

Commercial Vehicle Smart Roadside

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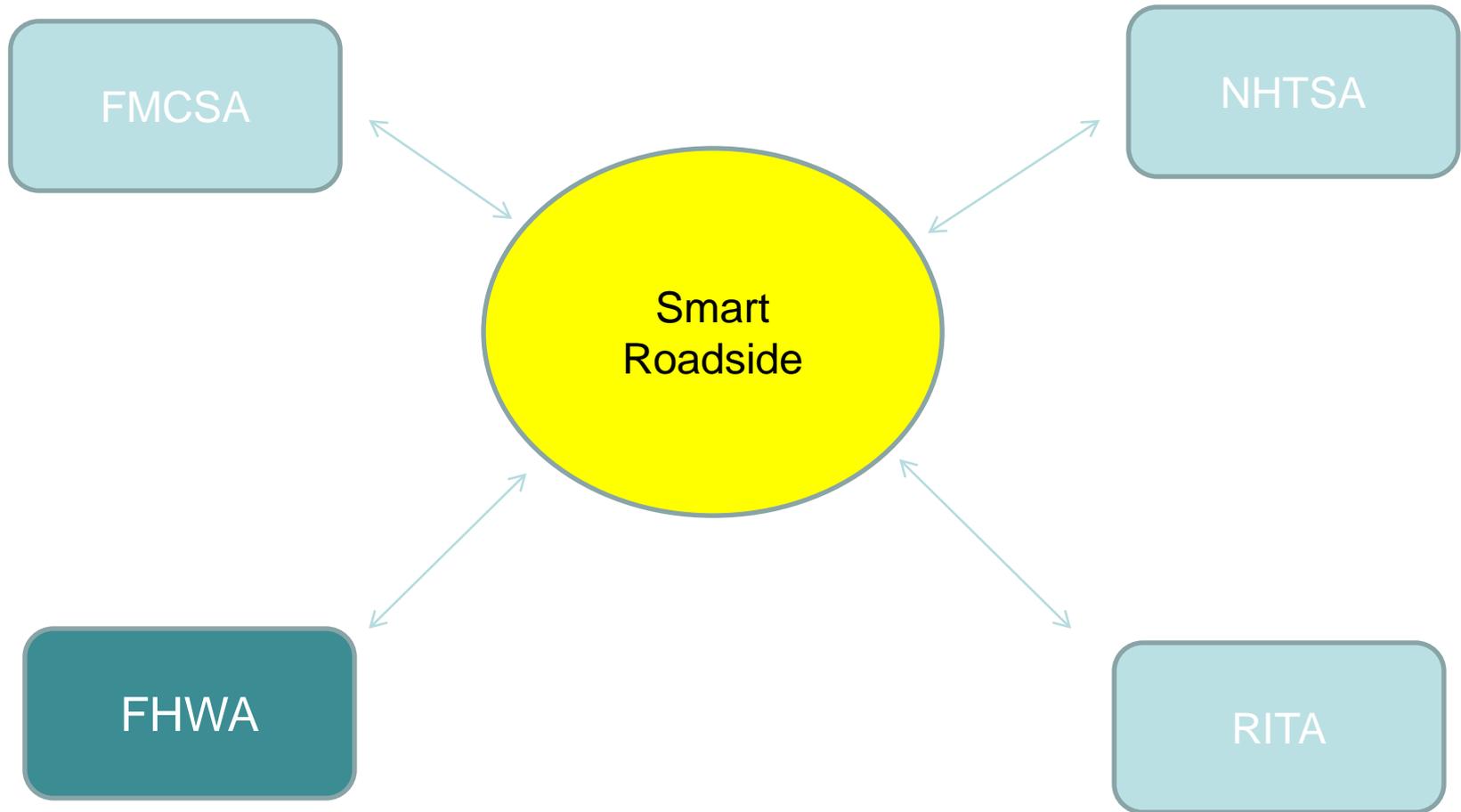
Team Leader Truck Size and Weight-Freight Operations and
Technology
Federal Highway Administration

Traffic Monitoring Workshop

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Intra-agency Cooperation-USDOT



