

Intelligent Transportation Systems in Michigan



The Future, 2010

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Overview

- IntelliDrive
- Leadership
- Looking Ahead
- Livability & Sustainability
- Next Steps



What is IntelliDriveSM?



IntelliDriveSM is a suite of **technologies** and **applications** that use **wireless communications** to provide . . .

CONNECTIVITY

- With and between **vehicles (V2V)**;
- Between vehicles and **roadway infrastructure (V2I)**;
- Among **vehicles, infrastructure** and **wireless consumer devices**.

IntelliDriveSM is Connectivity



What Can IntelliDriveSM Do For You?



Mobility Benefits

- *V2I, I2V Interactivity (SPAT)*
- *Data-Rich Environment*
 - Operations Efficiency
 - Traffic
 - Weather
 - Performance Management



Safety Benefits

- *Increase Driver Situational Awareness*
- *Reduce or Eliminate Crashes*
 - Driver Advisories
 - Driver Warnings
 - Vehicle Safety Controls



Environmental Benefits

- *Reduce Emissions*
- *Save Fuel*

Why Does MDOT Care?

- Improve safety
- Improve mobility
- Save money
- Examples – ESCIMO, CHIMP, Asset Management and Performance Monitoring



Take the “Gee Wiz” out of IntelliDrive...

Data Management Tool

- Data Use And Processing (DUAP) Research Program
- Data fusion from multiple sources
- Applications that supplement MDOT Processes
- System is operational and stable
- Ready for additional applications as new data sources become available



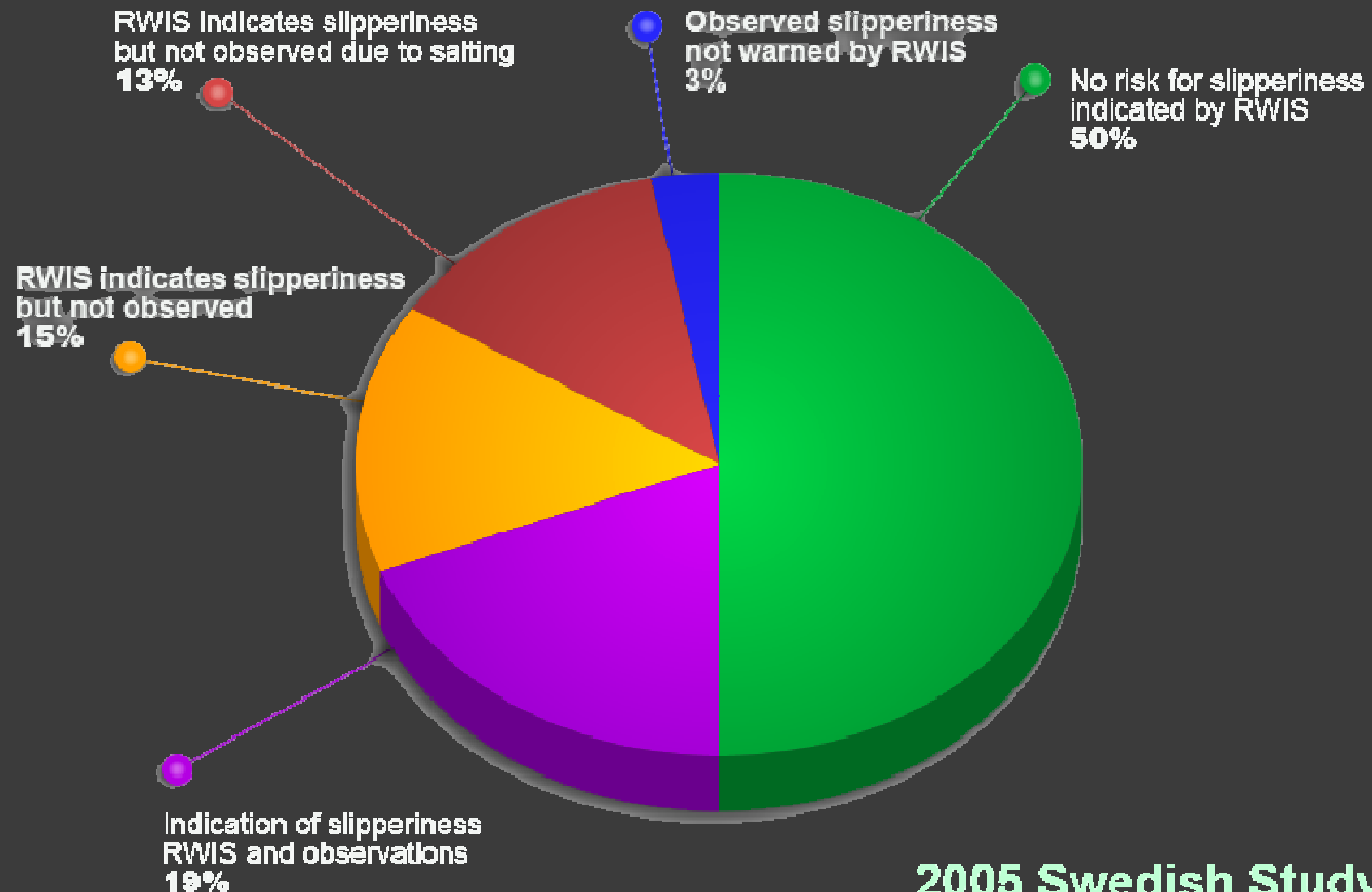
Eliminating Slippery Conditions by Integrating Mobile Observations

