



# ***I-95 Corridor Coalition Truck Parking Initiative***



**2014 TRB Annual Meeting  
Session 226: Commercial Truck Parking Projects**

**Marygrace Parker  
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# *I-95 Corridor Coalition*

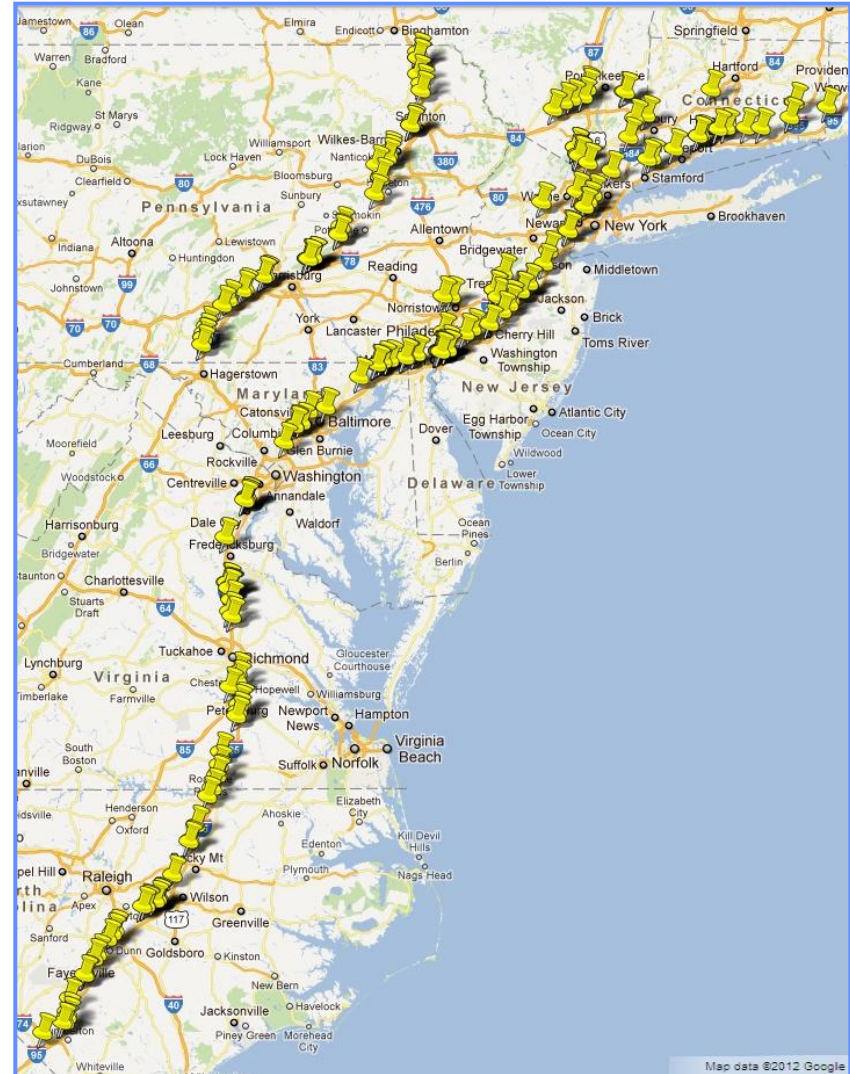
- Partnership of transportation agencies, toll authorities, and related organizations
- 16 states, the District of Columbia, and 2 Canadian provinces
- Forum for decision- and policy-makers to address common transportation issues
- Research and demonstrate innovative technology and operational solutions
- Multi-modal perspective





# Project Objectives

- Demonstrate proof-of-concept, i.e., that it is possible to gather and communicate accurate, timely information to truckers on parking space availability within reasonable economic constraints
- Demonstrate feasibility of the concept in a corridor-centric, multi-state deployment
- Deploy Real-Time Truck Parking Availability System within a major truck corridor





# *Project Approach*

- Research and demonstration effort funded by FHWA, with state funding matches
- Outfit selected parking lots with data-gathering technology – two “tiers” of deployment
- Disseminate data to truckers
- Post-deployment demonstration
- Evaluate performance
- Range of key stakeholders involved in effort



# ***System Development Principles***

The truck parking technology system must be:

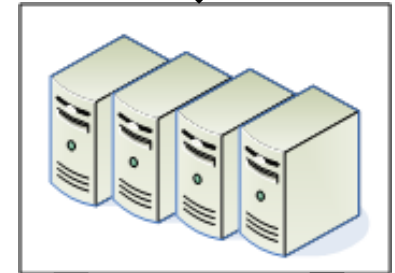
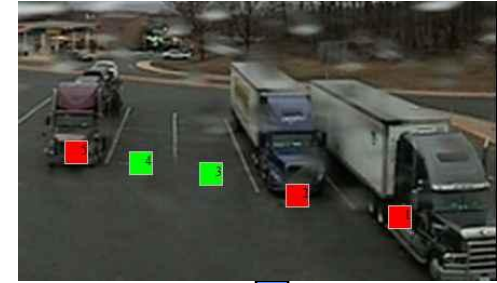
- Safe
- Accurate
- Timely and reliable
- Seamless and Interoperable
  - Drivers have uniform, consistent experience
- Modular
  - System components – data collection, data integration, and data dissemination – are interchangeable)
- Flexible and adaptable (urban/rural, public/private)
- Scalable to different lot sizes and configurations
- Minimalistic (modest parking lot footprint)
- Economical to implement, operate, and maintain





