

PROPOSED ITEM: OTH-25.1



NCWM

2.26 Weigh-in-Motion Systems Used for Vehicle Direct Enforcement

2026 Interim Meeting | January 11-14

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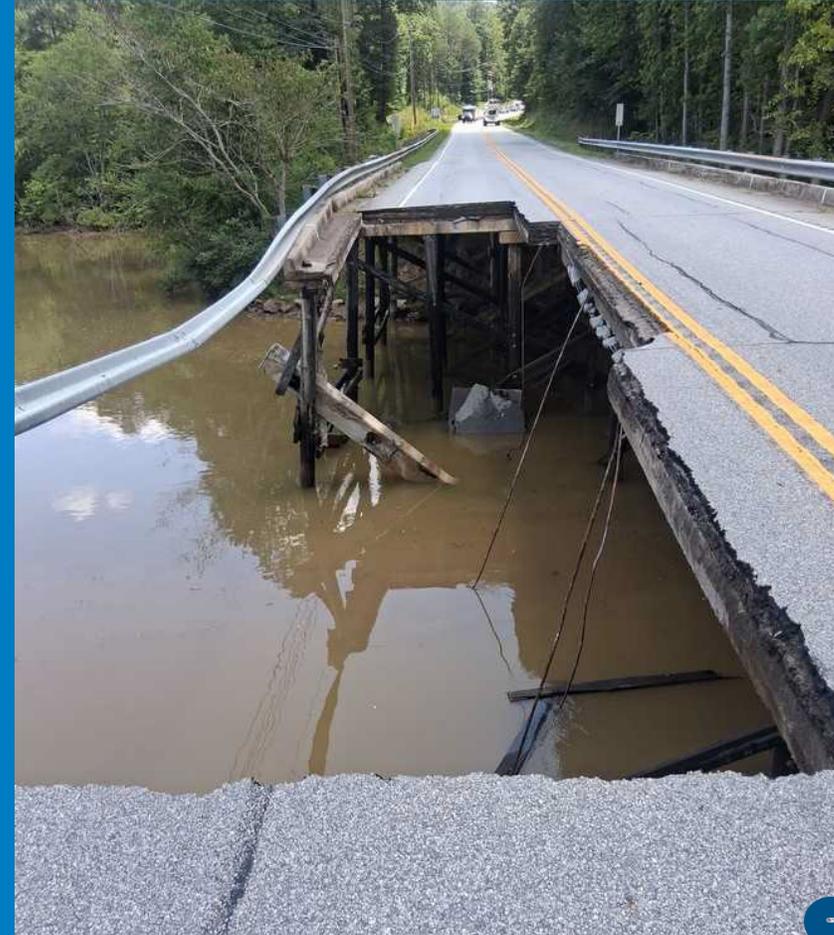
Original Proposers:





WHY WEIGHT ENFORCEMENT?

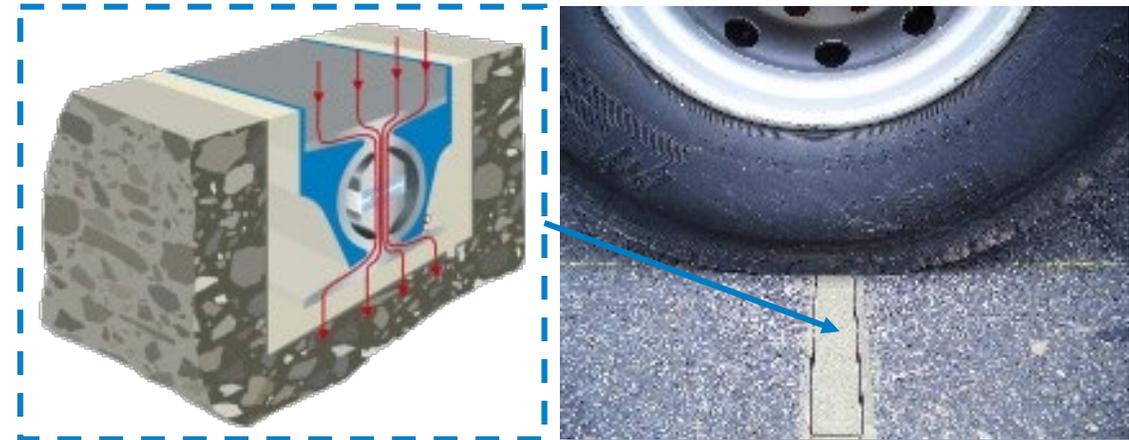
- About **half** of US bridges have reached the **end of design life** and are carrying **higher traffic loads** than originally intended
- The **AASHTO** manual for bridge evaluation stipulates that load rating calculations assume **effective weight enforcement**
- Despite this, upwards of **15% of trucks or more are overweight** – often untracked by authorities
- Conventional roadside **enforcement** of overweight trucks can be **challenging** due to **volume, space, time and resource constraints**
- WIM **direct enforcement** improves public safety and reduces **catastrophic damage** to our infrastructure