- Can probe data from connected vehicles be used to improve winter maintenance activities?



2005 Swedish Study

Reporting from Remote Weather Stations



2005 Swedish Study
Reporting from Remote Weather Stations

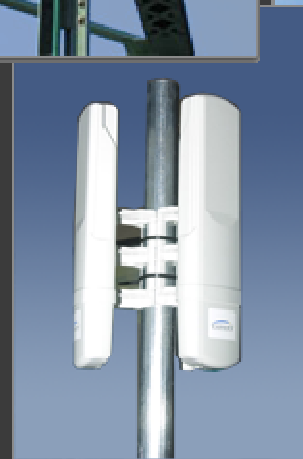
ESCIMO Objectives

- By using better monitoring system we have means for:
 - Decreasing the 22 hours a month when we do not know that the roads are slippery
 - Reduce the 60 M€ use of salt while it is not slippery
- 2 Vehicle test pilot starting next fall

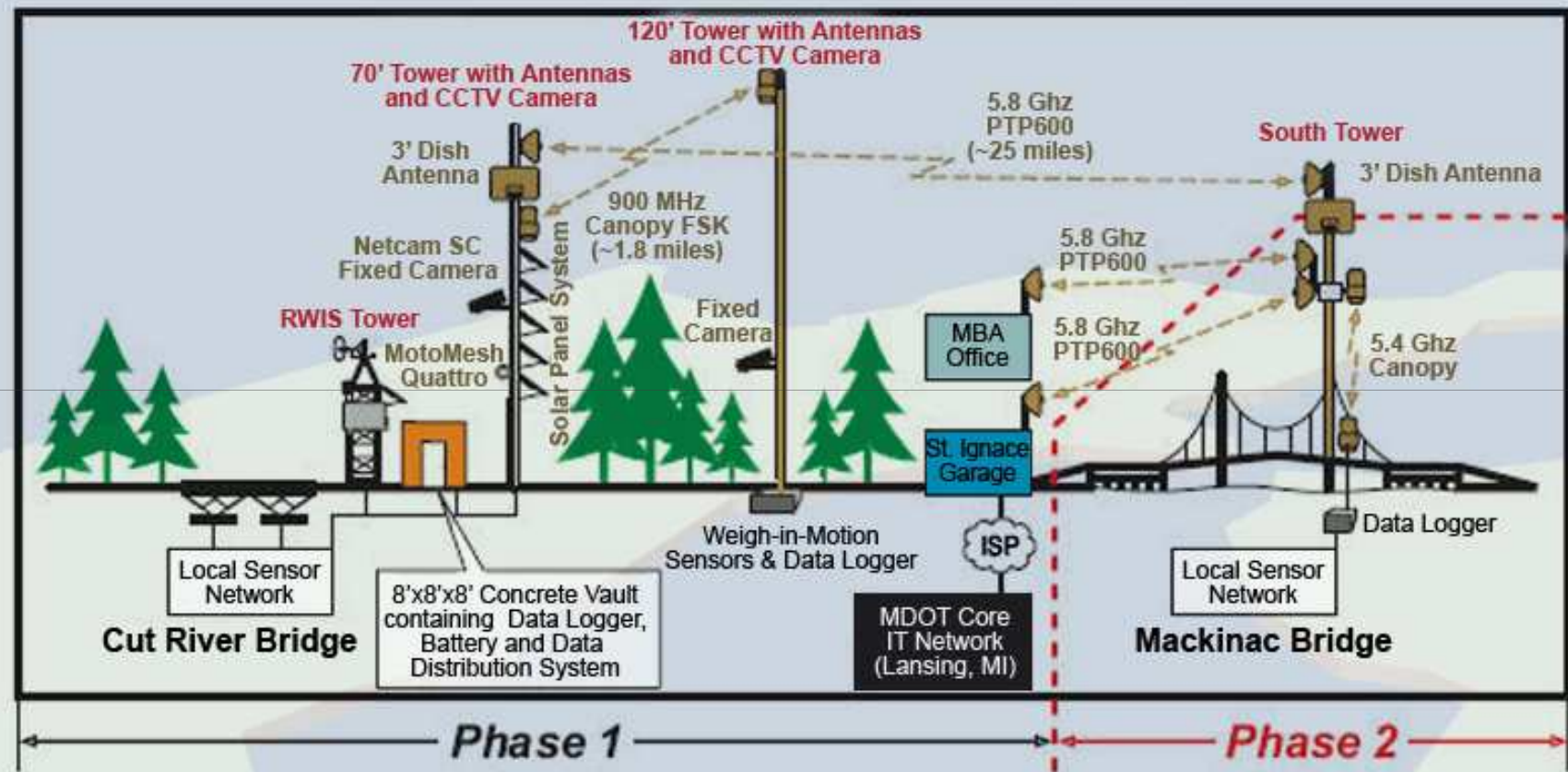


Critical Highway Infrastructure Monitoring Program

- How do we remotely monitor our bridges?
- Integration of multiple data sources:
 - Bridge strain
 - Weigh in Motion
 - Weather Conditions
- Rural challenges
 - No power
 - No communications