Office of Freight Management and Operations

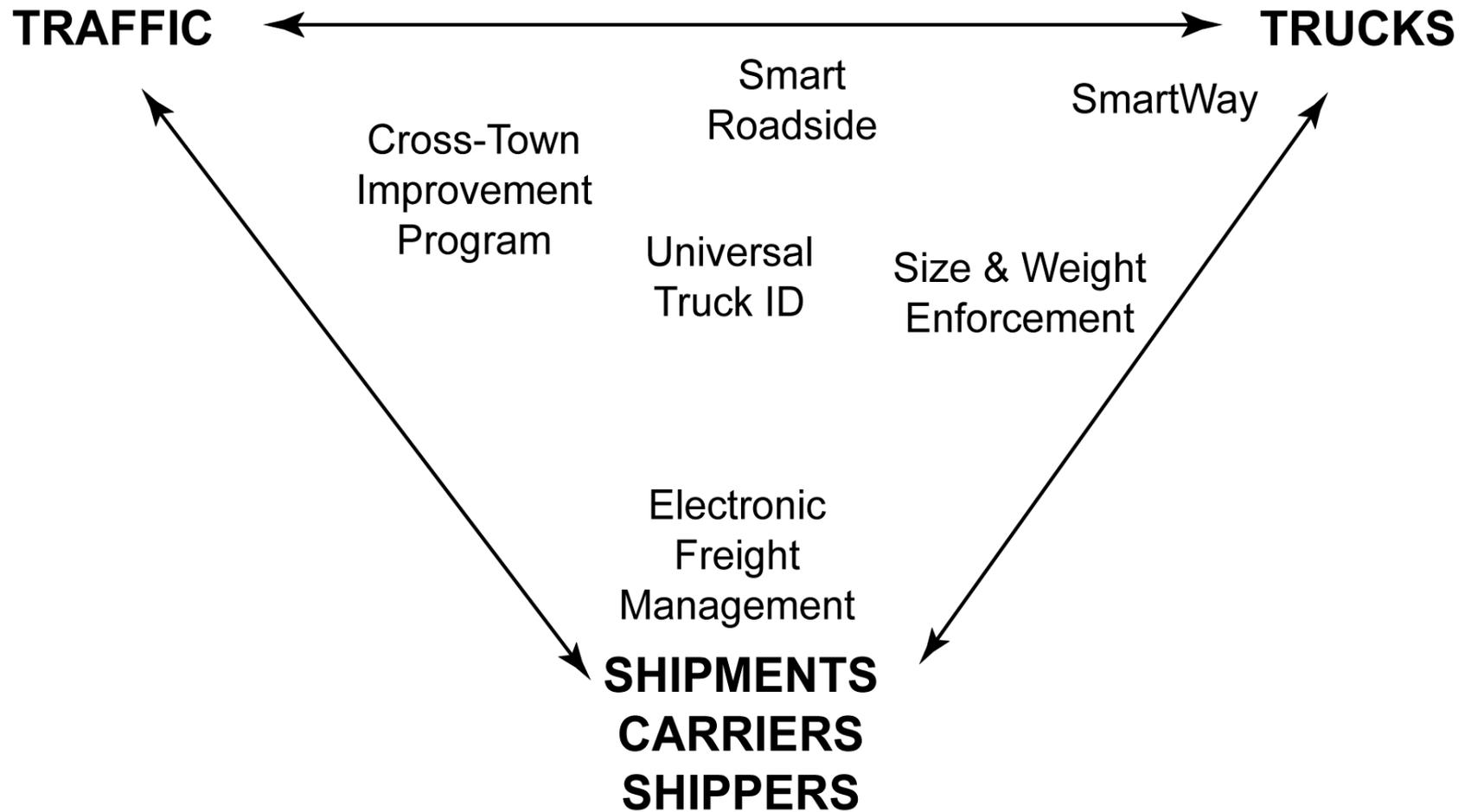
Established in 1999 within the FHWA Office of Operations to promote efficient movement of freight on the U.S. transportation system.

- Focal point for freight policy development and research
- Collects and integrates data on freight volume & performance
- Develops and advances freight technology & operations
- Manages freight professional capacity building program
- Administers freight infrastructure grant programs
- Oversees enforcement of federal size and weight limits
- Works with other offices to incorporate freight into the Federal-aid highway program and into state and MPO plans

Freight Technology & Operations Team

- Duties:
- Development and advancement of freight technology & operations
 - Improving data sharing between industry partners and government.
- Overseeing enforcement of federal size and weight limits
 - Work closely with state DOT's and Public Safety agencies.
 - Developing unique initiatives to help streamline operations.
 - Bring overarching tools like system architectures that help build linkages between states.

