Intelligent Transportation/Advanced Transportation System

Presentation and discussion regarding ongoing IDOT ITS projects.

Topics:

1. Overview of recent and current ITS activities.

2. Planned improvements to freight systems.

Illinois Statewide Intelligent Transportation Systems (ITS) Architecture & Strategic Plan Update

http://idot.illinois.gov/transportation-system/transportation-management/planning/index

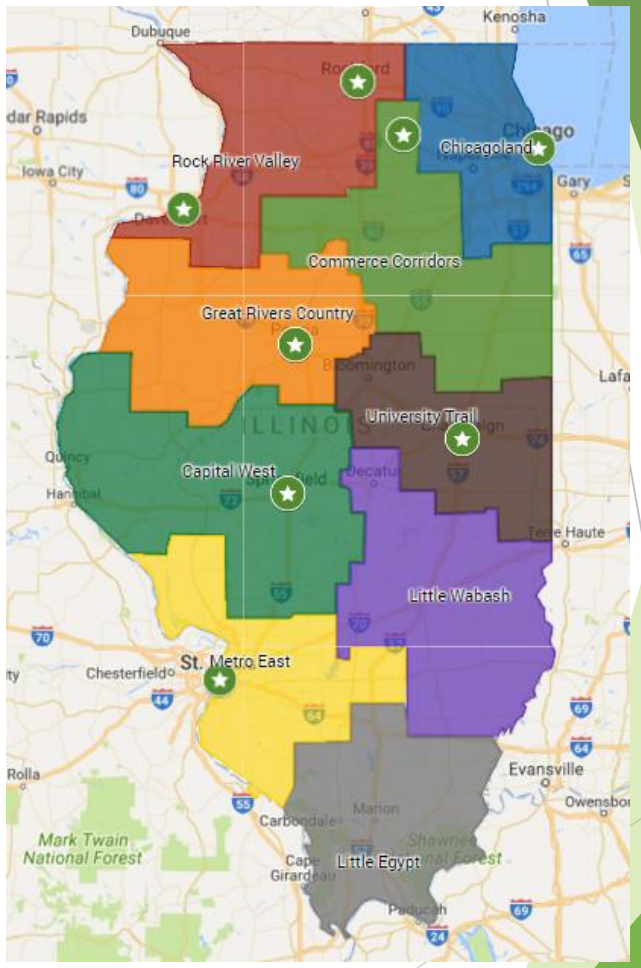
Presentation Overview

ITS Architecture/Strategic Plan Update Elements

- Update of Regional ITS Architectures
- Statewide ITS Architecture Update
- Statewide Concept Of Operations Update
- Update of Statewide ITS Strategic Plan

Project Overview:
Intelligent Transportation System (ITS) Updates

- Statewide Architecture
  - » Cross-regional, Urban
  - » Rural & Smaller municipalities
- Regional Architectures
  - » Unique local functions
  - » MPO and RPC Champions
- Strategic ITS Plan
  - » Implementation Priorities
  - » Funding Sources
  - » Deployment Timeframes



ITS Strategic Plan – Vision

- A(n updated) Vision for ITS

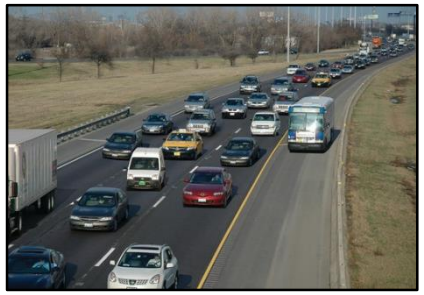
Informed choices for improved operations using technology to provide safe, secure and seamless services to the traveling public in ***real-time***

ITS Strategic Plan – Goals & Objectives

- Illinois Long Range Transportation Plan

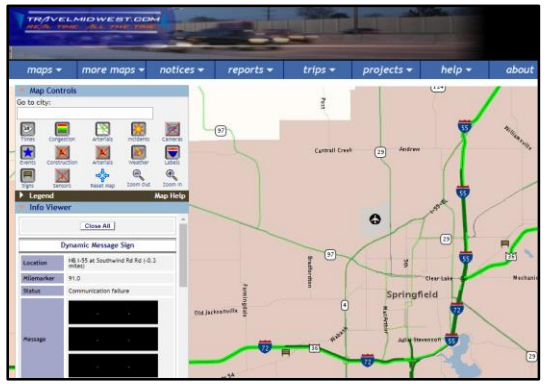
ITS Strategic Plan – Stakeholder Needs

- Updated prioritized statewide needs
  1. Enhanced interagency coordination and data sharing
  2. Enhanced data collection and monitoring capabilities for traffic management agencies
  3. Expanded communications infrastructure network
  4. Additional funding for ITS deployment, operations, and maintenance
  5. Enhanced multimodal coordination and operations