Bridge Monitoring System Overview



Cut River Bridge

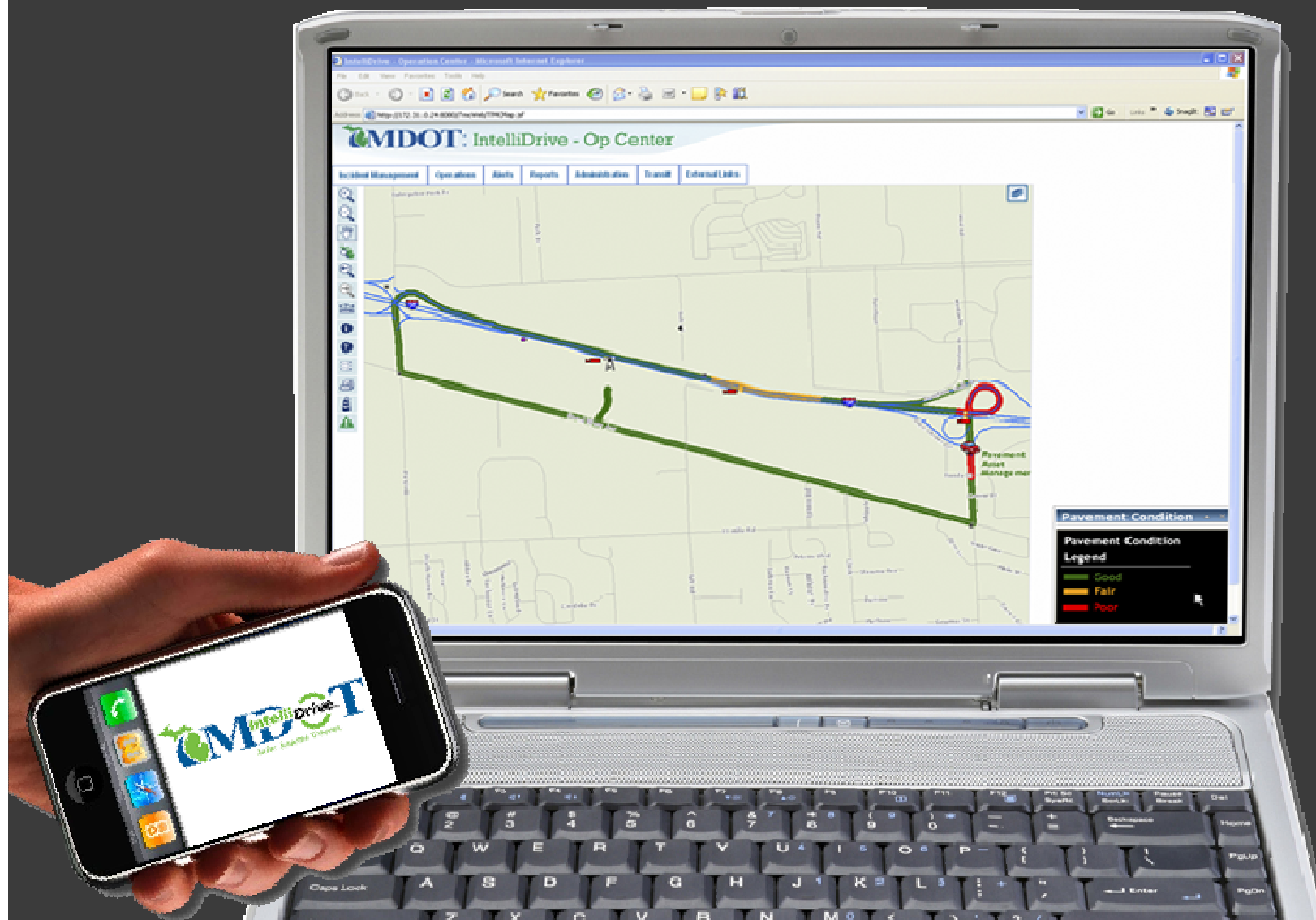


Asset Management

- MDOT spends \$2m per year on subjective ride quality analysis for Federal Aid System
- MDOT owns and operates 10% of the infrastructure in Michigan
- Local Agencies spend time and money for non-Federal Aid system evaluations



Probe Ride Quality Data



Performance Measurement

- Customers demand accountability
- Congress demands accountability