Freight Tech & Ops SANDBOX



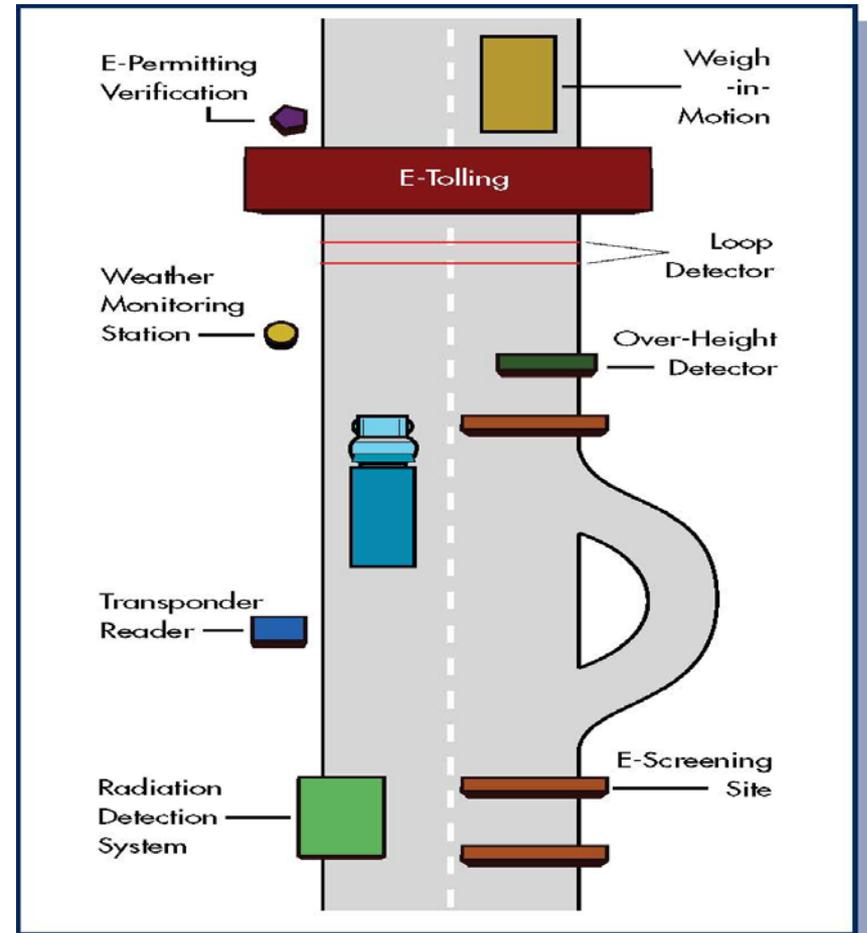
Technology - Smart Roadside

The Smart Roadside Program allows truck and driver to be screened with roadside sensors while traveling.

Regulatory functions can be employed while not interrupting the travel of compliant carriers.

Safety is improved by eliminating stop and go traffic.

Sensors can provide shippers greater visibility of goods movement.



Smart Roadside-Addresses

- Users, who are federal regulators, motor carriers and shippers.
- Current methods miss the majority of truckers while ticketing only 1% of those they stop for weight violations.
- A majority of compliant carriers suffer delay from unnecessary interruption which adds cost to the goods.
- Safer highway operations, reduced fuel consumption, lower vehicle emissions, less funding required to repair pavements and bridges, and optimizes getting goods to the marketplace.

Smart Roadside- Activities

Initiative Operated in Partnership with FMCSA

Supported in USDOT's *"ITS Strategic Research Plan: 2010-2014"*

- Component of V-I IntelliDriveSM
- Modal Award of \$1m for FY10 and FY11:
 - e-Permitting/Virtual Weight Station Architecture, Universal Truck Identifier, Wireless Roadside Inspections and USDOT's Truck Parking Programs included in initial Phase;
 - "Concept of Operations" and "Prototype Applications" to be Developed as part of this Initiative;



Smart Roadside- Activities

Other Automated Enforcement Being Advanced:

- Standards and Specifications for Weigh-in-Motion Technology being Developed:
- Best Practice Virtual Weigh Station Sites Being Developed;
- Bridge Weigh-in-Motion Systems Being Investigated.

