U.S. Department of Transportation
Federal Motor Carrier Safety Administration

SmartPark Research Project Update

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Mr. Jeff Loftus, Chief, Technology Division, Office of Analysis, Research, and Technology
Federal Motor Carrier Safety Administration
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Office of Research and Information Technology

Outline

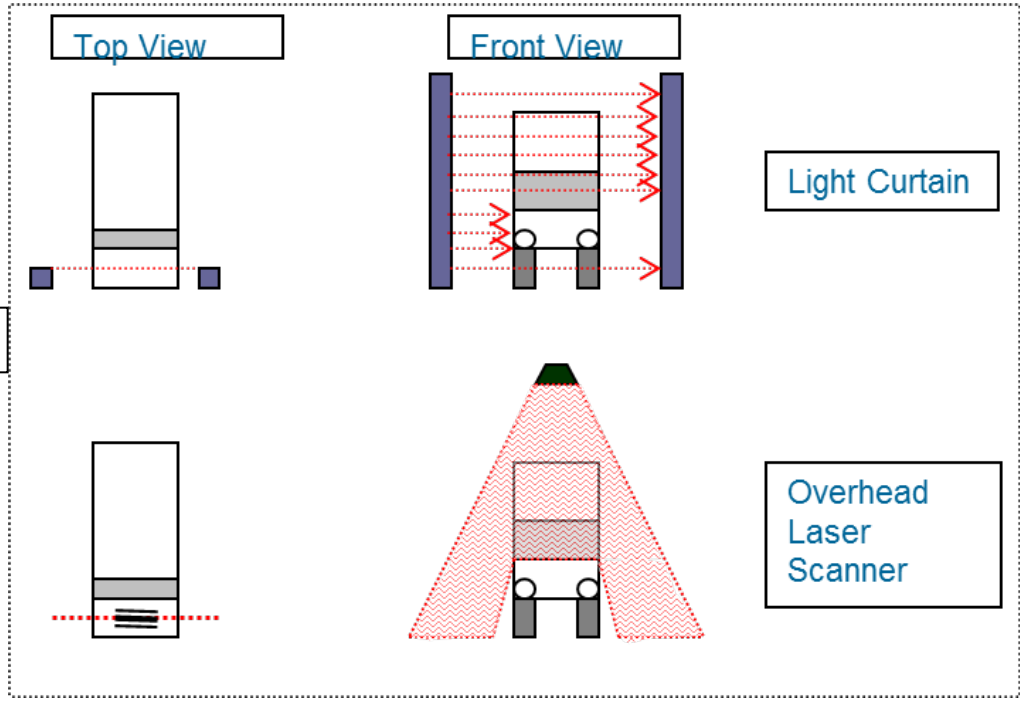
- Purpose
- Phase I
- Test Site
- Performance Requirements
- Test Results
- Phase II