ITS Strategic Plan – Stakeholder Needs

- Updated prioritized statewide needs (cont.)
  6. Enhanced incident management programs / Incident Response
  7. Centralized operations for 24/7 traffic management
  8. Preparations for connected vehicles
  9. Stronger partnerships with private industry
  10. Improved and expanded traveler information



ITS Strategic Plan – Stakeholder Needs

- Updated prioritized statewide needs (cont.)
  11. Improved safety through use of ITS
  12. Statewide ITS standards and procurement options
  13. Improved commercial vehicle administration
  14. Advanced traffic signal systems
  15. Increased capacity of the transportation system

ITS Strategic Plan – TSMO

- Transportation Systems Management and Operation:

A set of strategies (including ITS) that focus on operational improvements that can maintain and restore the performance of the existing transportation system without the introduction of additional capacity

ITS Strategic Plan – TSMO

- Next steps
  - » Pursue development of a TSMO Program Plan
  - » Develop a TSMO workforce
  - » Establish IDOT TSMO mission, vision, and strategic areas of focus
  - » Identify actions for implementation
  - » Prioritize TSMO recommendations

Illinois Agency Freight Systems and Planned Improvements

International Registration Plan (IRP)

Administered by the Illinois Secretary of State's (ISOS) Office.

IRP (cont...)

Illinois joined the IRP Clearinghouse in 2009 and fully participates in the Clearinghouse's data sharing activities through PrePass and the CVIEW-SAFER link. Intrastate vehicle registration data is provided to PrePass and Drivewyze upon request.

IRP (cont...)

Illinois registers about 160,000 power units and 213,000 trailers annually. All IRP transactions are processed in Springfield, IL. An electronic filing system was created in 2019 for many other transactions such as additions, transfers, and replacement plates.

IRP (cont...)

Illinois SOS personnel manually verify numerous credentials and statuses prior to issuing an IRP credential, including Out-of-Service Orders from USDOT and the Heavy Vehicle Use Tax (HVUT).

IRP (cont...)

IL SOS intends to pursue a project to shift the State's IRP system to a vendor-hosted system which would reduce the need to manually verify credentials and improve communication between the various credentialing systems in the State.

International Fuel Tax Agreement (IFTA)

The Illinois Department of Revenue (IDOR) administers the IFTA program. There are approximately 17,000 IFTA-licensed carriers in Illinois. The State issued nearly 247,000 sets of IFTA decals in 2019.

IFTA (cont…)

Illinois-based motor carriers use the MyTax Illinois online system to register, file, and pay for IFTA. IDOR uses FAST Enterprise's GenTax system to process taxes and identify tax liability problems which prevent issuing the IFTA license.

IFTA (cont…)

Staff verify Illinois addresses, IRP registrations (or acceptable IL registration), and USDOT number status in CVIEW and SAFER websites prior to issuing the IFTA license.

IFTA (cont…)
Illinois through IDOR is a full participant in the IFTA Clearinghouse:

- Sends nightly updates regarding Illinois licensee statuses such as Active, Canceled, Revoked, or Suspended to the demographics part of the IFTA Clearinghouse.

IFTA (cont…)

- Uploads IFTA status files nightly to the national SAFER system, which publishes them to the State's CVIEW system.

- The State's eScreening partners (PrePass and Drivewyze) download the State's IFTA data via the SAFER system.

Unified Carrier Registration (UCR)

Illinois Commerce Commission participates in the UCR system using the UCR National Registration System. This system provides a daily report detailing the Illinois registered carriers and provides a monthly remittance to all States for the fees collected. These funds support motor carrier safety programs and the administration of the UCR program.

Oversize/Overweight (OS/OW) Permitting

The Illinois Transportation Automated Permits (ITAP) site is a robust, online platform through which carriers can apply for and receive oversize/overweight permits for movements on IDOT-managed highways.

