal Lands Highway Program provides access to and within national forests, national parks, Indian reservations and other public lands

by preparing plans and contracts, supervising construction facilities, and conducting bridge inspections and surveys. The FHWA also manages a comprehensive research, development, and technology program.

Website: fhwa.dot.gov

■ *Federal Motor Carrier Safety Administration*

The Federal Motor Carrier Safety Administration (FMCSA) was established within USDOT on January 1, 2000. Formerly a part of the Federal Highway Administration, the Federal Motor Carrier Safety

Administration's primary mission is to prevent commercial motor vehicle-related fatalities and injuries. Administration activities contribute to ensuring safety in motor carrier operations through strong enforcement of safety regulations, targeting high-risk carriers and commercial motor vehicle drivers; improving safety information systems and commercial motor vehicle technologies; strengthening commercial motor vehicle equipment and operating standards; and increasing safety awareness. To accomplish these activities, the Administration works with federal, state, and local enforcement agencies, the motor carrier industry, labor safety interest groups, and others.

Website: www.fmcsa.dot.gov

■ **Federal Transit Administration**

The Federal Transit Administration (FTA) assists in developing improved mass transportation system for cities and communities nationwide. Through its grant programs, FTA helps plan, build, and operate transit systems with convenience, cost and accessibility in mind. While buses and rail vehicles are the most common type of public transportation, other kinds include commuter ferryboats, trolleys, inclined railways, subways, and people movers. In providing financial, technical and planning assistance, the agency provides leadership and resources for safe and technologically advanced local transit systems while assisting in the development of local and regional traffic reduction.

Website: www.fta.dot.gov

■ **National Highway Traffic Safety Administration**

The National Highway Traffic Safety Administration (NHTSA) is responsible for reducing deaths, injuries and economic losses resulting from motor vehicle crashes.

NHTSA sets and enforces safety performance standards for motor vehicles and equipment, and grants to state and local governments enable them to conduct effective local highway safety programs. NHTSA investigates safety defects in motor vehicles, sets and enforces fuel economy standards, helps states and local communities reduce the threat of drunk drivers, promotes the use of safety belts, child safety seats and air bags, investigates odometer fraud, establishes and enforces vehicle anti-theft regulations and provides consumer information on motor vehicle safety topics. Research on driver behavior and traffic safety is conducted by NHTSA to develop the most efficient and effective means of bringing about safety improvements.

Website: www.nhtsa.dot.gov

■ **Research and Innovative Technology Administration**

The Research and Innovative Technology Administration (RITA) is an agency whose mission is to identify and facilitate solutions to the challenges and opportunities facing America's transportation system. RITA's focus is to promote transportation research that will foster the use of innovative technology. RITA includes the Volpe National Transportation Systems Center, an organization dedicated to enhancing the effectiveness, efficiency, and responsiveness of other federal organizations with critical transportation-related functions and missions. With responsibility for research policy and technology sharing, the agency partners with national and international organizations and universities. RITA also includes the Bureau of Transportation Statistics, the Transportation Safety Institute, and the University Transportation Centers program.

Website: www.rita.dot.gov

Source: www.dot.gov

Key USDOT Nominees and Appointees (As of May 15, 2009)

Administrator, Federal Highway Administration (FHWA)

Victor M. Mendez is the nominee for Administrator, FHWA. He was a member of former Arizona Governor Janet Napolitano's cabinet as the Director of the Arizona Department of Transportation.

Source: www.whitehouse.gov, press release dated April 2, 2009.

Administrator, Research and Innovative Technology Administration (RITA)

Peter H. Appel was confirmed by the U.S. Senate as Administrator of RITA. Appel was formerly with the global management consulting firm of A.T. Kearney, Inc. He has led business improvement initiatives for clients in the private and public sectors, with a focus on transportation and infrastructure.

Source: www.rita.dot.gov/contacts/executive_profiles/appel.html

Administrator, Federal Transit Administration (FTA)

Peter M. Rogoff is the nominee for Administrator, FTA, DOT. He has served for 22 years on the staff of the Senate Appropriations Committee, including 14 years as the Democratic Staff Director of its Transportation Subcommittee.

Source: www.whitehouse.gov/briefing_room/PressReleases, press release dated April 8, 2009.

