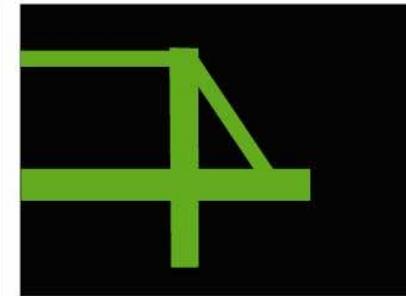
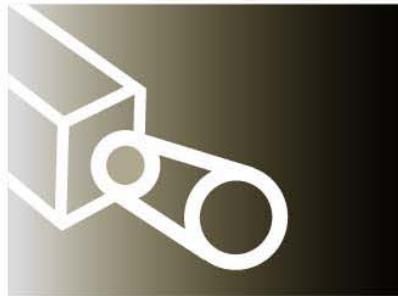
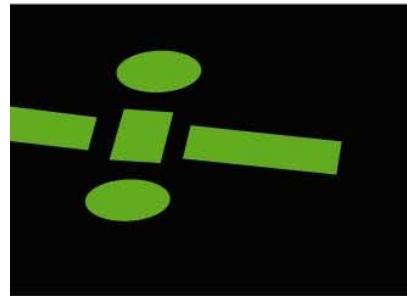


EXPLORATORY ADVANCED **RESEARCH**



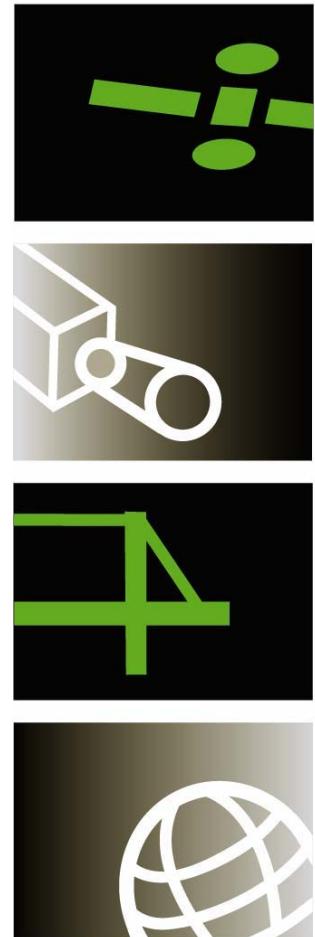
Sensors for the Highway Transportation System Today and in the Future

Passive Wireless Sensor Technology Workshop

May 4, 2015



U.S. Department of Transportation
Federal Highway Administration



Outline

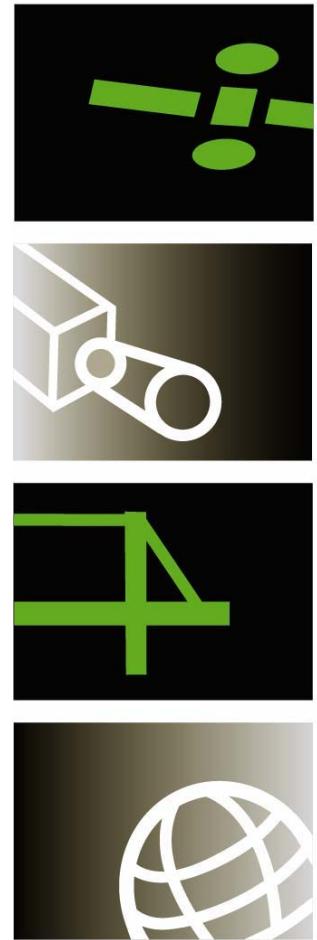
- About Highway Transportation
- FHWA EAR Program Investments in Sensor Systems
- Interest in Passive Wireless Sensors for Highways



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Highway Transportation

- Highway Infrastructure
 - Interconnected
 - Open access
 - Legacy elements
- Highway System Management
 - Multiple owners
 - Public & private responsibilities
 - Inspection routines
 - Maintenance routines