 - ARRA Reporting Requirements
 - Preliminary Oberstar bill



Daily Reporting



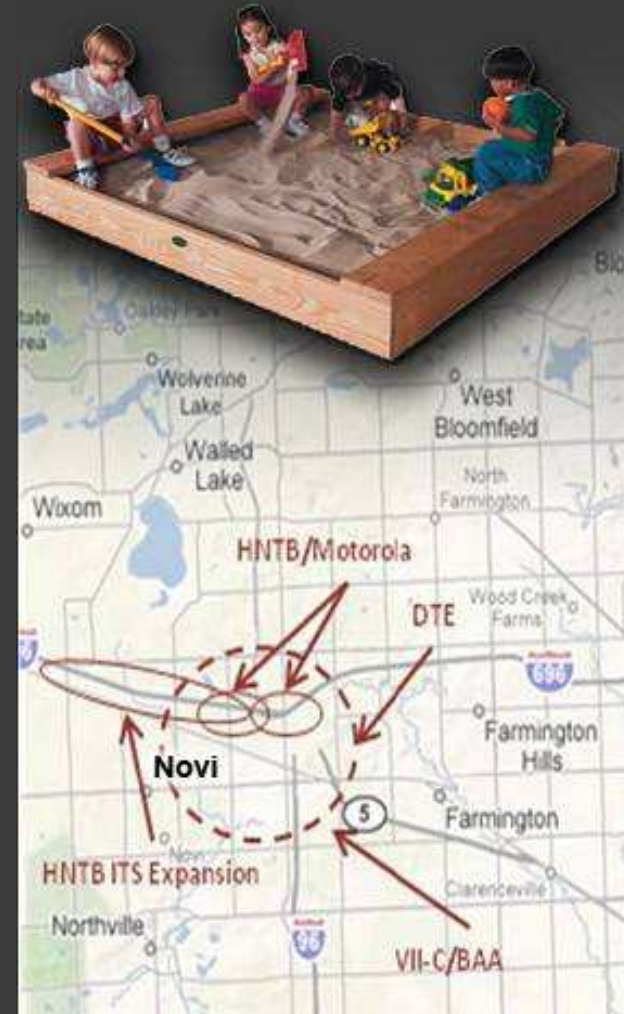
Becoming an Incubator

- Industry Sandbox(es)
- Leadership
- Looking Forward



Industry Sandbox(es)

- Dance Lessons
 - OEM vs. MDOT approaches
 - Multiple visions for Michigan
 - Past US DOT Tunnel Vision
 - DSRC and nothing else
 - OEM Dynamics
 - On*Star vs. Plans and Dreams
- Balance
 - Program needs
 - Industry
 - Automakers
 - Other partners
 - US DOT \$\$



