MAASTO Regional Truck Parking

Truck Parking Information Management Systems (TPIMS)

2017 Mid-Continent Transportation Research Symposium
August 16-17, 2017

Iowa State University
Institute for Transportation

Iowa DOT

THE PROBLEM


NO STOPPING ON I-95
PEDESTRIANS BICYCLES MOPEDS PROHIBITED
701
Carroll Fulmer

ISSUES FOR DRIVERS

- Driver Hours of Service Limitations - FMCSA
  - 14 Consecutive Hour Period
  - 11 Driving Hours Limit
    - Requires 10 hours off-duty prior
  - It gets more complex after this – to learn more see link below…
  - https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/Drivers%20Guide%20to%20HOS%202015_508.pdf

- If rest areas and truck stops are full and a driver's hours are almost up that becomes problematic.
  - Continue to drive past your hours
  - Choose a less than desirable place to park

- Recent survey revealed that 83% of drivers spend greater than 30 minutes searching for parking!!

TRUE STORY

- **Jason’s Law**

- 2009 Tragedy
- Jason Rivenburg, commercial truck driver
- Had a full load for delivery in South Carolina
- He was tired and sought a spot to pull over and rest
- No rest areas or truck stops available
- Parked at abandoned gas station
- Tragically, he was robbed and murdered

- In response, Jason’s Law was drafted and passed into Law in 2012
- MAP-21, Section 1401

- Projects include a variety of options for increasing opportunities for truck parking.

SOLUTIONS

- 1. Build More Parking
  - Costly – Takes Time
  - Likely never build enough

- 2. Better Inform Truck Drivers in Advance of Parking Options

TIGER GRANT

- MAASTO Consortium (8 of 10 States)
  - Missouri and Illinois Opted out
- Applied for TIGER Grant
  - Regional Truck Parking Information and Management Systems
  - Focus on ITS technology to provide real-time data on parking availability at Private and Public truck stops and rest areas.
- Award for $25 million
  - Request: Just over $28.5 million
  - Iowa Federal Share = $3,396,323
  - Iowa State Contribution = $498,086

OVERALL PROJECT FUNDING

The project has a total estimated capital cost of $28.6 million (in 2015 dollars). It is funded through a $25 million Federal TIGER grant and state funds as shown in the table below. The multi-state collaboration will provide cost efficiencies and innovations in design, procurement and deployment across the MAASTO region.

MAASTO TPIMS Project Funding

State	Federal TIGER Grant Award	State Contribution	Total
Indiana	$4,149,750.50	$608,580.00	$4,758,330.50
Iowa	$3,396,323.36	$498,086.00	$3,894,409.36
Kansas	$3,319,800.40	$486,864.00	$3,806,664.40
Kentucky	$2,780,262.83	$407,738.00	$3,188,000.83
Michigan	$2,741,195.22	$402,009.00	$3,143,204.22
Minnesota	$1,210,326.85	$177,500.00	$1,387,826.85
Ohio	$5,356,717.98	$785,587.00	$6,142,304.98
Wisconsin	$2,045,622.84	$300,000.00	$2,345,622.84
Total	**$25,000,000.00**	**$3,666,364.00**	**$28,666,364.00**

WHAT ARE THE EXPECTED RESULTS?

- Improved efficiency, economic competitiveness and safety of the national freight network
- **Provision of safe and reliable access to truck parking**
- Reduction of overcrowding at rest areas and truck stops
- Decreased unsafe commercial vehicle parking on shoulders and ramps
- Increase drivers ability to better manage hours of service

