

Dave Eischens Bio

Motorola, a Fortune 100 Company is known around the world for innovation and leadership in wireless and broadband communications. The Network and Enterprise Group of Motorola is a leading provider of end-to-end infrastructure, integrated voice and data communications, and information solutions for both Government & Enterprise worldwide.

Dave Eischens is a life long resident of Minnesota and currently resides in Bloomington. He has been with Motorola for 28 years in various sales and management positions. Currently an Area Sales Manager with the Networks and Enterprise Group of Motorola, he is responsible for large complex Government project sales in the Midwest. Prior to joining Motorola he was a small business owner in south central Minnesota.

Mr. Eischens is a past Chairman of the Board of Telecommuter Resources of Minnesota and is currently on the Minnesota Guidestar Board. He is a 16 year member of Motorola's Masters Organization which is dedicated to serving Motorola's customers through professionalism and integrity. He has served with various community organizations, including the Minnesota Jaycees as a chapter officer and is a graduate of Hennepin Technical College.

**NATIONAL SURFACE TRANSPORTATION POLICY AND
REVENUE COMMISSION FIELD HEARINGS**

WRITTEN TESTIMONY

**MINNEAPOLIS, MINNESOTA
APRIL 18 – 19, 2007**

**TOPIC 2 - MULTIMODAL TRANSPORTATION
CONGESTION SOLUTIONS**

**Mr. Dave Eischens, Motorola, Inc
representing
Minnesota Guidestar Board of Directors**



Minnesota's Intelligent Transportation Systems Program

www.dot.state.mn.us/guidestar

Minnesota Guidestar Contact

Bernie Arseneau
Minnesota Guidestar Co-chair
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Description

Intelligent Transportation Systems, or ITS, encompasses a broad range of wireless and wire-line communications-based information, control and electronic technology. When integrated into the transportation system infrastructure and services, and in vehicles themselves, these technologies help monitor and manage traffic flow and operations, reduces congestion, provides alternate routes to travelers, and enhances productivity and security.

Minnesota Guidestar is the state's Intelligent Transportation Systems (ITS) program. Minnesota Guidestar is administered by the Minnesota Department of Transportation in partnership with the Federal highway Administration (FHWA), University of Minnesota, numerous other public and private partners, ITS Minnesota and the state chapter of ITS America. The Minnesota Guidestar Board of Directors is a private/public board that advises the Mn/DOT Commissioner regarding ITS activities.

Since its inception in 1991, Minnesota's Guidestar program has been a key player in advancing ITS technology and programs to help achieve statewide and local transportation objectives. This success has been possible because of the program's unique partnership activity that has produced nationally, and internationally recognized innovative programs and projects.

Goals

Minnesota's Guidestar program is aimed at researching, testing and deploying advanced transportation technology to save lives, time, and money.

Benefits to Minnesota Travelers

- Improves the safety of the State's transportation system
- Increases operational efficiency and capacity of the transportation system
- Enhances mobility, convenience, and comfort for the transportation system user
- Enhances the present and future economic productivity of individuals, organizations and the economy as a whole
- Reduces energy consumption, environmental impacts and costs of transportation

Partnership Benefits

- Provides Safety and Congestion Reduction
- Provide Minnesota with benefits of the latest technologies for transportation
- Provide Minnesota businesses with means to develop and test new products that would not otherwise be possible
- Promotes growth in high salary, high technology jobs
- Results in worldwide sales of new products from Minnesota

Accomplishment Examples

- I-394 MnPASS Hot Lane
- 511 Statewide Traveler Information System
- Regional Traffic Management Center
- (9) Transportation Operation Communication Centers
- Traveler Information and Evacuation Routing (TIGER)





Minnesota Guidestar Partnerships

www.dot.state.mn.us/guidestar

Mn/DOT Contact

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Description

Minnesota Statutes Section 174.02 Subdivision 6(a)

The commissioner may enter into agreements with other governmental or nongovernmental entities for research and experimentation; for sharing facilities, equipment, staff, data, or other means of providing transportation-related services; or for other cooperative programs that promote efficiencies in providing governmental services or that further development of innovation in transportation for the benefit of the citizens of Minnesota.

The Guidestar organization is unique in the nation, being the only public / private / academic partnership organized to advise the state DOT regarding ITS matters.

Partnerships have facilitated the development of new technologies for transportation, such as video traffic detection, smart work zone systems, and new approaches to highway rail grade crossings.

Constraints

- Traditional contracting mechanisms do not always work well for innovative approaches such as partnerships
- Private sector entities often have difficulty providing private match

Opportunities

- The Guidestar partnership allows non-partisan interaction with congressional and legislative individuals

Partnerships

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PURPOSE

The Minnesota Guidestar Mobility Initiative will deploy Intelligent Transportation Systems (ITS) technologies throughout Minnesota to reduce congestion and make roads safer. The initiative calls for deployment of tools to improve mobility and may be characterized as follows.

- Builds on impressive infrastructure already in place
- Emphasizes innovative yet proven technology
- Takes a system-wide approach that encompasses local roads
- Presents a model for other states
- Begins the transition to the “Next Generation Interstate”

APPROACH

Minnesota will implement active, aggressive transportation management through the mobility initiative using the following key approaches in the state’s urban areas.

- “Hard or HOT Shoulders” to maximize use of available pavement
- Expansion of RTMC coverage area to 100% of metro freeways
- Variable speed limits to smooth traffic
- Lane control signals to manage lanes
- Incorporating local streets and transit into integrated corridor management
- Contra-flow lanes to take advantage of unused capacity
- Electronic enforcement to optimize compliance
- Aggressive incident and construction management/control systems
- HOT lanes with dynamic pricing



RESULTS

The mobility initiative is focused on producing dramatic results as deployment is completed over time.

