

**Using Technology to Construct, Maintain, and  
Monitor Long-lasting Structures**  
**Dr. Jose Gomez, Research Council**  
**Dr. Thomas Cousins, Virginia Tech**



# Today's Presentation

- **Introduce the Cooperative Center for Bridge Engineering**
- **Facilities and capabilities**
- **How the Center makes a difference for cost-effective and long-lasting structures**

## Center for Bridge Engineering

- **Joint venture of Research Council and VT**
- **Focus:**
  - Reduce costs
  - Rapidly install and rehabilitate structures
  - Properly maintain structures
  - Enhance durability and service life
  - Develop and employ health monitoring and evaluation technologies
- **Unique capabilities**
  - Full scale structures testing facility
  - Two materials laboratories
  - 15 scientists and faculty with expertise in structures
  - Strong cooperation with VDOT Chief Engineer & Bridge Engineer

## The Partnership: Full Scale Testing of New Technologies



## From Full-Scale Laboratory Testing and Failure Forensics



# To Field Health Monitoring



# To Implementation of Advanced Technologies on Route 33



# From Proof of Concept of Advanced Technology

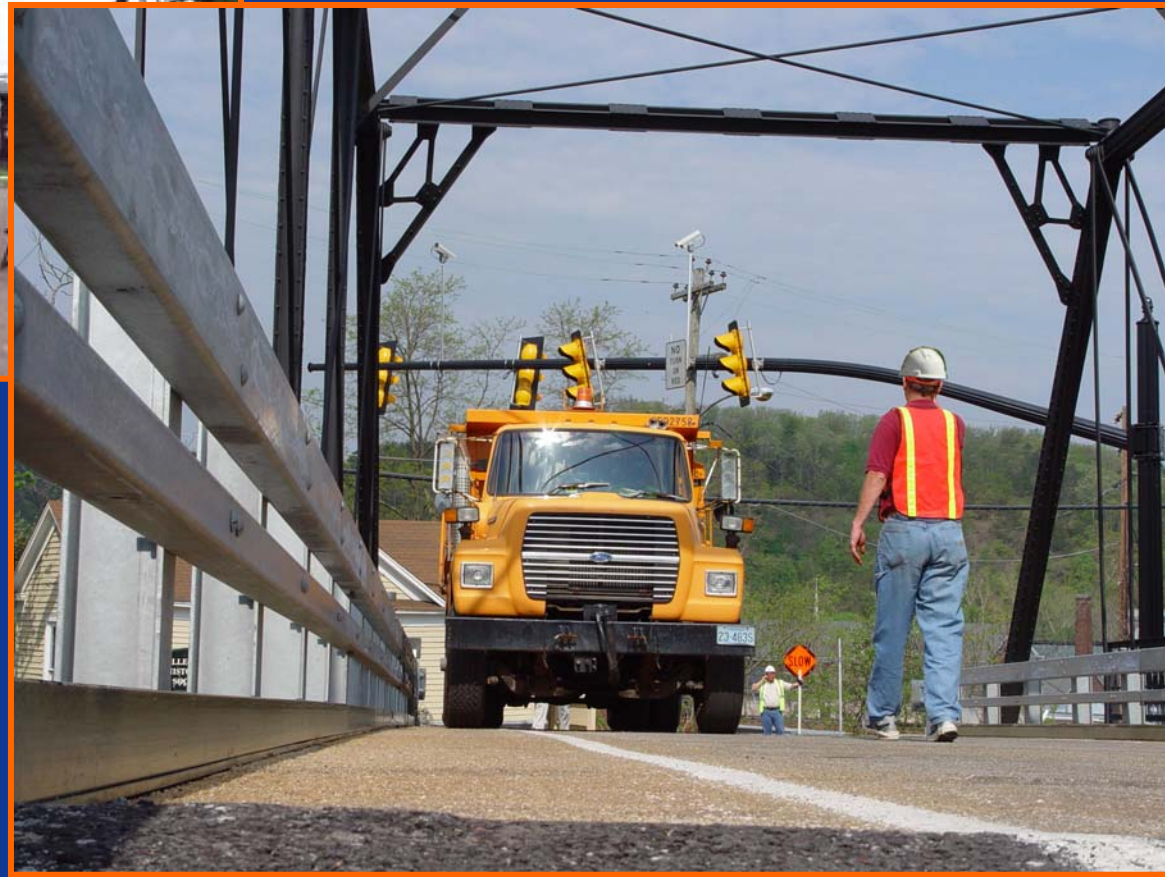




## To Placement in the Field



# To Field Evaluation Resulting in Increased Load Carrying Capacity



# To Restore Structural Integrity of Historic Hawthorne St. Bridge in Covington



11/15/2007

# Long-Term Health Monitoring



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# Technologies to Evaluate Existing Bridges: I-81, New River



## Benefits of the Center for Bridge Engineering

- Advanced research for safe, long-lasting bridges
- Full scale testing in controlled environments
- Cost-effective application of technologies
- Forensic analysis and advanced structural evaluation
- Rapid deployment of proven technologies
- Advanced engineering and scientific expertise