Smart Roadside-Availability

Several components of Smart Roadside have been tested operationally.

- Wireless Roadside Inspection (WRI) has been tested in Tennessee; brakes, lights, driver.
- Virtual Weigh Station has been tested in a variety of states with weigh in motion and height and width sensors. Florida has been setting the pace with this technology.

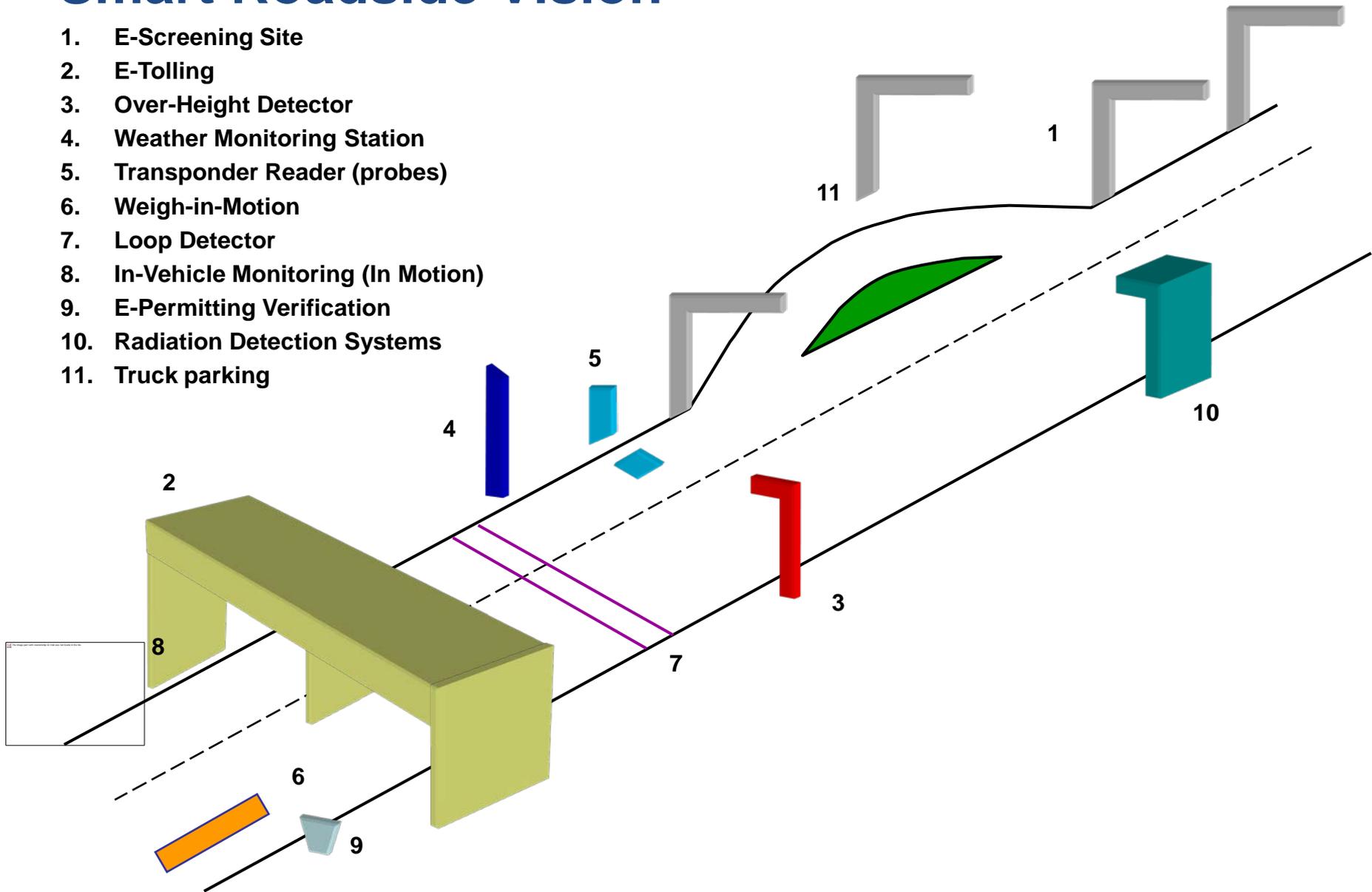
Virtual Weigh Station Concept of Operations is complete along with an architecture. Florida is expected to be the first rollout state to combine the two into Smart Roadside;