Purpose

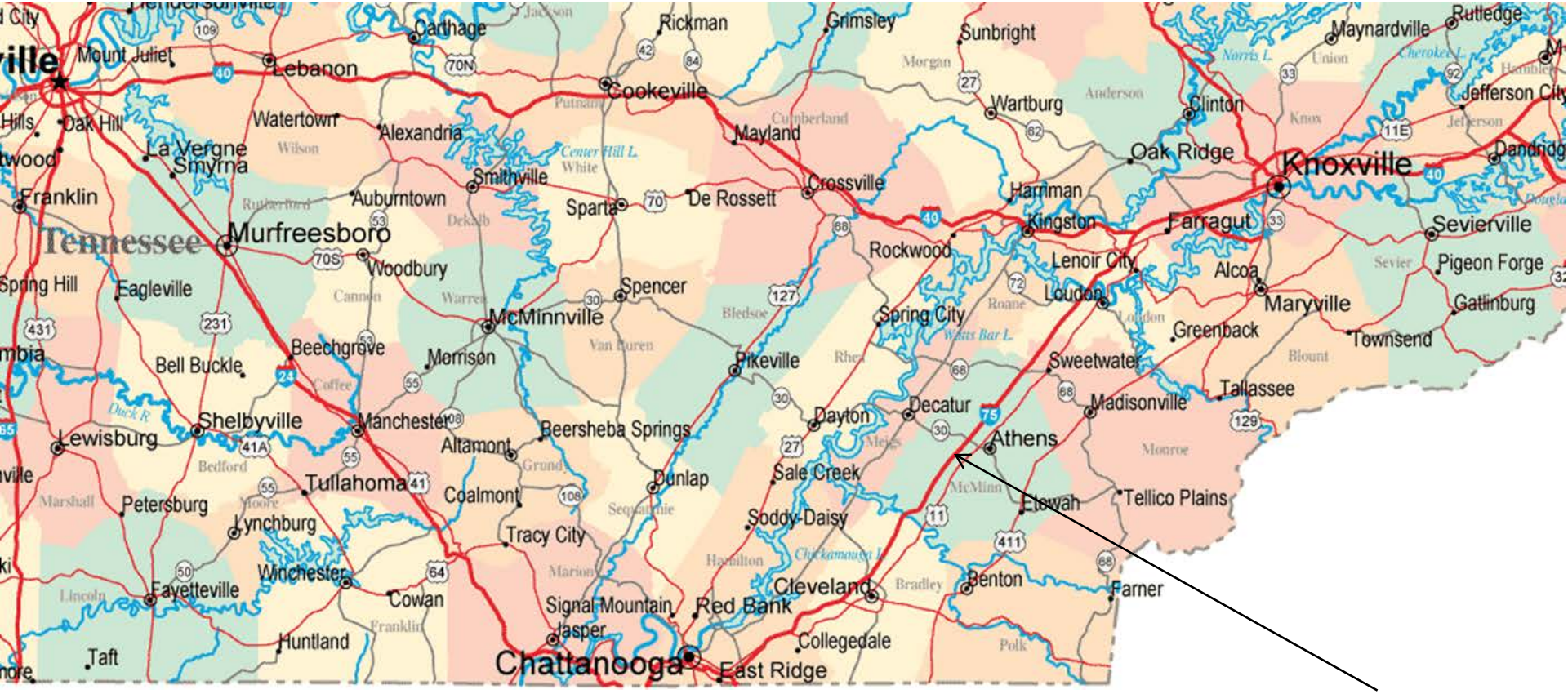
- To demonstrate a fully automated solution for providing truck parking availability information to truckers on the road
  - Phase I – to evaluate technologies that can automatically measure truck parking space availability in a rest area
  - Phase II – to disseminate truck parking space availability information in real time to truck drivers and to evaluate overall benefits

Phase I

- In 2011, FMCSA initiated Phase I to evaluate new vehicle detection sensors – Doppler radar combined with either light curtain or laser scan
- In prior testing, magnetic and camera-based sensors could not accurately distinguish vehicle types or trailer drop offs and pick ups.
- New Phase I sensors produce a top or side profile from which software can detect a hitch



