

Lead States at a Glance

Nevada DOT

- Permanent WIM for high volume systems.
- Portable WIM for lower order roads.
- Remote installations are viable alternatives.
- General Packet Radio Service (GPRS) communications and solar power sources replace permanent utilities.

Florida DOT

- Pioneer of License Plate Reader systems.
- All Interstate facilities equipped with 45 mph ramp WIM lanes, 2 static scales, comfort/inspection barns & parking lots for 23-36 trucks.
- Florida DOT/MCCO and University of Central Florida researching; 3-D scanning in mainline, camera technology for USDOT Optical Character Recognition, and improved loop and sensor triggering devices.
- Demonstration sites constructed to evaluate virtual technologies.

Indiana DOT

- Unique working relationship among DOT, State Police, DOR/MCS & Purdue University.
- Evaluation of VWIM technology with remote cameras technology and wireless communications for enforcement screening.
- Data analysis for trend identification and targeting enforcement activities.

North Dakota DOT

- Increased emphasis on WIM sites vs. fixed scales.
- Statewide implementation of WIM for increased data collection and mobile enforcement.
- 12 Mainline WIM sites - wirelessly communicating with enforcement vehicle.

California DOT (Caltrans)

- 1/6 of WIM sites in the country.
- Pacific Rim significant ports: freight bound for other states/countries.
- Evaluating VWIM technology with LPR in highway speed mainline application.



VWIM Lead States stand ready to offer more information. Contacts are:

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AASHTO

Technology Implementation Group

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Virtual Weigh-In-Motion

A "WIM-win" for Transportation Agencies, Industry, and the Public

A focus technology of the AASHTO TIG championed by the VWIM Lead States Team:

North Dakota, California, Florida, Indiana, Nevada



AASHTO TIG and Virtual WIM

The Technology Implementation Group (TIG) of the American Association of State Highway and Transportation Officials (AASHTO) shares high-payoff, market-ready technologies among transportation agencies through its Lead States Teams. The goals: promote technological advancements in transportation, sponsor technology transfer efforts, and encourage implementation.

The TIG chose Virtual Weigh-in-Motion (VWIM) as a focus technology because several States sparked a non-traditional use: wirelessly linking WIM information to a highway patrol officer's laptop in his or her vehicle. The application of "virtual technologies" demonstrates an innovative approach to solving size and weight enforcement issues that ranges beyond the WIM traditional role in data collection and vehicle classification.

Why VWIM; Why Now?



Indiana's Seymour Weigh Station, May 9, 2006: Backups like this make the case for VWIM; it developed 10 minutes after the scale house opened. Trucks are forced to bypass because the station weighing them can't handle the throughput.

"Over the next 20 years, truck tonnage is expected to double in the U.S., a rate more than five times that of population growth."
Texas Transportation Institute

What's new? Virtual WIM for weight compliance, screening & enforcement

Virtual WIM, or Virtual Weigh Station, is non-intrusive, unmanned, automated data collection—real time data from a distance. The technology augments fixed scale stations, but doesn't replace them. A VWIM system may include wireless communications, remote cameras, electronic transponders, optical character recognition (OCR) cameras, and/or license plate reader (LPR) technology to support enforcement. The strength of Virtual WIM technology is its flexibility to screen targets, focusing on vehicles in violation.

VWIM at Work

Virtual WIM technology expands the typical Weigh-in-Motion system beyond its standard capabilities to identify the number of axles, vehicle length and classification, and weight. The VWIM may incorporate:

- Wireless communication to transfer data to weight and size enforcement officers.
- Remote cameras to capture and transmit images of non-compliant vehicles.
- LPR and OCR technology to verify vehicle identification.
- 3-Dimensional imaging to identify over-size/overdimension vehicles.
- Satellite communications and solar power sources to eliminate requirements for permanent utilities.
- Electronic pre-clearance transponder systems (PrePass, NorPass, GreenLight, etc.) to provide real-time verification of vehicle credentials against State & National databases, reducing unnecessary delays. In some States, transponder systems are linked to WIM at scale facilities.

Electronic credentialing helps, but future growth demands VWIM to screen for violators so non-violators can move on down the road.

Virtual Weigh-in-Motion: A "WIM-win" for Transportation Agencies, Industry, and the Public



Florida license plate reader

	For DOTs & Law Enforcement	For Industry	For the Public
Increases:			
Enforcement activity	✓		✓
Personnel efficiency	✓		
Data collection	✓		
Design accuracy	✓		
Freight movement	✓	✓	✓
Asset management	✓	✓	
Rewards to legal carriers	✓	✓	✓
Penalties to offenders	✓	✓	✓
Safety	✓	✓	✓
Security	✓		✓
Mobility		✓	✓
Commerce	✓	✓	✓
Reduces:			
Right-of-way costs	✓		✓
Infrastructure cost	✓		✓
Construction costs	✓		✓
Operating costs	✓	✓	✓
Labor costs	✓	✓	✓
Maintenance costs	✓	✓	✓
Delay & idle time		✓	
Freight delivery times		✓	✓
Fuel consumption	✓	✓	✓
Pollution		✓	✓
Congestion	✓	✓	✓