Leadership

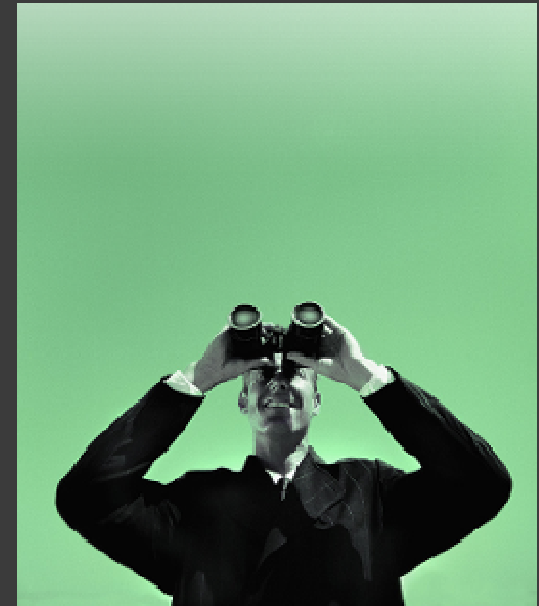
- Need for stable program direction
 - “DSRC Only!”
 - “Scrap everything!”
- Leadership requires action
 - More than PowerPoint presentations
 - More than white papers
- Ability to roll with change



I used to think that running an organization was equivalent to conducting a symphony orchestra. But I don't think that's quite it; it's more like jazz. There is more improvisation. - Warren Bennis

Looking Ahead

- Advancement means not standing still
 - Monitoring the international program
 - Expanding the test bed
- Work with Partners
 - Vehicle manufacturers and suppliers
 - AAHSTO and other infrastructure owners and operators
 - US DOT



Livability and Sustainability

- New focus areas for US DOT Sec. of Transportation and Obama Administration
- Created an Interagency Partnership for Sustainable Communities involving 3 US Departments:
 - Housing and Urban Development
 - Transportation
 - Environmental Protection Agency



What is Livability?

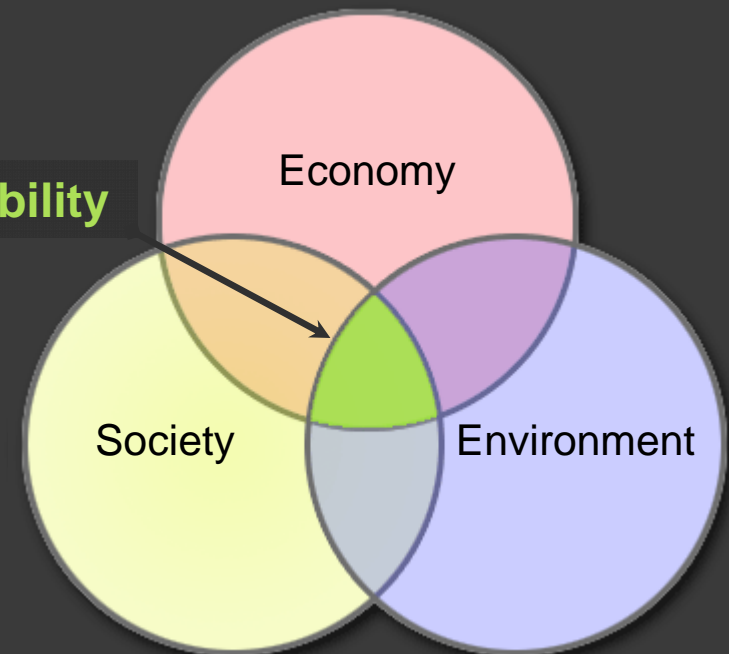
- Ties quality and location of transportation facilities to broader opportunities
 - Access to good jobs
 - Affordable housing
 - Quality schools
 - Safe streets
- Addresses safety and capacity issues on all roads
 - Better planning and design
 - Maximizing and expanding new technologies
 - ITS
 - Use of quiet pavements
 - Utilizing Travel Demand Management approaches to system planning and operations, etc.



What is Sustainability?

- *“Meeting the needs of the present without compromising the ability of future generations to meet their own needs” [UN General Assembly 1987]*
- *Triple bottom line:*
 - *Environmental*
 - *Social*
 - *Economic*

Sustainability



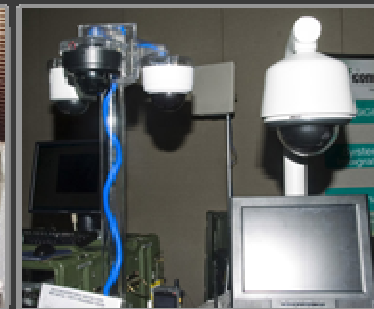
Livability & Sustainability

- Connections to ITS & Livability/
Sustainability
 - Reducing emissions
 - Development of Low Carbon fuels
 - Addressing congestion issues
- Other issues to keep on our radars
 - How does non-motorized transportation fit in with ITS?



Next Steps

- 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!