PROJECT BENEFITS

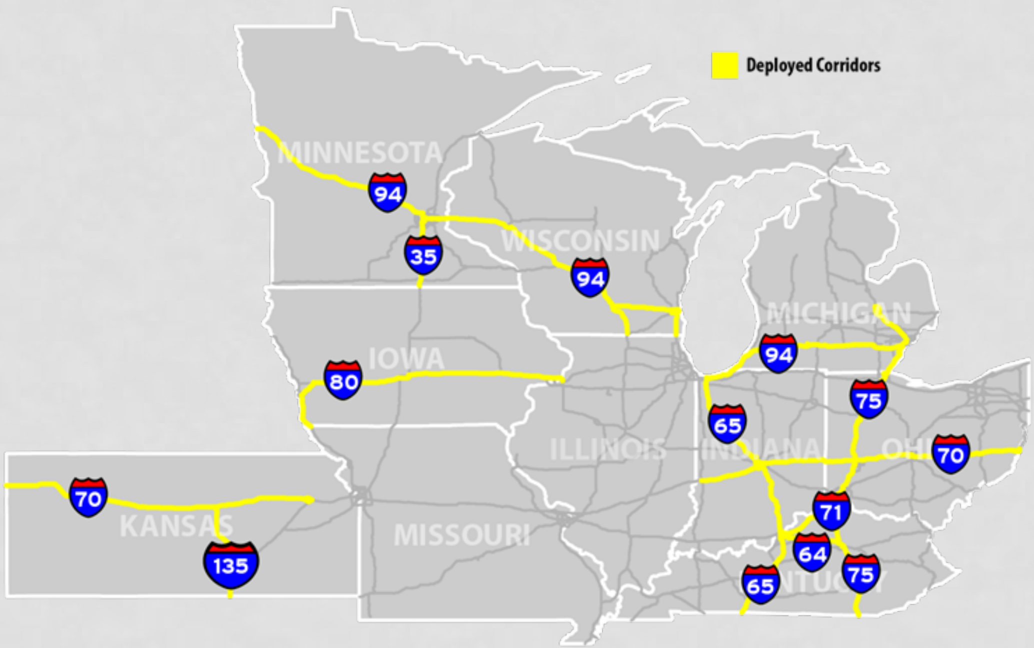
Project Benefits

The Regional TPIMS System is projected to generate more than $403 million in benefits through the life of the project. Better parking information will mean fewer non-routine maintenance repairs on highway shoulders and ramps due to illegal parking. The system will also provide more efficient movement of goods, less fuel consumption and reduced emissions by reducing time truck drivers spend looking for parking.

The search by commercial truck drivers for safe, convenient parking annually costs the country $4.4 billion and increases CO_2 emissions by 3.3 million tons.

EXTENT

TRUCK PARKING INFORMATION DEPLOYMENT CORRIDORS



Corridor	State Deployed Across	Number of Deployed Rest Areas
I-35	Minnesota	3 DOT
I-64	Kentucky	2 DOT, 2 Private
I-65	Indiana, Kentucky	13 DOT, 5 Private
I-70	Ohio, Indiana, Kansas	32 DOT, 21 Private
I-71	Kentucky	1 DOT, 3 Private
I-75	Michigan, Ohio, Kentucky	14 DOT, 23 Private
I-80	Iowa	16 Private, 21 Public
I-94	Michigan, Indiana, Wisconsin, Minnesota	16 DOT, 11 Private
I-135	Kansas	4 DOT

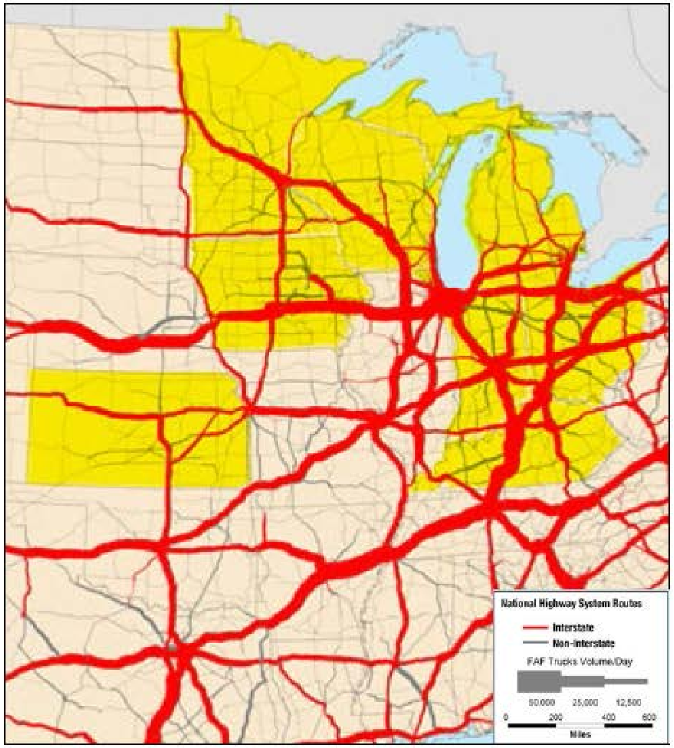
WHY MIDWEST

- Three states are already implementing systems
  - Michigan, Minnesota and Wisconsin
- Implementing existing shovel ready technologies will provide a B/C ration of greater than **4.0**.
- Already identified as a significant problem on the Midwest's congested freight corridors.
- 8 States willing to invest