Test Site Location – Athens, TN

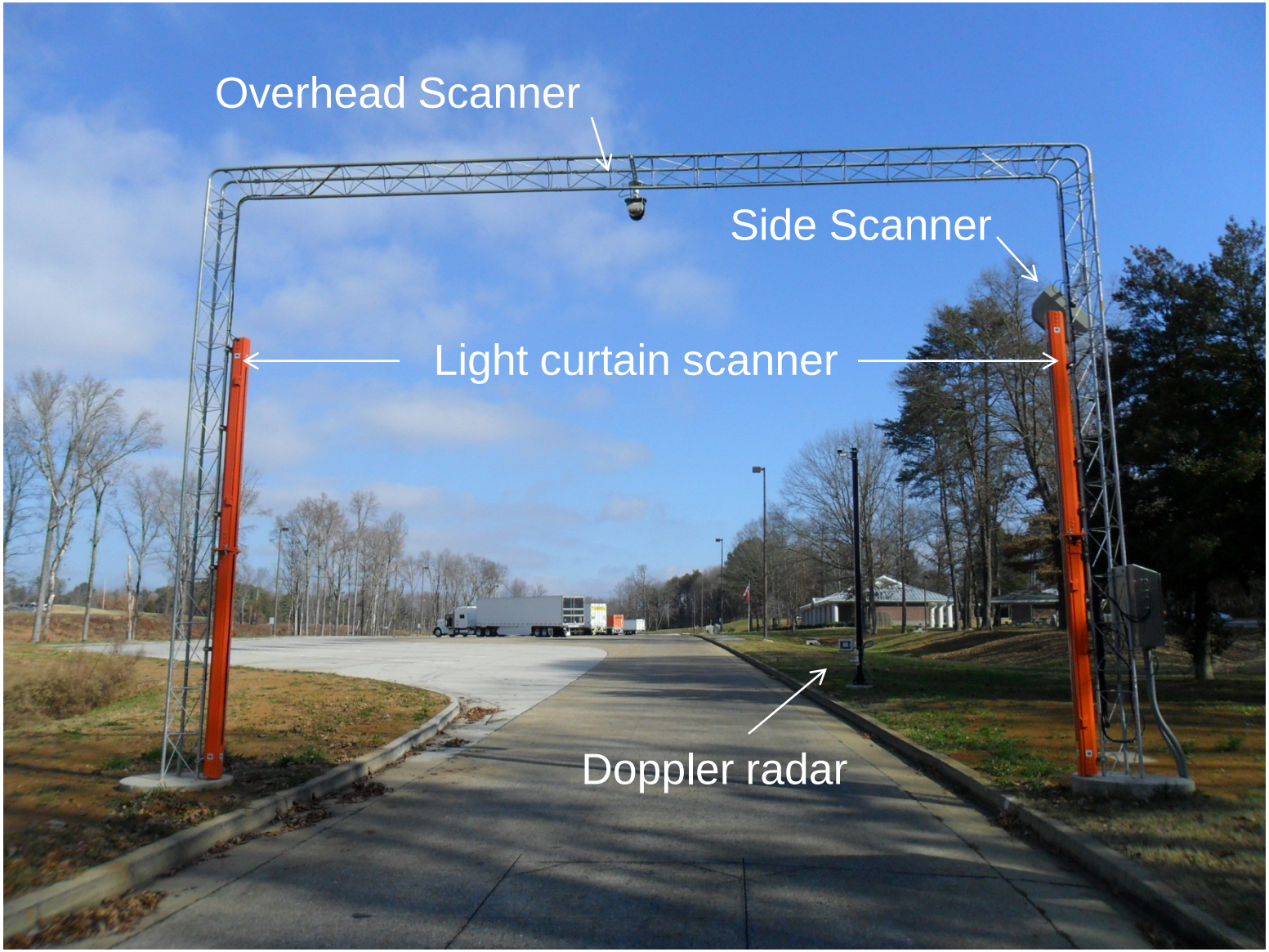


Test Site at Mile Marker 45 on I-75 northbound

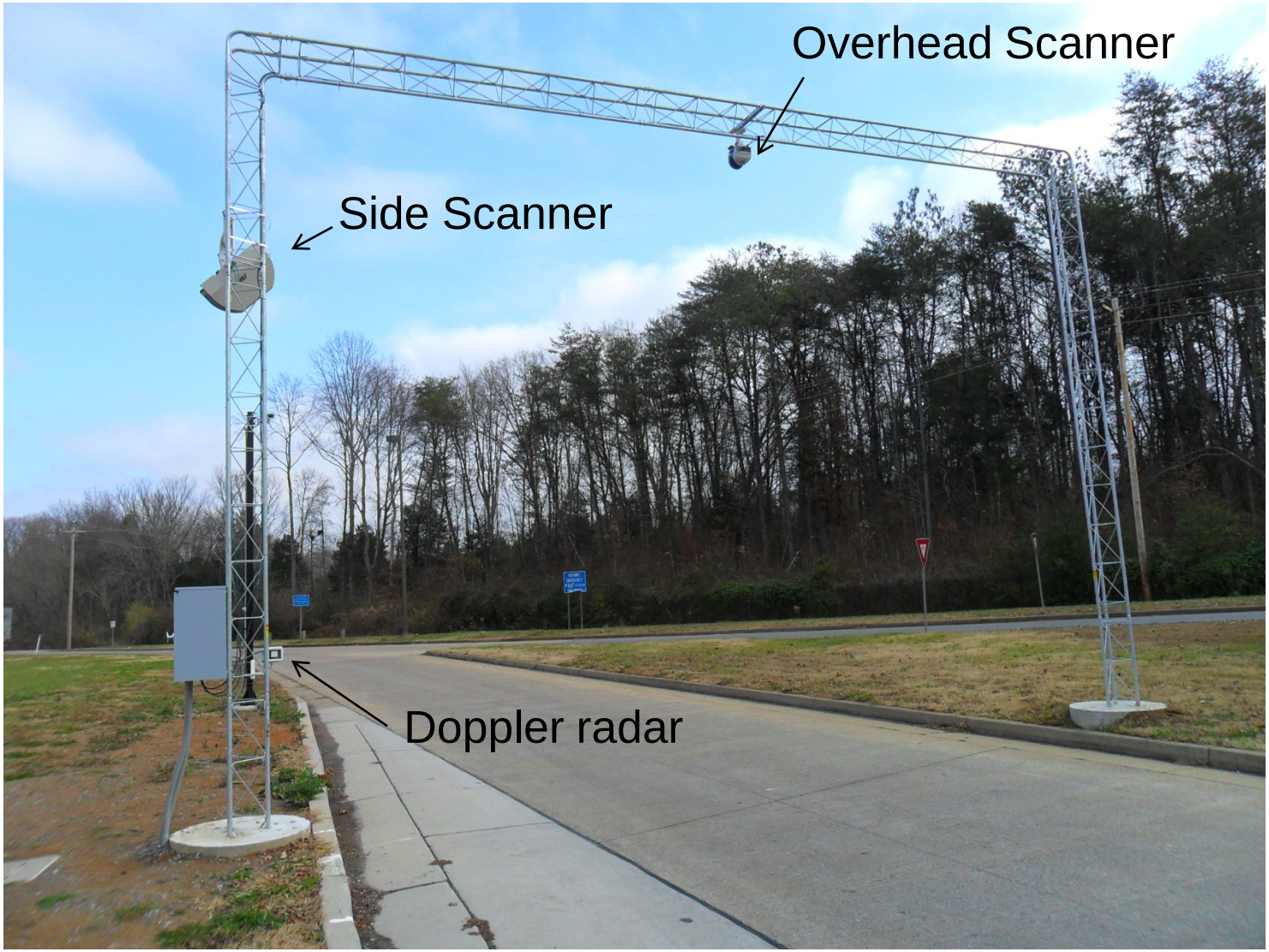
Test Site Characteristics

- Characteristics
  - Site is paved
  - Truck parking clearly separated from car parking
  - One ingress and one egress, both controlled
  - 44 delineated, marked spaces for trucks
  - Designed so trucks can easily pull-in & pull-out