# System Overview

- Coalition's test system is comprised of three modules:
  - Data Collection
  - Data Integration
  - Data Dissemination
- Comparative technology field tests, in support of the Data Collection module, were completed at Chesapeake House, MD:
  - Optical imaging/video analytics
  - Laser technology
  - In-pavement sensors
- In-pavement sensors selected as the technology-of-choice, based on extensive field testing and analysis of findings
- Now moving forward with Tier I deployment of in-pavement sensors
- During system demonstration, parking availability data will be available via:
  - Truck Parking Website
  - IVR Telephone System (with automatic call-back feature)
  - Continuously-generated external data feed, for states and third-parties, with parking availability information to display on message signs, etc.



Truck Parking Website



IVR Telephone System



# Parking Lot Technology Overview

- In-pavement sensors:
  - ❑ Inserted in each parking space
  - ❑ Sensor core is 4-inches wide and 2.5-inches deep; covered over with epoxy
  - ❑ Hybrid sensor, comprised of two individual sensors in single enclosure:
    - ❑ Radar – Used under normal operating conditions
    - ❑ Magnetometer – Used under adverse environmental conditions, notably snow
  - ❑ Sensor is wireless, with battery life of 7-10 years
- Cameras:
  - ❑ Monitor parking lot conditions
  - ❑ “Ground-truth” the sensor data
- Communications infrastructure:
  - ❑ Access points
  - ❑ Repeaters
  - ❑ Cellular communications
- Data processed for all lots and disseminated from a unified repository





# Tier I Deployment

- Purpose
  - ❑ Demonstrate technical proof-of-concept
  - ❑ Test under a range of conditions, configurations, scenarios
  - ❑ Limited cadre of carriers/drivers will test Beta system
- Public rest areas in VA, MD and DE:
  - ❑ Ladysmith, Va. Rest Area (Northbound) -- *INSTALLED*
  - ❑ Maryland I-95 Welcome Center (Northbound)
  - ❑ Delaware Travel Plaza
- Timetable:
  - ❑ Calendar Year 2014







# *Tier II Deployment*

- Purpose
  - ❑ Demonstrate operational proof-of-concept
  - ❑ Demonstrate and evaluate real-world performance
  - ❑ Full public release of system
  
- Extend deployment to additional parking lot locations in subset of I-95 corridor states
  
- Timetable:
  - ❑ Calendar Year 2014/2015



# Challenges - Opportunities

- Multi-state environment

- ➔ Multiple state agencies to work with during process
  - ◆ MOUs, legal requirements and institutional processes vary and projects come up against competing priorities, particularly when relying on “in kind” support.
  - ◆ Most agencies now view truck parking shortages as a key safety and customer issue
- ➔ Allows deployment of system across “truck corridors” where users can find consistency for information/dissemination methods

- Technological

- ➔ What vendor says is not always what equipment does...!
- ➔ New vendors/technologies/approaches emerging all the time

- System Connectivity

- ➔ O & D of trips not always in same state/corridor
- ➔ Corridor approach lends itself to utilization by truckers that typically travel it and will hit HOS limits -- may need to consider “what to do next” (such as convey location of “next lot”)



# *Challenges - Opportunities*

- **Interoperability**

- Multiple deployments across US with different inputs/outputs and truckers from various O& D's
- Modular development of system lends itself to greater chance to link to other systems

- **Safety**

- How to avoid distraction to truckers, yet maintain “integrity” and “value” of data for “real time” decision making
- Emerging/improved quality of technologies – i.e. “heads up visual displays,” IVR, Bluetooth type connections – could allow for communication methods that limit distraction but allow for needed real-time information.



# Research Needs

- **Analysis of technologies/approaches deployed**
  - ◆ What has worked/not worked
    - Variables that have impacted project implementation, particularly for detection (weather, lot configurations, cost, etc.)
  - ◆ “User Group” of public agencies that have/are deploying Truck Parking systems
    - Provide a forum for national information exchange between system project managers (and related stakeholders in private sector)
      - Share “pain/gain” to optimize lessons learned
      - How to achieve “interoperability” of various deployed systems for truckers crossing between system coverage area and utilizing both public/private lots
  
- **How best to disseminate real time information without distracting drivers**





# ***For Additional Information...***

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