Smart Roadside like - Adoption

- Simpson County, KY, I-40, legally operating trucks pass the weigh station unimpeded after being checked for size, weight and safety and tax credentialing compliance at highway speeds by roadside and overhead technologies;
- Trucks roll out of the Port of Jaxport, FL, having their weights and dimensions checked for compliance while cargo container numbers are scanned and notifications can be shared with freight forwarders informing them their freight has hit the road.
- Florida plans on using this system in conjunction with Ports in Fort Lauderdale and Miami.
- California is also looking to implement in Los Angeles/Long Bch.

Smart Roadside Vision

1. E-Screening Site
2. E-Tolling
3. Over-Height Detector
4. Weather Monitoring Station
5. Transponder Reader (probes)
6. Weigh-in-Motion
7. Loop Detector
8. In-Vehicle Monitoring (In Motion)
9. E-Permitting Verification
10. Radiation Detection Systems
11. Truck parking



Concept for Identifying Entities Automatically



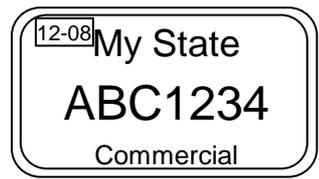
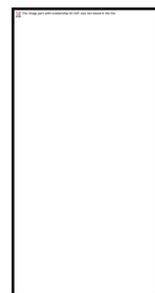
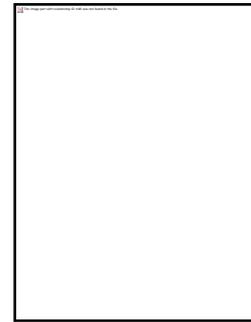
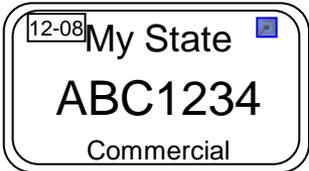
On the road or on the ramp, identify electronically every commercial vehicle.



Technology options:

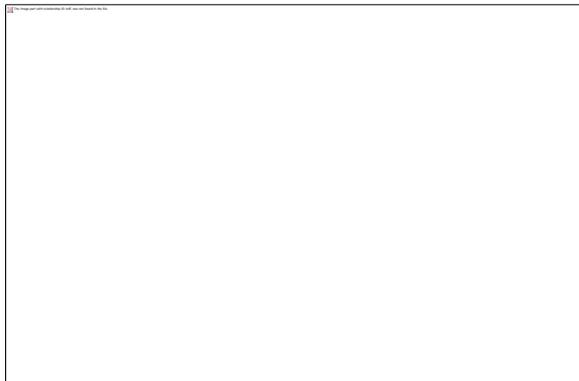
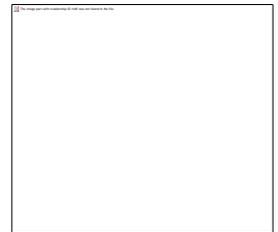
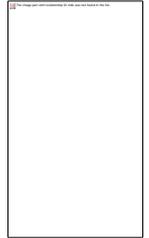
- Dedicated Short Range Communications (DSRC)
- **Other radio frequency identification (RFID) (e.g., on windshield, license plate, or door-mounted placard)**
- Commercial Mobile Radio Service (CMRS)
- Optical readers

Preferred



Smart Systems/Sensors

- Smart systems/sensors integrated with existing screening systems
 - Identification [Optical Character Recognition (e.g., USDOT number readers, license plate readers), transceivers, other RFID]
 - Dimension Measurement (weight, height, width, length)
 - Smart Infra-Red Inspection System (tires, bearings)
 - Radiation Detectors



Pavement Related Project

- Pavement Damage Assessment Tool (PaveDAT)
 - 2008 Project Completed by Auburn University Analyzed the Impact a 97K Pound 3S-3 Truck Had on Pavement Using MEPDG Software;
 - Roger Mingo Associates Picked Up on This Work to Build PaveDAT;
 - This Spreadsheet Tool was Completed in December, 2009;
 - Wilbur Smith Assoc are “Pilot Testing” PaveDAT in MN;
 - TX, PA, NY and VA are expected to pilot test PaveDAT

QUESTIONS?

For more information on freight in USDOT:



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