- Increase overall peak period freeway capacity
- Increase average peak period freeway speeds
- Gain 10-20 years interim transportation system-wide capacity
- Improve safety by reducing the number of crashes
- Improve travel time reliability
- Reduce incident clearance times

FUNDING

- \$100 Million for the first five years of the mobility initiative



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PURPOSE

The Minnesota Guidestar Safety Initiative will deploy Intelligent Transportation Systems (ITS) technologies throughout Minnesota to make roads safer and improve mobility. The initiative calls for development of a rural safety network to reduce crash-related fatalities and serious injuries and may be characterized as follows.

- Builds on impressive infrastructure already in place
- Emphasizes innovative yet proven technology
- Takes a system-wide approach that encompasses local roads
- Starts to implement elements of the “ITS Safety Plan”
- Moves “Toward Zero Deaths” (TZD) to reality
- Presents a model for other states

APPROACH

Minnesota will reduce crash-related fatalities and serious injuries through the safety initiative using these key strategies throughout the state.

- Expand data collection infrastructure on highway system
- Improve traveler information dissemination systems and signage
- Expand first responder and law enforcement systems
- Implement Vehicle Infrastructure Integration (VII)
- Implement the next generation Traffic Operations and Communications Centers (TOCC) to include local governments
- Expand winter maintenance operations to improve safety
- Use intersection collision warning systems as well as red light running and electronic speed enforcement to prevent crashes

RESULTS

The safety initiative will produce dramatic results as deployment is completed over time.

- Reduce fatal and serious injury crashes
- Improve intersection safety
- Provide advance warning for hazardous road or weather conditions
- Improve incident response time and reduce incident clearance times
- Advance state-of-the-art safety technology

FUNDING

- \$50 million for the first five years of the safety initiative

Minnesota Guidestar Written Testimony
Long Term Visionary Ideas for Presentation at the National Surface Transportation
Policy and Revenue Commission Field Hearings
April 18 – 19, 2007

It is a certainty that many good short-and medium-term ideas will be presented at the Commission hearings, particularly as expansion and improvement of current successful approaches, practices and technology applications to transportation. Since the Commission is looking to transportation over the next 50 years, it will be crucial that Minnesota contribute ideas that “see” beyond what is currently visible in the horizon.

In the United States, we have had many successful achievements that started out with a vision for the future, coupled with substantial funding incentives. The result was that public, private and academic sectors were challenged to conduct focused research and development, and to commit substantial resources of their own to achieve visions that many may have considered unachievable at the time.

Well-known early 20th Century visions are Eisenhower’s interstate highway system, Kennedy’s man-on-the-moon challenge, and aviation prizes that were used to challenge and expand the boundaries of flight capabilities. In more recent times, prize competitions to expand technological advances have been used to generate considerable interest among industry and academic teams. Notable examples include the Ansari X Prize (\$10 million) offered by the X-Prize Foundation to the first non-governmental organization to launch a reusable manned spacecraft into space twice within two weeks. The prize was won on October 4, 2004, the 47th anniversary of the Sputnik 1 launch. Development costs for the winning SpaceShipOne were estimated at \$25 million, two-and-a-half times the prize money. Another case is the Grand Challenger competition, sponsored by the Defense Advanced Research Projects Agency (DARPA), to develop a driverless vehicle. The third of three Grand challenges since 2004, the DARPA Urban challenge (\$2 million), scheduled to take place in November 2007, further advances vehicle requirements to include autonomous operation in a mock urban environment.

The use of prize competitions can generate far more research and results in a shorter timeframe than would be possible by simply expending the prize money directly. By setting goals and outcomes, and allowing teams to devise their own approaches, more creative and innovative solutions can be developed than would by traditional R & D programs.

The following “seed” ideas are submitted for discussion purposes:

- I. Ten- to 20-Year Timeframe
 - a. National Super Corridors
 - i. Very limited access with great emphasis on mobility, safety and security for all modes.
 - ii. Substantial technology applications-full surveillance for security and rapid incident detection and clearance, advanced freight

inspection and credentialing, real-time dynamic traveler information systems.

- b. Replacement of gas and other transportation taxes and fees with variable user fees based, among other factors, on:
 - i. Distance traveled
 - ii. Facility/area type
 - iii. Time of day
 - iv. Vehicle size/weight
 - v. Energy consumption
- c. Automated enforcement for improving safety:
 - i. Enforce speed violations in excess of an established threshold
 - ii. Detect faulty safety-sensitive equipment (such as tire condition)
 - iii. Use automatic detection for direct enforcement (license plate readers) or to warn live enforcement personnel

II. Twenty- to 50-Year Timeframe

- a. Autonomous Transit Vehicles (similar idea as the DARPA Grand Challenge described above)

Driverless buses would achieve substantial reduction in operating costs; savings would be used to improve service to customers, and make transit more sustainable.

- b. SmartPavement Diagnostics and Repair
Use research being done to self-diagnose cracks in building structures (after earthquakes) and aircraft. Materials are engineered to withstand the stress of being imbedded in concrete, but retain optical or conductive properties. A coarse mesh is installed near the pavement surface during construction and connected to a monitoring device. When a surface crack occurs that breaks the mesh, the device transmits the event and location to the maintenance office for appropriate action, before further deterioration occurs.

Self-Healing Pavement

A self-healing pavement would temporarily repair itself to prevent short-term deterioration. A potential approach would be to use biological systems being developed for repairing cracks in stone statuary, or for stabilizing sandy soils around buildings after earthquakes. Bacteria is placed in the crack and, as it grows, it forms a concretion of local materials such as sand and calcium carbonate, which serves to temporarily fill the crack.