- Safety Benefit
- Travel Time Benefit
- Environmental Benefit

INCREASING TRUCK VOLUME EXPECTED

2011



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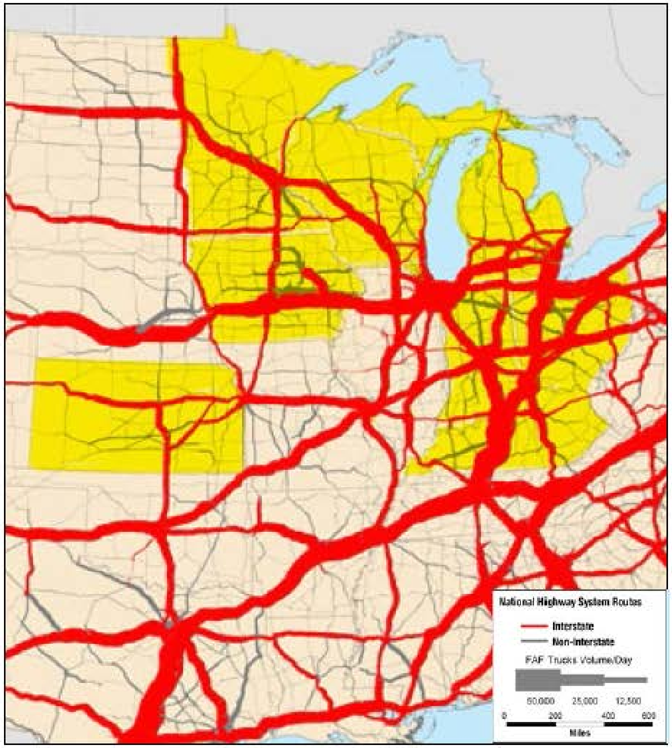


WHAT WILL IT LOOK LIKE

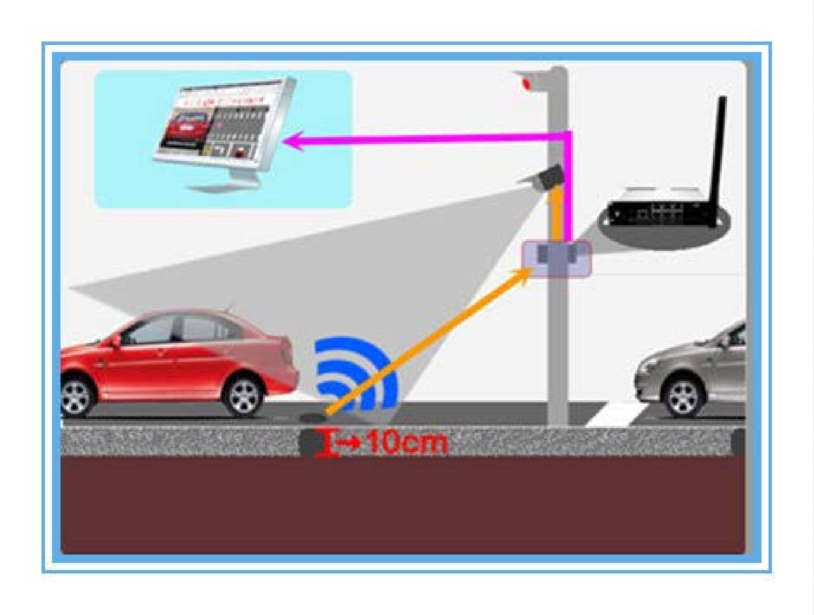
- Each state will design and implement its own system
- Regional integration is a must
- Consistent Branding
- Combination of existing technologies
  - Digital message signs (not in Iowa)
  - In cab information systems
  - Smart phone application
  - Traveler Website (511)
  - Dedicated Short Range Communication
  - CCTV
  - Presence detection systems
  - Traffic Detectors

WHAT WILL IOWA'S SYSTEM LOOK LIKE?

- Iowa will select a vendor in the next few weeks.
- Vendor will help Iowa determine appropriate technology for each location.

