



# THE TPIMS JOURNEY

TIGER PROPOSAL 2015


## Regional Truck Parking Information and Management System (TPIMS)

CONTACT INFORMATION

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Grant Request: \$36.6 million  
Grant Type: Rural Application



Logos for participating states and organizations: Kentucky, Iowa DOT, Kansas, Kentucky Transportation Cabinet, MDOT, Minnesota, Missouri, North Carolina, North Dakota, Ohio, South Carolina, South Dakota, Tennessee, Texas, Virginia, Wisconsin, and Wyoming.



# The vision

*“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.”*



# Today's agenda

This presentation will answer these  
**TPIMS** questions:

1. What is TPIMS?
2. Why is it needed now?
3. What is the MAASTO Partners' Solution?
4. What are the next steps?

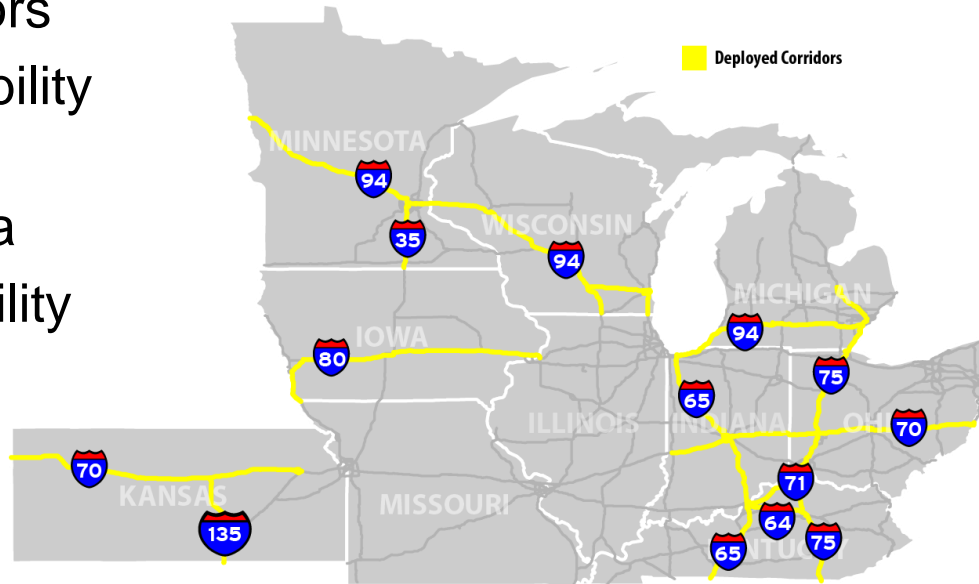


# Key elements

## Project Concept

- Focus on key freight corridors
- Collect truck parking availability data
- Aggregate and analyze data
- Share truck parking availability data
- Measure impact on parking usage, truck-related safety

