MDOT IntelliDrive Program Update

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Why is VII Important?

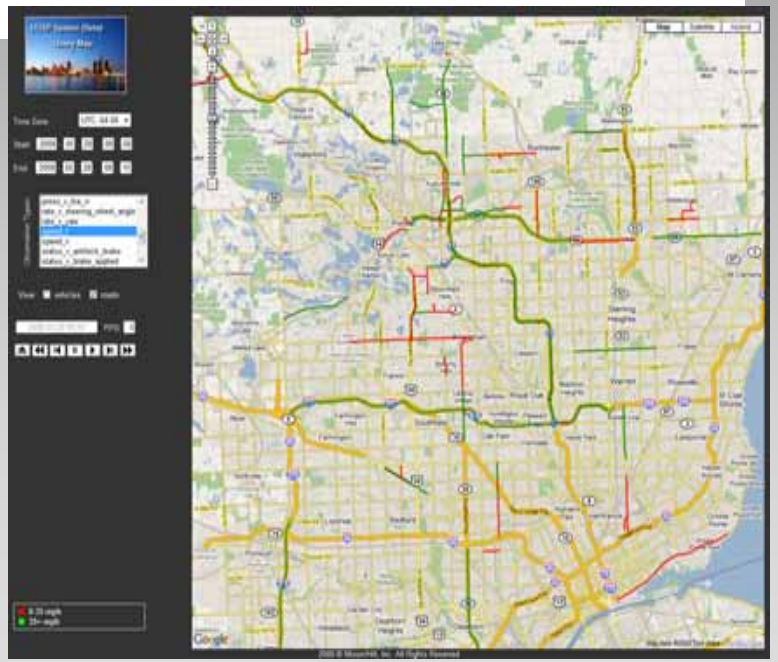
- 42,000 People Die Every Year on Our Roadways
  - ***Leading Cause of Death Between Ages 4 – 33***
  - ***50% of the Deaths Occur from Intersection Collision and Roadway Departure***
- Traffic Crashes Cost the Economy $230B/Yr
- Traffic Congestion Costs Americans $63B/Yr
- Congestion Wastes Billions of Gallons of Fuel

Background

- MDOT VII Vision: Create a sandbox/playground for the development of creative VII solutions
  - Multiple participants
    - OEM's
    - DOT's
    - Aftermarket
    - Telecom
  - Communications Technology Agnostic

Current Programs

- Test Beds
- DUAP
- CVPC



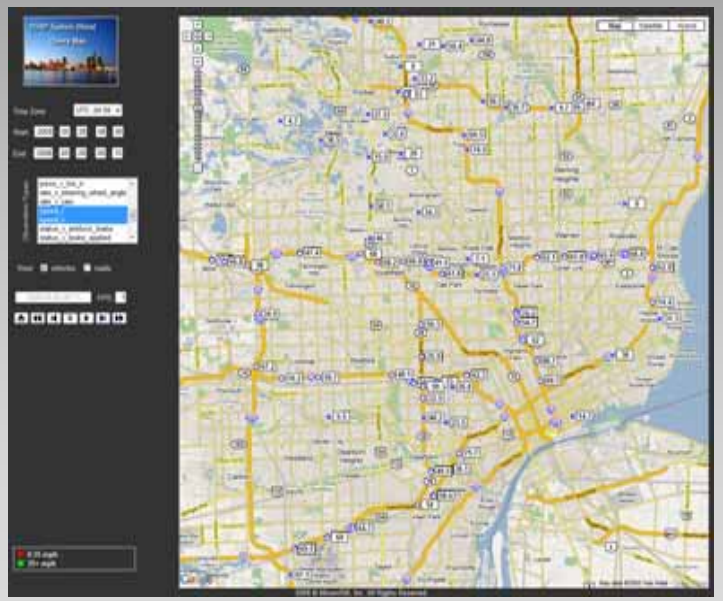
Test Beds

- Auburn Hills
- Novi/Farmington Hills
- Southfield

Test Beds

- Multiple Technologies
  - DSRC
  - WiFi
  - Motorola MotoMesh/MEA
  - WiMAX
- Wide Range of Participants
  - Motorola
  - Continental
  - RCOC
  - MDOT
  - Chrysler

DUAP Development Status



- System is operational and stable
  - Data is acquired from the Michigan ITS Center and Chrysler diagnostic fleet, with others to come
  - Archive contains data from active sources and from the VII Proof-of-Concept testing
  - Detailed statewide georeferencing links probe data to road segments and physical routes
  - User interface presents vehicle and segment data
- Ready for additional applications as new data sources become available

Connected Vehicle Proving Center

- MEDC awarded $3.15 million grant from Michigan 21st Century Jobs Fund, plus $3.5 million in-kind match
- Center of Excellence for connected vehicles
- Provide a shared environment to test, evaluation, and showcase new connected vehicle products and services
- Supported by CAR, CVTA, MDOT and OEMs
- Successful Deployments
  - Rest Area VII
  - 9 Mile Road CICAS signal with Econolite