- A) Entrance/exit detection
- B) Space utilization

- Technology
  - Cameras
  - Radar
  - Laser
  - In-pavement detectors

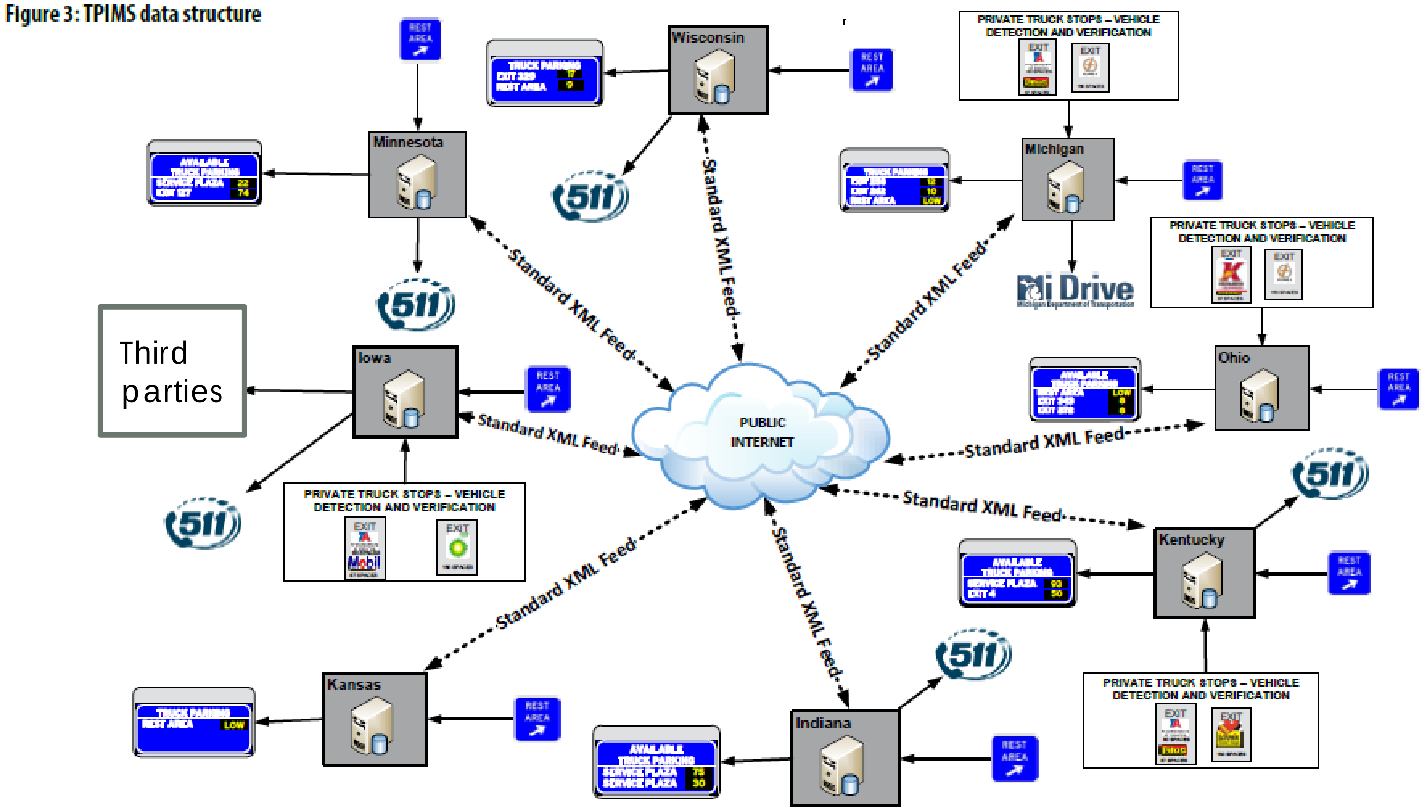


TECHNOLOGY


Smart Truck Parking
Joe's Travel Plaza
GENERAL
Open 24 Hours
Affiliated Motel
Convenience Store
Lighted Parking
Overnight Parking

ARCHITECTURE

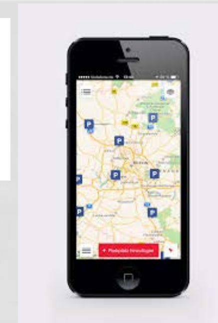
Figure 3: TPIMS data structure



HOW WILL IT OPERATE?