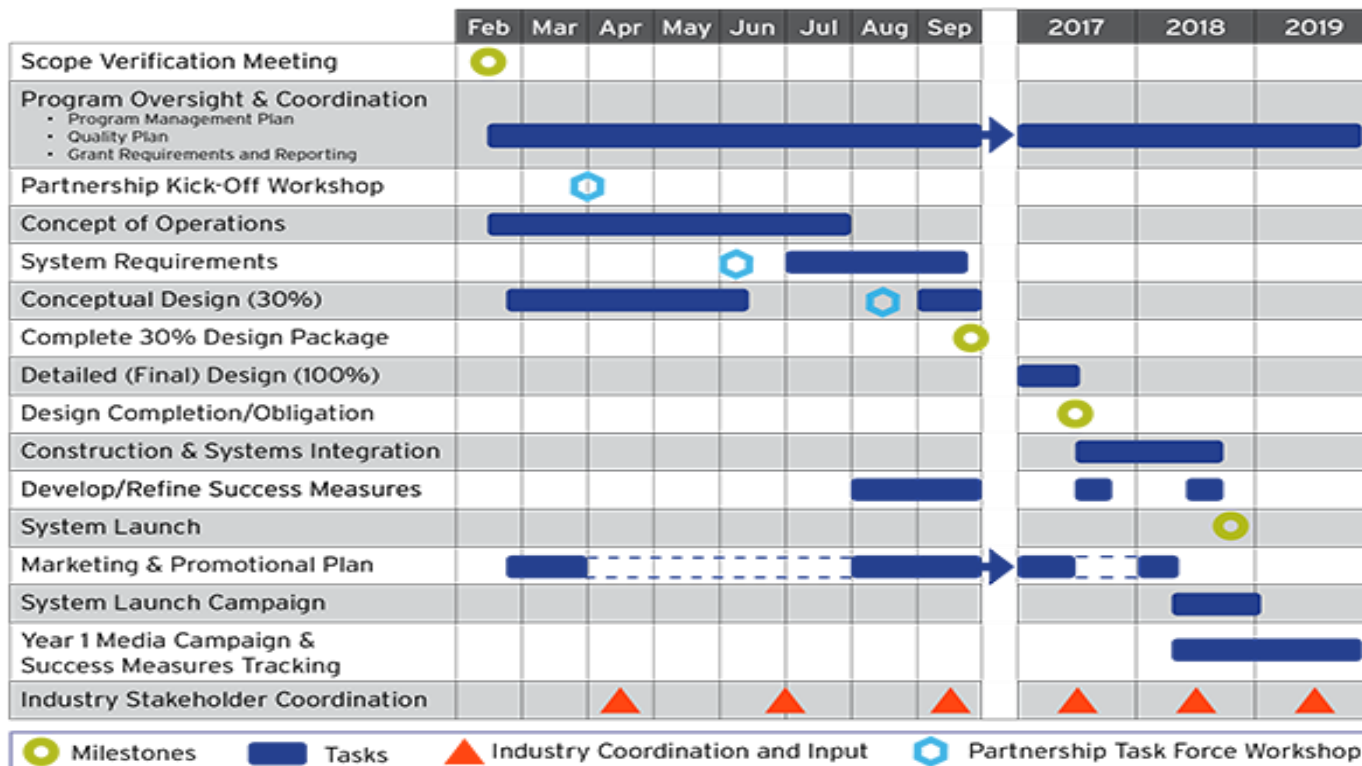
### TRUCK PARKING INFORMATION DEPLOYMENT CORRIDORS





# Schedule

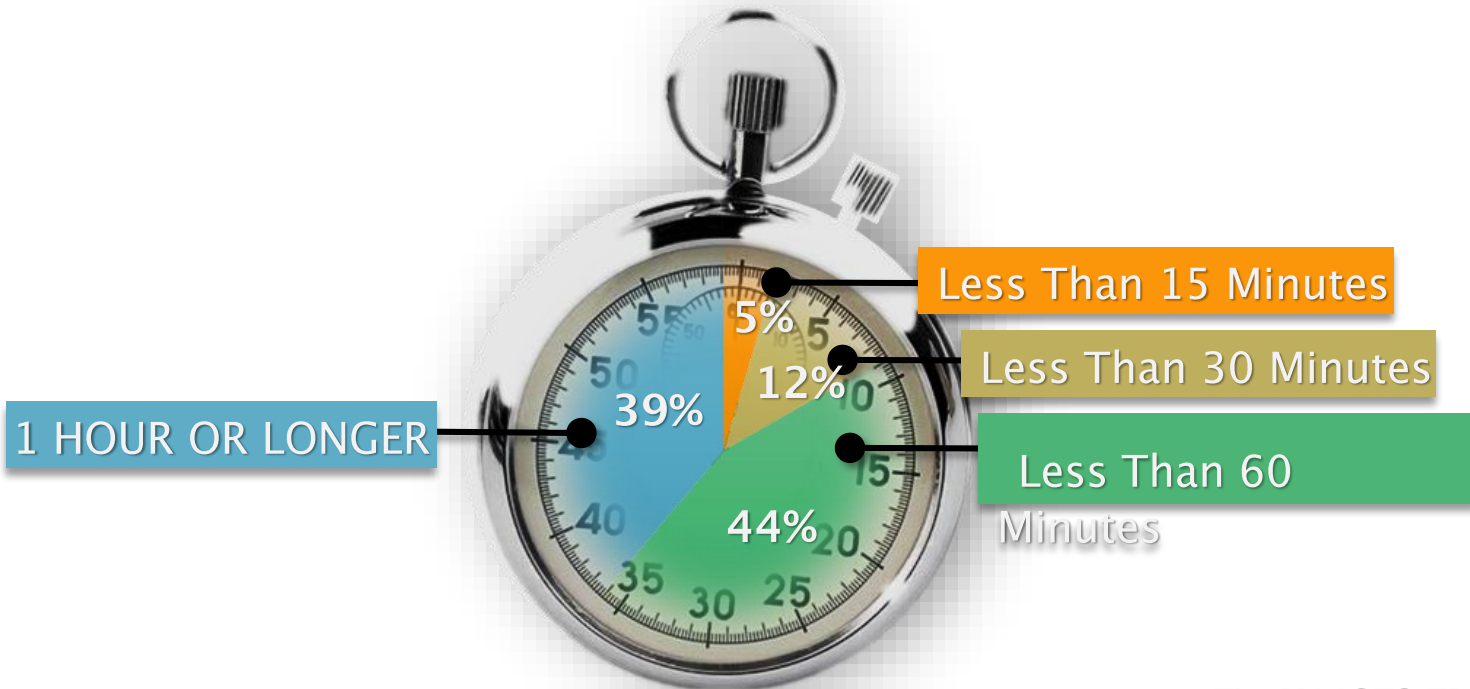
Schedule for Developing and Deploying the Regional TPIMS Project