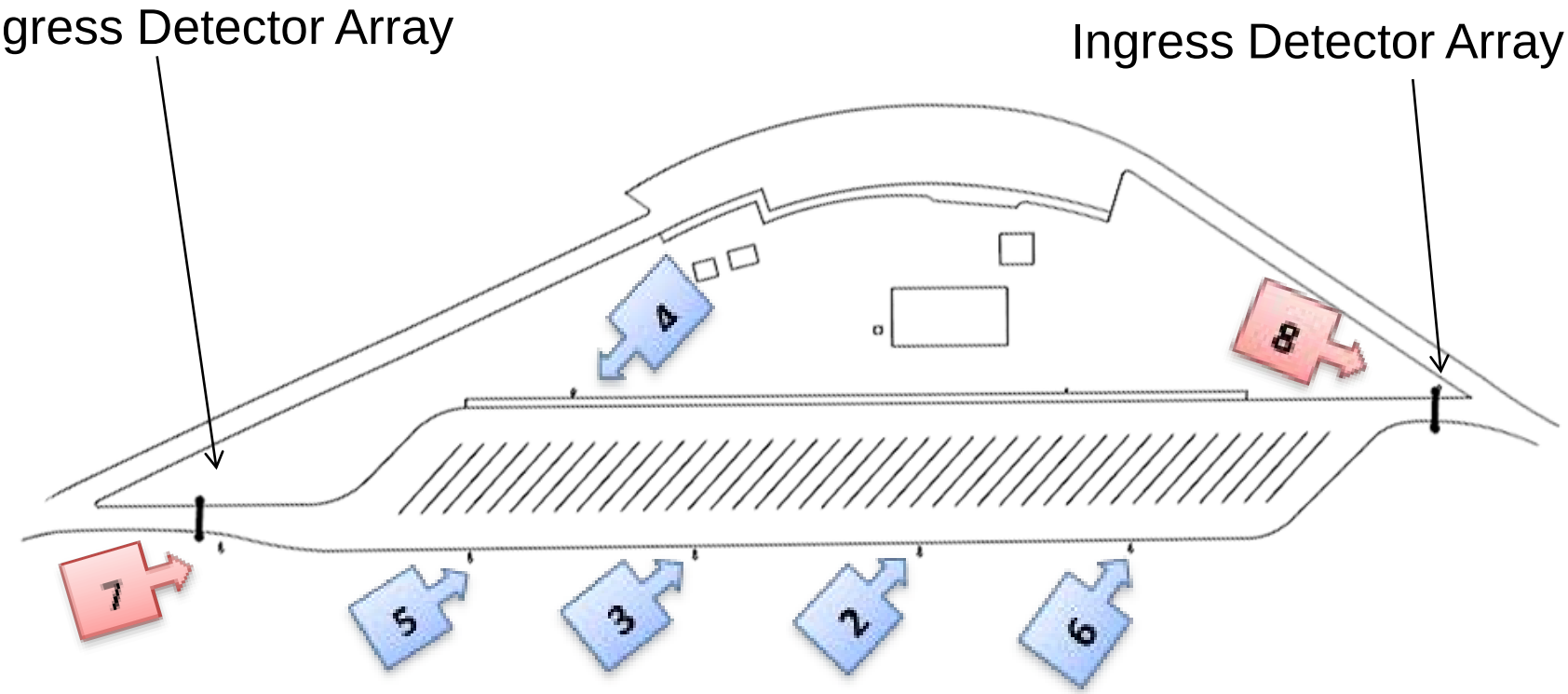
Test Site Ingress – Technology Array



Test Site Egress – Technology Array



Sensor Data Verification with CCTV



CCTV No., Location, and Orientation

Performance Requirements

Requirement Identification	Description
PR1 – Accuracy	System shall maintain the parking area occupancy count at ≥ 95% accuracy.
PR2 – Classification Consistency	Ingress and egress detectors must be consistent in classification with each other at ≥ 95%.
PR3 – Uptime for System	System shall provide parking availability information at a minimum of 99.5% of the time.

Phase I Test Results

Requirement		Gannett-Fleming 11/18-11/21 in 2012 N=459, overhead scans	Independent Assessment 12/10-12/13 in 2012 N=1340, side scans
Descriptor	%		
PR1 – Accuracy	**≥ 95**	**98.3%**	**99.9%**
PR2 – Classification Consistency	**≥ 95**	**97.4%**	**99.0%**
PR3 – Uptime for System	**≥ 99.5**	**100%**	**100%**

Phase II

- Field test to evaluate benefits of measuring and providing dynamic parking information to truck drivers in real time
- Tasks (6/22/2013 – 11/21/2014)
  1. Disseminating truck parking availability information
  2. Linking two adjacent truck parking rest areas
  3. Adding reservation capability to system
  4. Recruiting participating fleets and other partners
  5. Conducting field test
  6. Documenting field test results and assessing benefits
  7. Developing a technology transition/business plan

Contact Information

Jeff Loftus

Chief, Technology Division

Federal Motor Carrier Safety Administration

U.S. Department of Transportation

Washington, DC 20590

Jeff.loftus@dot.gov

202-366-2363