(GENERAL IDEA)

Truck Detection and Counting Technology

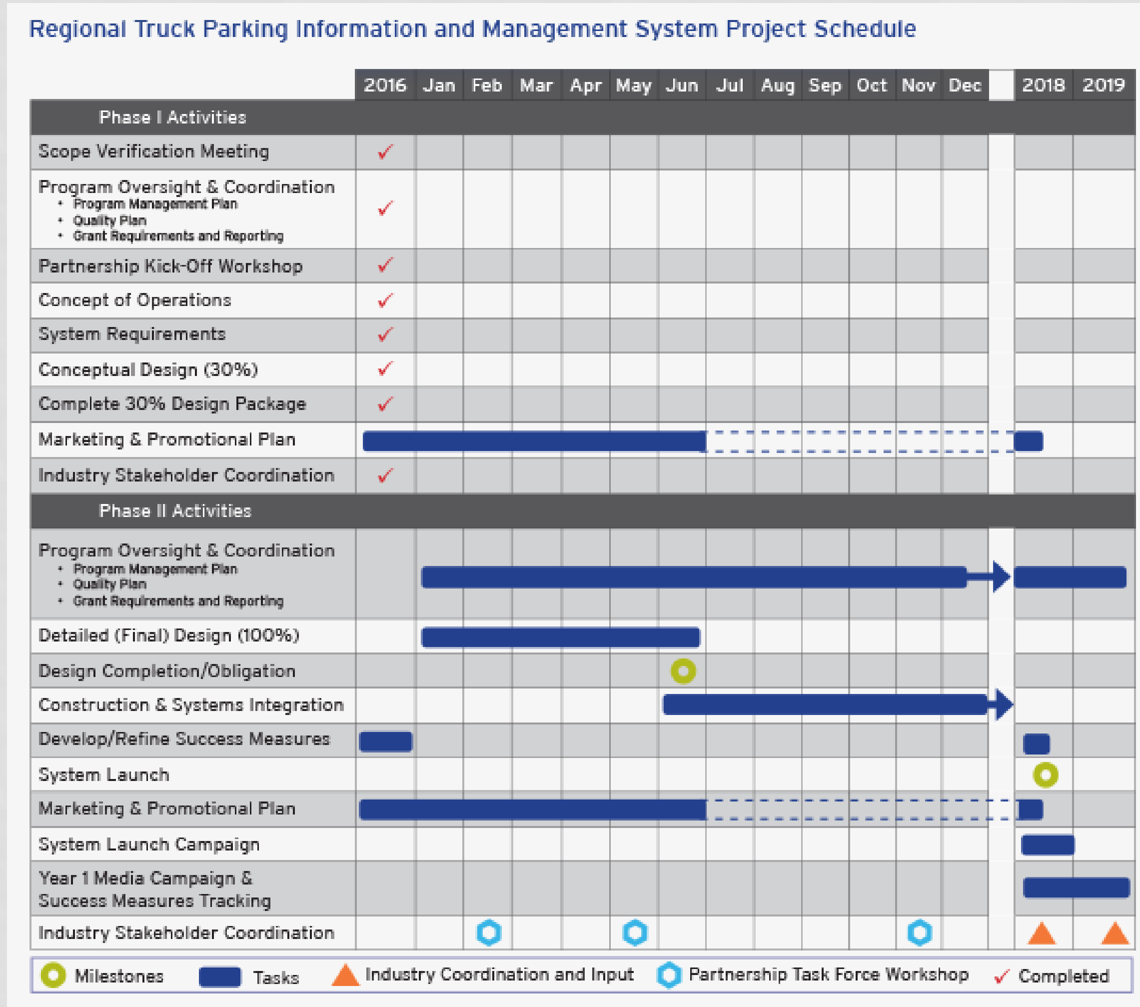


(No Signs in Iowa)

Data feed will be open for third party entities to harvest and utilize in apps or software.

PROJECT SCHEDULE

- Contract negotiations 8/31/2017
- Contract begins 9/11/2017
- Implementation and testing complete by 9/30/2018
- System burn-in by 12/20/2018
- Go Live by 1/4/2019
- Operation for three years to 1/4/2022



QUESTIONS?

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