# WHY IS TPIMS NEEDED NOW?

HOW LONG DOES IT TAKE TO FIND PARKING?





# The impact is widespread

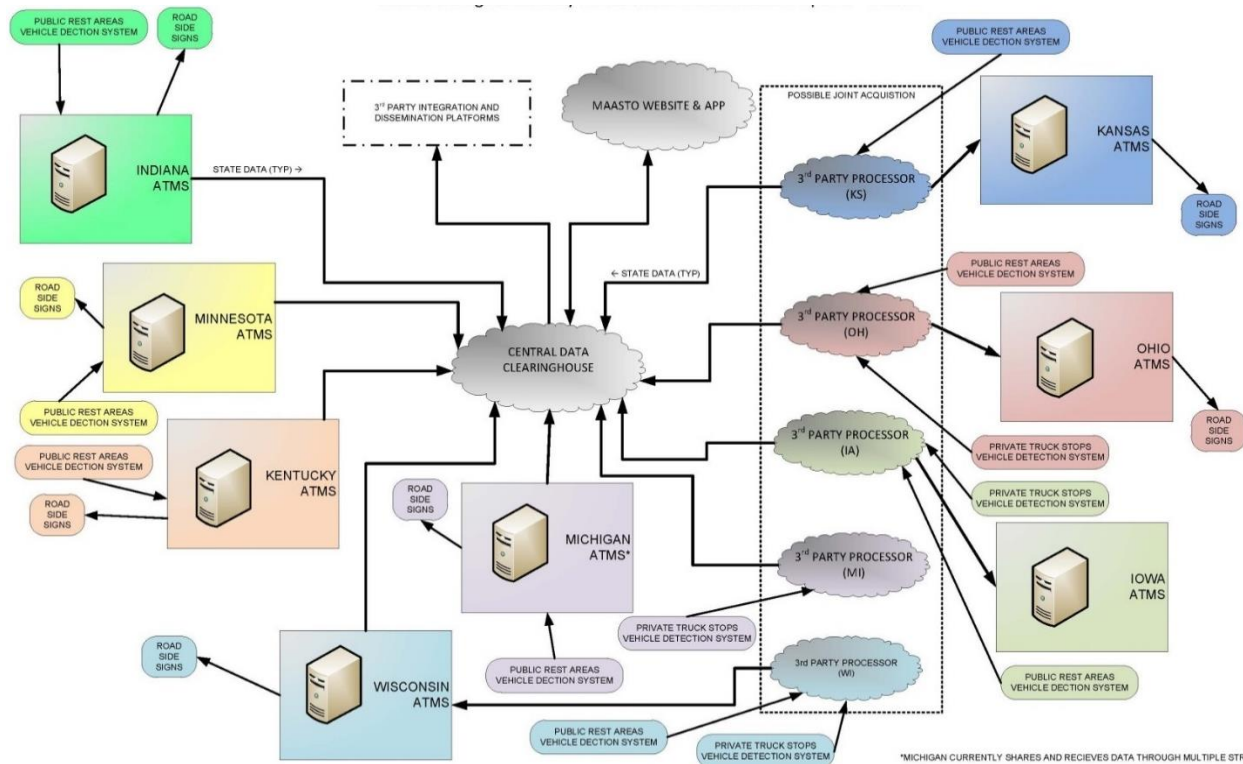
## Parking issues affect most truck drivers:

- 95% primarily park illegally due to lack of parking
- 90% perceive a moderate to severe parking shortages
- 80% report regular difficulty finding safe truck parking
- 50% of states report illegal truck parking problems





# WHAT IS THE SOLUTION?







# Core functions, state needs

Functions	Type	Iowa	Ohio	Michigan	Kentucky	Wisconsin	Indiana	Kansas	Minnesota
Procurement	Public	DBOM	DBOM	DBB	DBB	DBB	DBB	DBB	DBB
	Private			DBOM		Considering <sup>7</sup>	N/A	N/A	N/A
Data Collection Method	Public	Functional Requirements	Functional Requirements	In/Out	In/Out	In/Out	In/Out	In/Out	Space-by-Space
	Private					Considering <sup>7</sup>	N/A	N/A	N/A
Data Collection Technology <sup>6</sup>	Public	Functional Requirements <sup>1</sup>	Functional Requirements <sup>1,2</sup>	Magnetometer	Magnetometer	Magnetometer	Magnetometer	Radar / Video <sup>2</sup>	Evaluating
	Private			Video	Video	Considering <sup>7</sup>	N/A	N/A	N/A
Operations & Maintenance	Public	3rd Party	3rd Party	Internal <sup>3</sup>	3rd Party <sup>4</sup>	3rd Party	Internal	3rd Party	Internal
	Private			3rd Party		Considering <sup>7</sup>	N/A	N/A	N/A
	Sign Operations	N/A	Internal	Internal	Internal	Internal	Internal	Internal	Internal
Data Analytics & Sharing	Processing	3rd Party	3rd Party	In-House ATMS <sup>8</sup>	In-House ATMS	3rd Party	In-House ATMS	3rd Party	In-House ATMS
	Software	Not Developed	Not Developed	Current	Not Developed	Current	Not Developed	Not Developed	Not Developed
	Sharing Format	Availability Data Consistent	Availability Data Consistent	Availability Data Consistent	Availability Data Consistent	Availability Data Consistent	Availability Data Consistent	Availability Data Consistent	Availability Data Consistent
Information Dissemination	Signs	No Signs	Dynamic Panel	Dynamic Panel	Dynamic Panel	Dynamic Panel	Dynamic Panel	Dynamic Panel	Evaluating
	Website	State & MAASTO Website	State & MAASTO Website	State Website	State Website	State Website	State & MAASTO Website	State & MAASTO Website	State & MAASTO Website
	Application	Strong Desire for MAASTO app development	Interested in MAASTO app development	Private <sup>5</sup>	Private <sup>5</sup>	Private <sup>5</sup>	Potential integration with existing state app. Interested in MAASTO app development.	Interested in MAASTO app development	Potential integration with existing state app. Interested in MAASTO app development.



# Key TPIMS questions

- Where do you collect data?
- What data do you collect?
- How is data aggregated?
- How is data shared?
- How will users get data?



# Where do you collect data?

## Public versus private sites

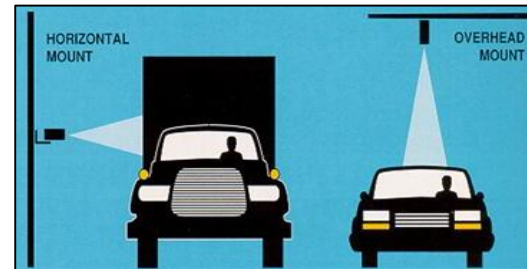
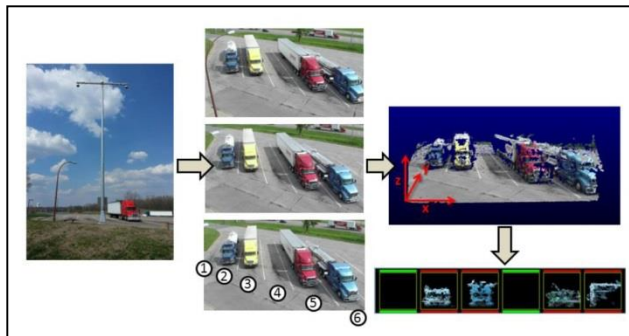
- Public sites
  - Owned, maintained and operated by state agencies
  - Rest areas, weigh stations
  - Direct access
- Private sites
  - Owned, maintained and operated by private truck stop operators
  - Indirect access