Bottom Line: Effective enforcement solutions are required to maintain safety

WHAT IS WIM?

- Device(s) installed in road surface that measures vehicles in motion – including count, class and speed & weight data
- WIM technology was introduced in the 1980's and technology has steadily advanced over time (hundreds of systems in use nationwide)
- Various technologies are available including load cells, bending plates, strain gauge strip sensors and quartz piezo sensors (shown right)
- Lots of information available via the Federal Highway Administration (FHWA) pocket guide, the International Society of Weigh-in-Motion (ISWIM) and a special publication written by NIST



WIM APPLICATIONS



Traffic Data Collection

- FHWA statistics (count/class)
- Freight analysis
- Highway costing / forecasting
- Road safety evaluation



Enforcement Screening

- Overweight vehicle screening
- Permit compliance checks
- Tire screening
- Supplements law enforcement



Direct Enforcement

- Weight record and images recorded
- Records screened by authorities
- Thresholds set by state policy
- Violations issued without traffic stop



BQE EXAMPLE (NYCDOT)



Captures all traffic (not just some)



Overcomes spatial constraints



Achieves maximum throughput



Eliminates logistics hurdles



Minimizes traffic disruption



Protects our infrastructure



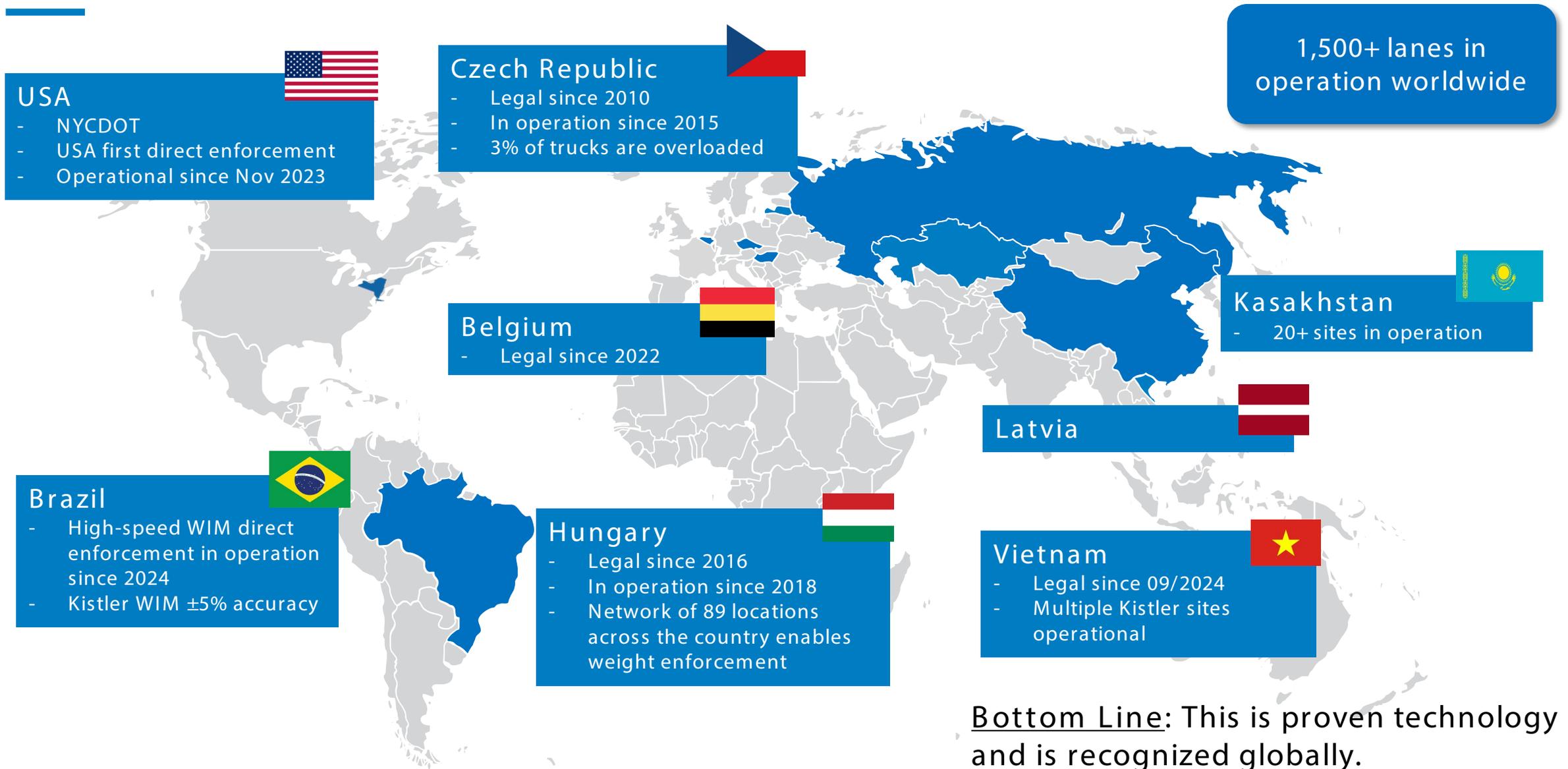
Improves enforcement capability



Bottom Line: Certain applications like BQE are a necessity...