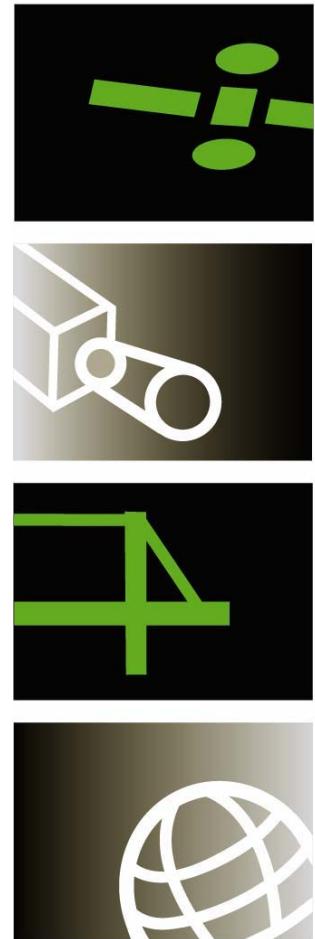


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EXPLORATORY ADVANCED RESEARCH

FHWA EAR Program

- Focus on high-risk, high payoff research
- Merit review is used to enhance the quality of research processes and results
- Research stakeholders are involved throughout
- Commitment to successful project handoff



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Focus Areas

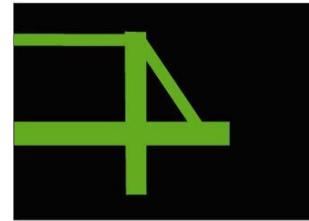
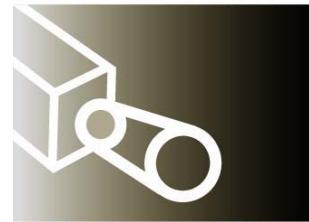
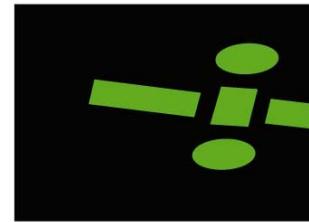
Breakthrough concepts in material science

Technology for assessing performance

Human behavior and travel choices

Connected highway system concepts

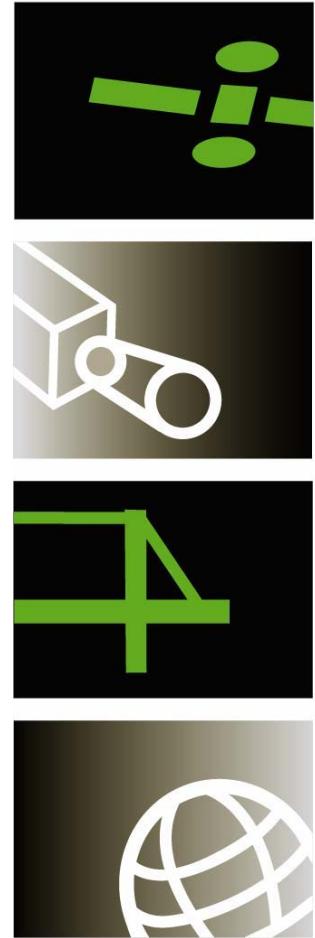
New technology and advanced policies for energy and resource conservation



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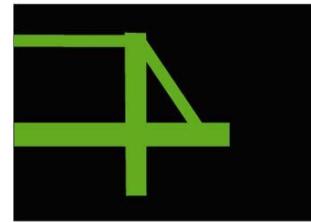
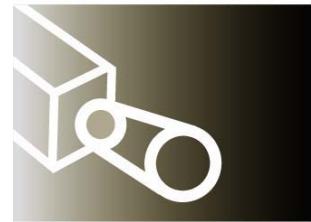
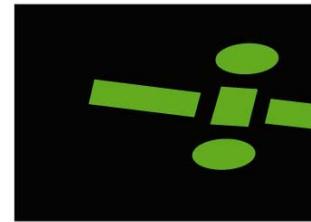
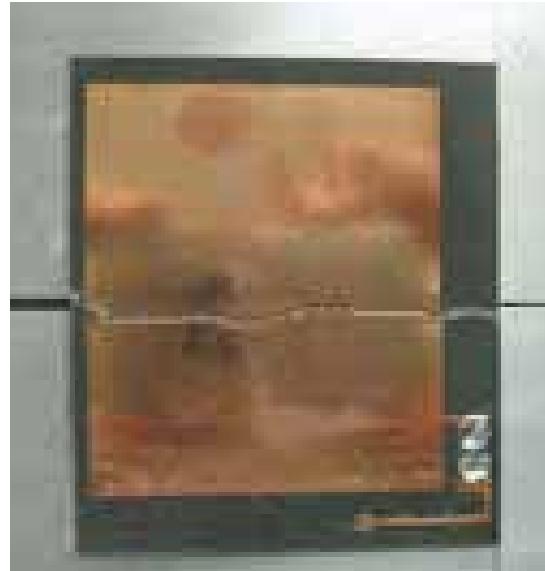
Program Status