Deputy Secretary, U.S. Department of Transportation (DOT)

John D. Porcari is the nominee for Deputy Secretary of the U.S. DOT. He currently serves as Secretary of the Maryland Department of Transportation, where he is responsible for the highway, transit, aviation, maritime and motor vehicle registration.

Source: www.whitehouse.gov/briefing_room/PressReleases, press release dated April 10, 2009.

Upcoming Events

Toyota's Vision for Moving Forward

Currently the only way for a vehicle to "talk" to other vehicles is by using the horn's audible sound. We predict that the emergence of Dedicated Short Range Communication (DSRC) in the United States will enable vehicles to communicate digital data electronically. It builds on the success of earlier research and development projects that have given automakers a high level of confidence in this communication technology and believe it has great potential for improving the safety and mobility functionality of our vehicle systems. One challenge, or opportunity, is to determine where to make it happen first. If the United States is poised to be that leader, we can start by making a good first step.

That first great step would be the installation of DSRC as part of an infrastructure based system. This would provide support for applications that will evolve. And as the number of DSRC-equipped cars increases, the functionality of vehicular applications will also improve accordingly. In the end, it's envisioned that the information exchanged via 5.9GHz DSRC will be applied to vehicle control systems. That can happen only after customers accept the technology through some initial applications. It is truly up to each automaker to differentiate these initial applications to attract more customers, which is another key for wider spread of the technology, and we are making every effort to make it real.

For more information, contact Hideki Hada, Integrated Vehicle Systems Department, Toyota Technical Center, Toyota Motor Engineering & Manufacturing North America, 734-995-9381, hideki.hada@tema.toyota.com

¹IntelliDriveSM is a registered service mark of U.S. Department of Transportation Intelligent Transportation Systems Joint Program Office.

BTTA's The Future of Tolling: ORT and the Path to Interoperability, June 14-16, 2009, Tampa, Florida, <http://www.ibtta.org/Events/eventdetail.cfm?ItemNumber=3616>

ITS Stockholm 2009. The 16th ITS World Congress and Exhibition on Intelligent Transport Systems and Services, September 21-25, 2009, Stockholmsmässan, Sweden, www.itsworldcongress.com/

IntelliDrive Pooled Fund Study

The Virginia Department of Transportation (VDOT), in cooperation with Caltrans, Michigan DOT, Florida DOT, New York DOT, Texas DOT, and FHWA, has established a pooled fund study entitled "Program to Support the Development and Deployment of Infrastructure IntelliDrive Applications." This study will begin in the summer of 2009.

Since the original study scope was created and circulated last fall, there have been significant changes in the IntelliDrive program. In particular, AASHTO is now in the process of developing a strategic plan to guide its direction in this program. At the strategic planning workshop held in Irvine, California, in mid March, participants identified the critical need for DOTs and localities to develop an IntelliDrive infrastructure deployment plan and an IntelliDrive business plan. These plans will be the necessary building blocks for moving the IntelliDrive program forward. Applied research will also be required to develop the applications identified in the plans.

The objective of the pooled fund study is to provide the mechanism necessary to support these ongoing planning activities, as well as applied research necessary to evaluate the impacts of IntelliDrive implementation through application development, modeling and other analysis techniques. The partners in this study encourage other states to join the effort to ensure a broad national focus, and to provide resources to accelerate the activities.

For more information, please contact Melissa Rumuly at (804) 371-4360, Melissa.Rumuly@VDOT.Virginia.gov, or Brian Smith at (434) 243-8585, briansmith@virginia.edu.

Greg Krueger Selected as Chair of ITS America IntelliDrive/VII Task Force

ITS America recently chose Greg Krueger to become the Chair of the IntelliDrive/Vehicle Infrastructure Integration (VII) Task Force. Greg will be leading ITS America's efforts in influencing government and industry in research, deployment planning, and policy for IntelliDrive. IntelliDrive is a government-industry partnership to create a nationwide networked communications environment supporting very high speed transactions among vehicles (V2V), and between vehicles and infrastructure components (V2I) or handheld devices (V2D) to enable numerous safety and mobility applications.

Greg Krueger is the Michigan Department of Transportation's (MDOT) program manager for the statewide Intelligent Transportation Systems (ITS) Program.

For more information, contact Steve Bayless, director of telecommunications and vehicle-infrastructure integration, ITS America, sbayless@itsa.org

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