OS/OW Permitting (cont…)

ITAP is managed in-house by IDOT. ITAP issues approximately 20,000 permits a month across all permit types (single trip, round trip, continuous operation, etc.). Carriers must register a username/password, then they can enter vehicle and load dimensions, an origin/destination and preferred routes (if any), and view route restrictions.

OS/OW Permitting (cont…)

Payment is possible by credit card, e-check, or an escrow account online, or cash can be used if the permit is applied for in-person. Carriers must have either a printed or electronic copy of the permit available in their vehicle to present to enforcement.

OS/OW Permitting (cont…)

IDOT has begun an internal update working with their CVIEW vendor Iteris to automatically check an ITAP applicant's credentials or out-of-service (OOS) status and alert IDOT personnel if an issue is discovered.

Roadside Safety and Enforcement

Illinois State Police (ISP) is the primary commercial motor vehicle enforcement agency in the State.

850 officers can perform North American Standard (NAS) Level 3 inspections which check driver and vehicle credentials, hours of service and record of duty status.

Roadside Safety and Enforcement (cont…)

78 officers are trained to do NAS Level 1 inspections which include a full inspection of the driver and vehicle. These officers conduct inspections at the State's fixed facilities as well as roadside.

Roadside Safety and Enforcement (cont…)

45 ISP Truck Weighing Inspectors operate the State's weigh stations; plans to add about 10 additional positions in the future.

Illinois has authority to operate 12 portable scale teams (2 people each) which expand the State's ability to identify problem vehicles beyond fixed weigh stations. However, current funding exists for only 9 teams.

Roadside Safety and Enforcement (cont…)

Illinois operates 29 fixed weigh stations, 20 of which are equipped with eScreening technology (PrePass/Drivewyze).

One site includes a virtual weigh station with an overview camera for identifying vehicles and three additional locations with weigh-in-motion (WIM) technology that currently are used for data collection purposes.

Roadside Safety and Enforcement (cont…)

Future improvements - The 20 eScreening sites are the focus for future eScreening technology deployment. These sites already include technology to help screen vehicles and allow enforcement to focus their efforts on those that are most likely to have an issue.

Planned Freight Projects

Illinois has developed a draft update to their Innovative Technology Deployment Program Plan/Top Level Design document. This document, when approved by the FMCSA makes these projects eligible for Federal funding. This document identifies six new projects:

1: Include Illinois Commerce Commission Data in CVIEW (Commercial Vehicle Information Exchange Window)

This project will enhance the ability of enforcement personnel to check Intrastate Operating Authority (for intrastate operations) and Tower Authority (for tow trucks) at the roadside.

Project Benefits:

Improve data quality during checks of Intrastate Operating Authority by including data within the CVIEW.

Improve efficiency of roadside enforcement by reducing querying multiple databases for vehicle/carrier information.

Faster processing during Intrastate Operating Authority checks less delay to truckers.

2: Deploy LPR/USDOT-R and Sorting Software at Roadside Inspection Sites

This project will allow enforcement personnel working at the roadside to target inspections at “high-risk” carriers and vehicles by using a LPR/USDOT-R system to query the State’s CVIEW and other available information and provide an integrated bypass/pull-in recommendation.

Project Benefits:

Allow State to identify carriers operating with a Federal out-of-service order (OOS). Currently the State can only identify these vehicles if they are enrolled in the PrePass or Drivewyze pre-clearance program or enforcement personnel visually identify the vehicle and manually query information from CVIEW.

Integrate all available eScreening data at a site into a single enforcement recommendation.

Fewer crashes/injuries/fatalities as a result of focused enforcement on high-risk operators.
Improved compliance with weight and safety regulations.

Reduced congestion at inspection areas - more efficient movement of freight.

Inspection bypass for compliant carriers resulting in time savings and improved operational efficiency.

Better customer service to safe and legal carriers and drivers.

3: Deploy Tire Anomaly and Classification System (TACS) at Roadside Inspection Sites

This will deploy the TACS at the remaining fixed inspection sites in Illinois to improve the enforcement of tire-related safety issues.

Project Benefits:

Augment safety screening to include real-time information regarding the performance of safety critical systems for commercial vehicles.

Allows compliant carriers to bypass weigh stations so the State can concentrate on higher risk vehicles.

Allows State to review a larger quantity of vehicles with less resources in the same period.

Allows compliant carriers to bypass weigh station thereby saving them costs associated with fuel and driver time that otherwise would have been expended.