# What data do you collect?

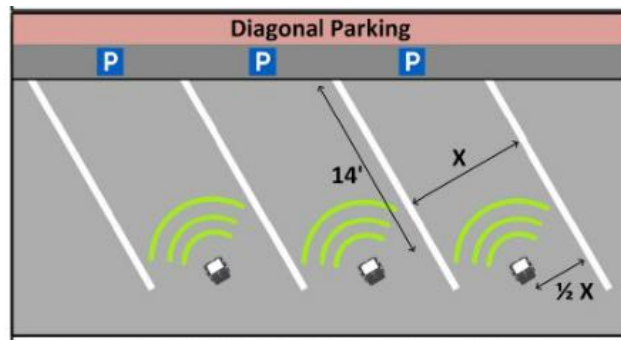
## Entrance and Exit Counts

- In-pavement magnetometer
- Video cameras
- Laser technology



## Space Occupancy Counts

- Infrared/magnetometers
- Microwave/magnetometers
- Video cameras





# How is data aggregated?

## Public versus private systems

- Public System - Integrated
  - Existing ATMS software modifications
  - Unique software updates per state
- Public System – Stand Alone
  - Separate from existing ATMS software
  - Can combine state development/operations
- Privatized System
  - Contracted; third party operates and owns data
  - Third party collects, aggregates and distributes “feed” – similar to INRIX, Nokia HERE, etc.





# How is data shared?

## Common application programming interface

- Within MAASTO Partnership vs. external parties
- MAASTO hosted or third party
- Restrictive data use vs. flexible data use
  - Who can use the data?
  - Where can the data be displayed?
  - Multiple account types

Field Position	Field Size	Field Description
0	2	State (i.e. MI)
2	6	Road Name (i.e. I5) <ul style="list-style-type: none"><li>• 0-leading padded</li></ul>
8	1	Direction (i.e. N, S) <ul style="list-style-type: none"><li>• Use side of road for off-roadway sites (i.e. use N if on NB side)</li></ul>
9	1	'E'
10	4	Exit
14	2	'MM'
16	4	Mile
20	6	TSC
26	2	'PR'

### Response (JSON):

```
[ {
  "id": "MI0000ISNEeeeeMMmmmmTABC10PR",
  "count": 45,
  "flow": "FILLING",
  "capacity": 60
}, {
  "id": "MI0000ISNEeeeeMMmmmmTABC20PR",
  "count": 12,
  "flow": "CLEARING",
  "capacity": 50
}, {
  "id": "MI0000ISNEeeeeMMmmmmTABC30PR",
  "count": 35,
  "flow": "STEADY",
  "capacity": 50
}
]
```



# How do users get data?

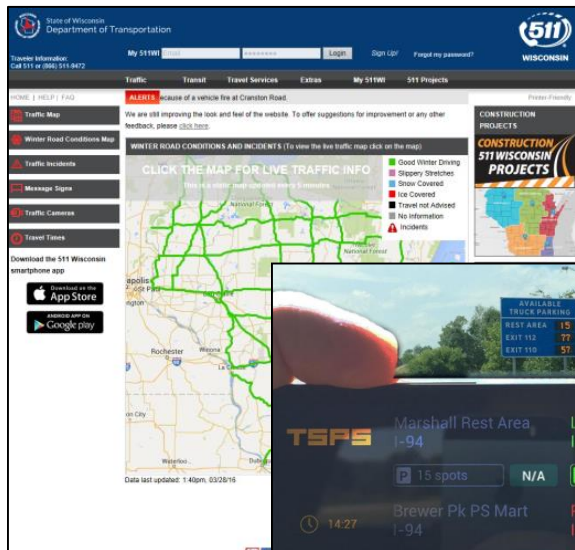
## Dynamic Messaging Signs

- Dedicated truck parking signs
- Two or three locations per sign
- Multi-purpose dynamic message signs