- 200+ Initial stage investigations
- Seven solicitations resulting in
 - 75 projects awarded; 36 ongoing
 - \$72M federal, \$26M match
- 8th closed April 2014
 - Topics: Structures NDE, Safety data, Freight data, Freight modeling
- 9th planned, not scheduled



Funded Research

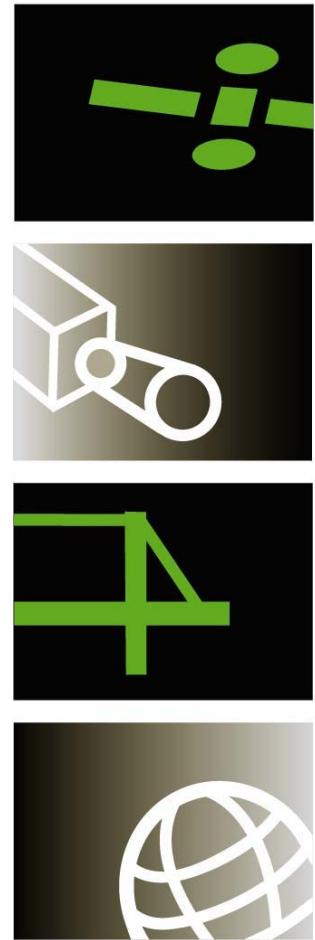
- Very Low, Self-Powered Wireless Sensor Systems
 - Steel structures
 - Bridge bearings
 - Pavements
 - Water runoff quality



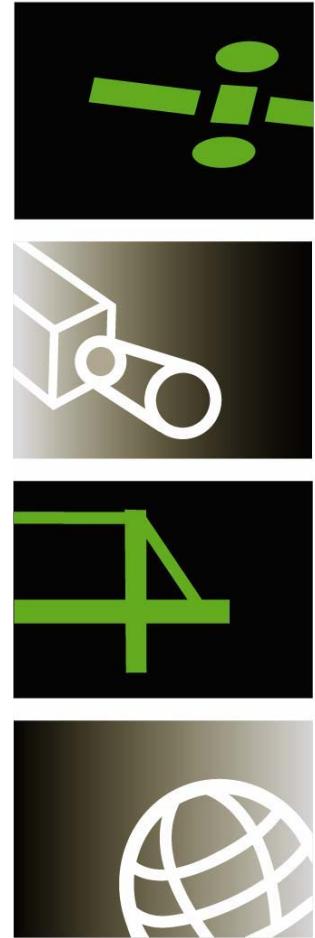
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Future Systems

- From Asset Management to Resilient Systems
 - Construction, system management
 - Structures, pavements, geotechnical, hydrological, environment elements



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Future Systems

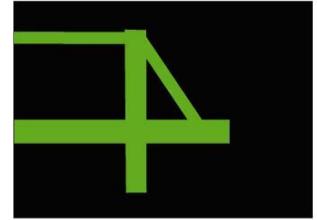
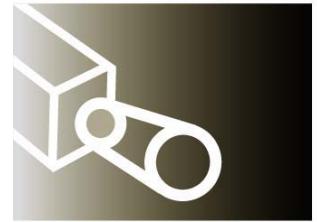
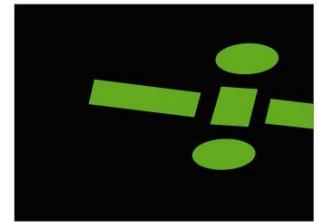
- Highway Safety & Operations
 - Safety hardware
 - Geolocation
 - Infrastructure-vehicle communications



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Thank You

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