Indiana TPIMS

- Focus on key Midwest freight corridors
- Collect real-time parking data
- Monitor 137 public and private sites
- Aggregate and analyze data
- Share parking availability data through multiple channels
- Measure impact on parking, truck-related safety

<table>
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<td>I-65</td>
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<td>I-69</td>
<td>3</td>
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<tr>
<td>Total</td>
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</table>

Signs: 19

Legend:
- Planned Deployment Corridors
- Public Sites
- Private Sites
Detection Approach and Methodology

• Detection methodology – magnetometers by Sensys; panel sign is supplied by ROCAL out of Ohio and the LED Changeable Message Sign is provided by SES America; and Intelligent Outdoor IP PTZ Dome cameras and Network Bullet cameras by TKH Group Security Solutions

• Technologies:
What is the solution?

Create a system that:

- Collects usage data from public and private truck parking sites
- Aggregates the data based on a common format and set of criteria
- Shares the data in a useful, convenient and consistent format with users
Key TPIMS decisions

• Public vs. private sites
• Data Collection
  – Entrance and exit or individual space counts
• Data Aggregation
  – Integrated with ATMS or separate
  – Local or cloud
• Data Communication
Data collection technology

Entrance and Exit Counts
- In-pavement magnetometer
- Video cameras
- Laser technology
- Radar

Space Occupancy Counts
- Infrared/magnetometers
- Microwave/magnetometers
- Video cameras
Data aggregation

- Highly technical solution
- Long time frame
- Large service area
- Multiple audiences
  - Partner agencies
  - App developers
  - Freight users
- Unseen problem
Data communication

Interactive Voice Response System
at 1-844-SMARTPK

The MAASTO TPIMS Project
The MAASTO TPIMS Project

Public Data Feed

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<tr>
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<th>Description</th>
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<tr>
<td>siteId</td>
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<td>Unique fixed-length identifier including state, route number, route type, reference post, side of road and unique location number or name abbreviation. See more detailed description in appendix.</td>
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<tr>
<td>timeStamp</td>
<td>string</td>
<td>Provides the date and time that the site record was last updated. See more detailed data and time representation description in appendix.</td>
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<td>timeStampStatic</td>
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<td>Number of available spots shared through the data feed. The number is capped at the total number of parking spots at the site and “Low” is reported if the low threshold is reached.</td>
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Dynamic Public Feed - example

JSON format

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[{
"siteId":"WI00094IS0012400ERSTARE53","timeStamp":"2016-08-15T20:35:15Z","timeStampStatic":"2015-05-03T12:24:19Z","reportedAvailable":"25","trend":"FILLING","open":true,"trustData":true}]
```

Dynamic Public Feed - live URL

https://transportal.cee.wisc.edu/TPIMS/dynamic
Lessons learned

Communication goals and outcomes for multi-jurisdictional projects are best aligned when you can:

1. Align through process
2. Emphasize adaptability
3. Communicate for action
Lesson 1: Align through process

- “Scope” out issues and solutions when developing the statement of work
- Adapt early to external requirements/constraints
- Reconfirm needs and roles throughout process
Performance Measures

Parking Utilization
• Are drivers utilizing TPIMS to inform their parking decisions?
• Have driver-perceived parking shortages declined?

Safety and Security
• Are truck parking facilities more safe and secure?
• Is there a reduction in illegal or informal parking?
• Is there a reduction in fatigue-related crashes?

System Reliability
• Is there a decline in the average time spent looking for parking?
• Is the system meeting its performance requirements for accuracy?
Lesson 2: Emphasize adaptability

- Realize audiences may have the same goals, but different paths
- Provide resources that users can tailor to their own needs
- Stress outcomes over outputs
### Seamless system challenge

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Provide customizable support

The MAASTO TPIMS Project

MAASTO TPIMS Partner States will strengthen America’s freight network by helping commercial truckers make safer, more efficient parking decisions through a user-focused information service that consistently provides timely, reliable parking availability information.

Parking is essential for long-haul truck drivers, the backbone of our freight transportation network. Yet, drivers often struggle for up-to-date information to safely rest. That’s why eight states—Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Ohio, and Wisconsin—are investing in developing a multi-state, multi-state Truck Parking Information Management System (TPIMS).

How can these states ensure the safety and efficiency of America’s freight network? Real-time parking availability information to truck drivers is a critical resource, helping them choose the safest, most efficient parking locations. The TPIMS platform will provide real-time information on available parking spots, helping drivers make informed decisions about where to park.

TPIMS will use $280 million in 2015 dollars to implement a $260 million Federal Highway Administration grant and state funds. This investment is expected to generate more than $400 million in benefits. Better parking information will mean lower trucking-related maintenance costs, reduced congestion, and improved safety for all.

How will the project benefit the MAASTO Partner States?

MAASTO’s multi-state collaboration will provide cost efficiencies and innovations in design, procurement, and deployment across the W3P (Western States Partnership) region, enabling more efficient and informed parking decisions for all.

For more information and details on the TPIMS implementation, visit the MAASTO website.
Lesson 3: Communicate for action

- Communicate when action counts
- Ask specific audiences for specific actions
- Saturate the audience when action is needed
Project Implementation Phase (Early 2019)

Objectives: Continue driving awareness with end-users, adding call-to-action messaging once system is live. Communicate early impacts.

Tactics:
- TrucksParkHere.com
- Project collateral
- Media Relations
- Trade publications
- Billboards
- Search Engine Marketing
Indiana’s Design

Project Challenges
• Seven months from NTP to RFC
• Familiar components / unfamiliar application
• Statewide deployment
  • 5 Districts, 38 locations
  • No continuous begin / end for project limits
• Site Specific Challenges
  • Rest Areas
  • Weigh Stations
  • Advanced Signs
Indiana’s Design

Project Solutions

• Early coordination with INDOT ITS
  • Truck detection / verification
  • Communications
• To survey or not to survey
  • Practicality
  • Time constraints
• Budget considerations
  • Utilize standard items
  • Eliminate foundations
• Design on the fly
Indiana’s Design
Indiana’s Design
Site 311 Percent Full
Site 315 Percent Full

Average of Percent Filled

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```
Site 304 Percent Full
Lessons learned

• Lessons learned during each of the phases:
  - Construction – Utility locates may not be covered under current contracts due to government property is considered private.
  - Construction project conflicts may not be resolved even with pre-planning if not a capital program improvement project.
  - Software Integration
  - Plan for “unanticipated challenges” during the process

• Plans for future expansion or freight enhancements may include P3 partnerships and MOUs with municipalities
The MAASTO TPIMS Project

TPIMS
- Focuses on key Midwest freight corridors
- Monitors 137 public and private sites
- Collects real-time parking availability
- Aggregates and analyzes data
- Communicates parking availability to drivers
- Measures impact on truck parking & safety

The Bottom Line:
- Greater driver access to safe, convenient parking
- Improved safety for all drivers in freight corridors
- More efficient freight movement

Nationally, every 15-minute search by drivers costs the economy $4.4 Billion annually.

Session 160: Truck Parking Information Management System Update