4: ITAP-CVIEW Updates for Legislative Requirements

This project will ensure that legislatively mandated changes to OS/OW practices in Illinois are accommodated in ITAP and that eScreening procedures are updated to incorporate change.

Project Benefits:

Better ability to respond to legislative mandates regarding OS/OW permits.

Reduced congestion at inspection areas - more efficient movement of freight.

Inspection bypass for compliant carriers resulting in time savings and improved operational efficiency.

Better customer service to safe and legal carriers and drivers.

5: Deploy Vendor-Hosted IRP System

This project will design and deploy a vendor-hosted, web-based electronic credentialing interface for the State's existing IRP system.

Project Benefits:

Increased efficiency of IRP processes.

Reduced administrative costs.

Reduce time necessary to process IRP renewals.

Improve customer service.

Reduce labor costs.

6: Automated Truck Electronic Inspection Research and Deployment

This project will research how States can implement inspection of vehicles equipped with automated driving systems (ADS) and create a pilot deployment site to test technology, operations, and other associated elements.

Project Benefits:

Improved safety derived from attributes of automated driving in defined operational scenarios

Improved accuracy of the data found in Illinois' CVIEW system

Improved efficiency by safety leveraging vehicles for longer periods of time

IDOT Truck Parking Information Management System (TPIMS) Project

TPIMS

IDOT Truck Parking Information Management System - Focused on IDOT Public Rest Areas

Will include:

- Improved Video Security System
- Electronic Information Kiosks
- Automated Truck Parking Counting Systems
- Cameras to verify Truck Parking Counts
- Provide data via Websites and Truckers Apps

Truck Parking Counting System

Two primary ways to determine available parking at a rest area.

In/Out Counting – detect truck volumes entering and exiting the truck parking lot within the plaza.

Stall Occupancy Detection – detect presence of a truck parked in a stall.

TPIMS

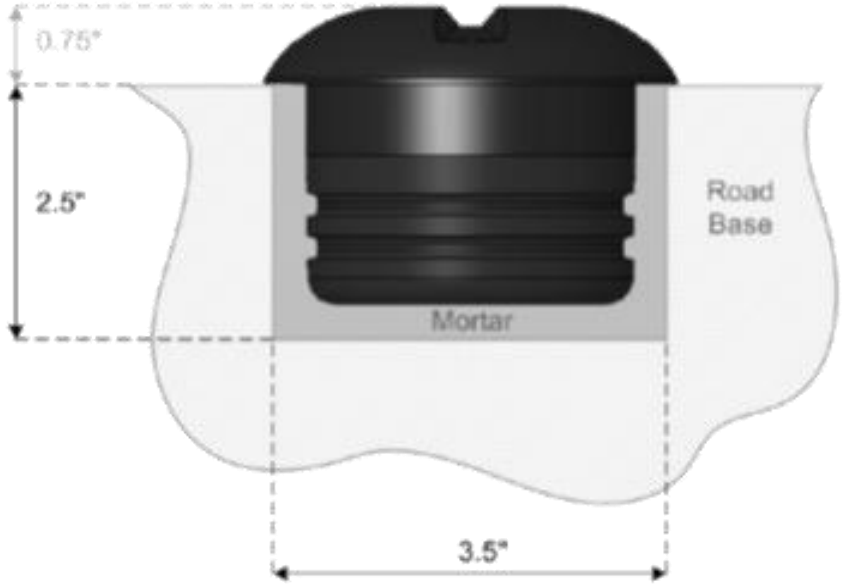
Height Sensors - Optic beam sensors installed at the entrance and exit ramps detect and classify vehicles by their height, and provides In/Out truck counts to determine parking occupancy.

Source

Detector

TPIMS

- Magnetic/Infrared sensor pucks installed under truck parking bays sense presence of trucks to provide stall occupancy.