Michigan's Future Connected Vehicle Programs

- Telegraph Test bed
- Michigan International Speedway Test bed
- Tipping Points

Telegraph Road Test Bed

- New VII DSRC Test Facility
  - Telegraph Road (US-24)
  - 8 Mile Road to 14 Mile Road
  - Install DSRC radios & new Eagle controllers
    - Procure radios in 3-4 months
    - Install in late Spring or Early summer 2009
  - Broadcast CAMP / CICAS SPAT information
  - Open to Connected Vehicle R&D Community

Michigan International Speedway

- Closed access test track
  - Two 1.9-mile road courses
  - 2-mile oval
  - Office space
  - Garage and press facilities
  - Technology options
- Allows testing not possible on open road
- Open to any participant
- Permits new R&D opportunities

IntelliDrive^{SM} Tipping Points Study: Motivation

- Plans for IntelliDrive^{SM} have changed as evidenced by:
  - Completion of the Proof-of-Concept tests
  - Change in presidential administration and new leadership at USDOT
  - Replacement of the name Vehicle Infrastructure Integration (VII) with IntelliDrive^{SM}
- The Center for Automotive Research was asked by MDOT, with support from USDOT, to conduct a survey of vehicle communication systems and infrastructure experts to shed light on critical “tipping points” that would lead the U.S. from the present state of flux to a clear path forward for broad deployment of IntelliDrive^{SM}

IntelliDrive^{SM} Tipping Points Study: Tasks and Progress

- Major steps (or tasks)
  - Survey experts on key issues to address
  - Identify survey panelists
  - Develop the survey questionnaire (round 1)
  - Administer the surveys
  - Analyze survey data and report preliminary results
  - Develop and administer second round survey
  - Analyze data and report final results
- Status
  - Have administered the first survey and received 27 responses (out of 30 desired) as of May 28
  - Plan to be done to deliver final results at World Congress in Stockholm

Preliminary Results

- Vast majority of respondents believe that IntelliDrive^{SM} is important for:
  - Improving vehicle safety
  - Improving mobility
  - Enabling more environmentally friendly transportation systems
- Top five obstacles preventing widespread deployment of IntelliDrive^{SM} technology:
  - Lack of dedicated funding source for infrastructure deployment
  - Lack of a federal mandate for in-vehicle cooperative, active safety
  - Lack of leader to champion the technology
  - No clear plan yet for deploying both in cars and on infrastructure
  - Financial crisis in automotive industry

Preliminary Results

- The top three uncertainties that hinder further development and deployment of IntelliDrive^{SM} technology:
  - Source of funding
  - Whether safety or mobility application drives the technology development
  - Other existing mobile connectivity technologies (e.g., cell phone or laptop applications) that offer some of the functionality

Preliminary Results

- Top five enablers needed to overcome obstacles and lead to widespread deployment:
  - Dedicated funding source for infrastructure deployment
  - Plan to phase in both cars and infrastructure
  - Clear and defined leader championing the technology
  - Sufficient standards to ensure performance and interoperability
  - Better public awareness of the benefits of IntelliDrive^{SM} technology

Preliminary Results

- Most important factors (ranked) for IntelliDrive^{SM} deployment
  1. Regulatory mandates
  1. Early leader/champion
  3. Standards
  4. Hardware cost reductions
  4. Consumer awareness
  6. Technical breakthroughs

  – Other items mentioned varied, including:
    - Resolve institutional issues
    - Encourage open architecture
    - Create industry awareness that IntelliDrive^{SM} can be more than DSRC
    - Need incentive for private sector innovations to occur
    - Roll out incremental, safety-oriented functionality early instead of defining the full system with long delays
    - Define a vision for an environment to support the goals - rather than focus on the technology or anonymity

Preliminary Results

- Respondents (most) believe standards development will encourage deployment by promoting and ensuring hardware and software interoperability
- Top five external factors that influence the IntelliDrive^{SM} market, per respondents:
  - Vehicle safety
  - Perceived benefits by the public
  - Personal mobility
  - Equipment costs/national economy
  - Reliability and ease of maintenance of IntelliDrive^{SM} hardware and lifecycle of IntelliDrive^{SM} hardware

Preliminary Results

- Can you think of any unexpected scenario or dramatic event that would radically alter a gradual path forward and bring about deployment in a significantly expedited manner?
  - Several answers to this question, including:
    - Marketing the concept well to the public (market pull)
    - The first private sector company that develops a good business model will launch it
    - A private sector company funds *infrastructure* deployment
    - Another country implements it and number of crashes and fatalities drop significantly there (entices US to follow suit)
    - National emergency (natural disaster or attack) causes huge problems, thus making others realize the importance of IntelliDrive^{SM}'s applications

Future Direction in Michigan

- Deploy, deploy, deploy
- Government role – Facilitate & government gets out of the way
- Industry is smart – if there is a market, let them find the way to implement!

Thank You

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