# How will users get data?



Interactive Voice Response System  
at 1-844-SMARTPK

The MAASTO TPIMS Project





# TPIMS decision-making

- Type of System
  - Two levels: regional and state specific
  - Individual state architectures
    - State hosted or third party?
    - Who is aggregating and sharing data?
    - Where is information disseminated?
- Roles & Responsibilities
  - Dependent on procurement, contract type
  - Monitoring data: responsibility for accuracy?
- Performance Measures
  - Parking utilization
  - Corridor safety
  - System reliability





# WHAT ARE THE NEXT STEPS?

## **8-State Partnership Task Force Coordination**

- Final TPIMS site selection (public/private)
- Technical workshops for design, procurement and ongoing O&M options
- Marketing and promotional campaign and branding

## **Outreach with Trucking Industry Stakeholders**

- Stakeholder surveys
- Engagement with ATRI, OOIDA, Mid America Freight Coalition, Highway Patrol, NATSO

## **Design, Procurement and Deployment**

- Conceptual and final design
- Marketing and promotional campaign rollout
- Procurement and ongoing O&M innovations



# Phase 2 schedule

Design-Bid-Build Schedule	Goal Date	Due Date	Notes
End of Prelim. Design	9/30/2016	9/30/2016	
Completion of NEPA	9/30/2016	10/30/2016	
Start of Final Design	10/15/2016	11/15/2016	Indiana to start Final Design after 12/17/16
Submittal of Final Design	5/1/2017	6/1/2017	
PS&E Compliance	5/31/2017	6/30/2017	
Advertise for Construction	7/30/2017	9/1/2017	
Substantial Completion	9/30/2018	9/30/2018	
Project Closeout	12/30/2018	12/30/2018	

Design-Build Schedule	Goal Date	Due Date	Notes
End of Prelim. Design	9/30/2016	9/30/2016	Ohio to initiate an early RFQ Process
Completion of NEPA	9/30/2016	10/30/2016	
Begin System Requirements & Procurement	10/15/2016	11/15/2016	
Concurrence on RFP for Design-Build Contract	12/31/2016	1/15/2017	
Selection of Design-Build Contractor	2/28/2017	3/15/2017	
Start of Construction	3/31/2017	5/1/2017	
Substantial Completion	9/30/2018	9/30/2018	
Project Closeout	12/30/2018	12/30/2018	



# Measuring success on the way

## Parking Utilization

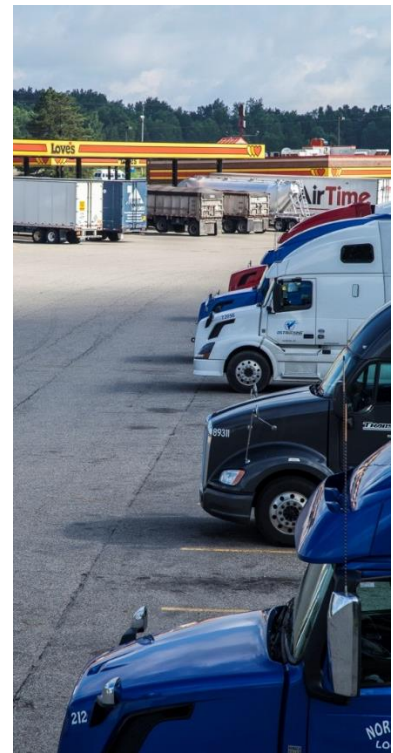
- Are drivers utilizing TPIMS to inform their parking decisions?
- Have driver-perceived parking shortages declined?

## 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?

## Benefits and Costs

- Is there a decline in the average time spent looking for parking?
- Do the improvements meet or exceed the projected BCA ratio?





# The TPIMS Vision

## Freight network users and supporters will experience:

### **Regional Consistency for Trucking Industry**

- Seamless regional look and feel for trucking industry users
- Flexibility for state-specific concepts

### **Safety, Productivity & Economic Competitiveness**

- Safer for truck drivers and general public roadway users
- Drivers & carriers more efficient and profitable
- New economic opportunities attracted to regional corridors

### **National Model for Deployment**

- Consistent concepts, messaging and technologies
- Expand pilot project to other NHS corridors and states





# TPIMS Questions?

[www.TrucksParkHere.com](http://www.TrucksParkHere.com)

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