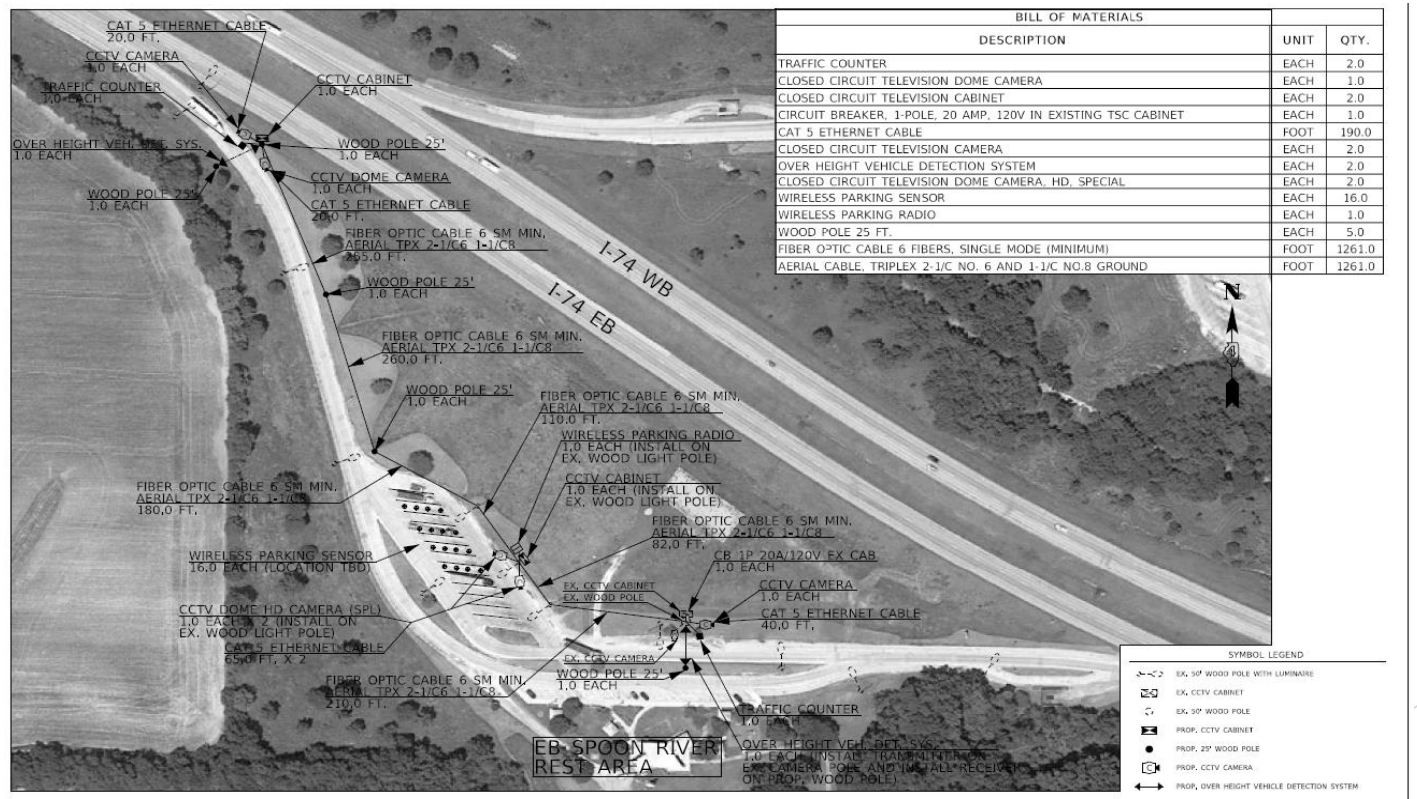


TPIMS

CCTV cameras will collect video to be used for system verification, fine tuning, and to collect parking occupancy images for website and app distribution.

TPIMS

Installed in the EB Spoon River Rest Area I-74, 12 miles East of Galesburg (Mile Post 62)



TPIMS

We will use IDOT traveler information websites and 3rd party Apps to disseminate the information. This information will include parking availability and camera snapshots.

TRUCK PARKING USA
the trucker community

ROADBREAKERS
OVERNIGHT TRUCK PARKING APP

TRUCKER PATH

IDOT Station One project

an improved communications/incident management center in Springfield Hanley Building (replaces old Station One facility).

Also developing an expanded SW ITS Communications Network to better connect IDOT District Traffic Management Centers to Station One.

SW ATMS Study

We also have a current Statewide Advanced Traffic Management System (ATMS) study underway to determine the software and systems IDOT will use in the future to coordinate all of the IDOT District Traffic Management Centers and Station One, as well as coordinate with other agencies.

In-Cab Notification

In-cab safety warning systems for incidents, work zones, bridge clearance, truck parking, slowdowns, queues, etc.

We will be working with firms such as Drivewyze to share our data to provide such notifications.