DIRECT ENFORCEMENT GLOBALLY



KEY CONSIDERATIONS



Standardization is key, not participation



Not all WIM is for direct enforcement



Accuracy class is a design factor



Site designs vary based on infrastructure



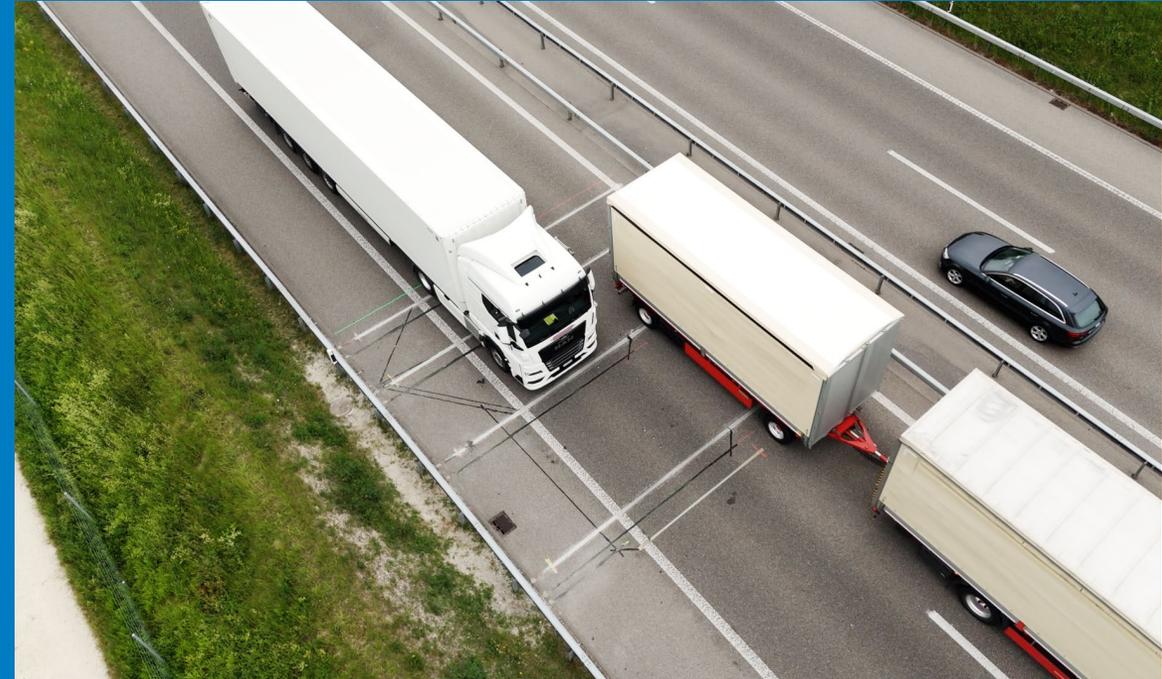
Solutions exist for vehicle dynamics



Each site is certified for accuracy



Violation threshold is a policy decision



Bottom Line: Direct enforcement is a purpose-built WIM application and needs its own category in Handbook 44

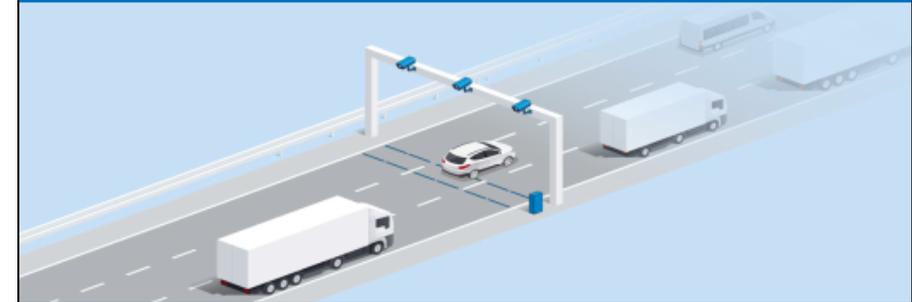
Q&A / RESOURCES

- Thank you for your time and attention
- We are happy to now take Q&A from the audience
- Please visit our booth for more information
- To contact us, please email info@ipewg.com
- Thanks for your consideration in a voting status for this item

Original Proposers:



PROPOSED ITEM 25.1 – NEW SECTION 26.2



Weigh-in-Motion Systems Used for Vehicle Direct Weight Enforcement

What is Weigh-in-Motion (WIM)?

Weigh-In-Motion (WIM) is the process of measuring the dynamic tire forces of a moving vehicle to determine the corresponding static tire loads, axle weights, and gross vehicle weight while the vehicle is traveling at speed, without requiring the vehicle to stop.

How is WIM used?

There are a variety of use cases for WIM, ranging from traffic data collection (volume & vehicle classification) to pre-selection (pre-screening at weigh stations) to direct enforcement (like speed enforcement but for overweight vehicles). Each of these applications is unique in design & operations and have different requirements based on performance requirements.

How will this change affect Weighs & Measures?

For WIM applications that are used for direct enforcement applications, W&M will need to oversee the certification process to ensure systems remain within tolerance. For non-direct enforcement applications, the process will remain unchanged. It's expected that very few WIM applications will be used for direct enforcement compared to sites used for traffic data collection, for example.

Why does handbook 44 need to be updated?

Currently the handbook does not recognize a process for direct weight enforcement, only WIM applications for WIM for applications as noted. Without a common standard, states will be forced to establish their own criteria without key input from W&M, resulting in an ad-hoc process with little industry standardization.

Where is WIM direct enforcement used today?

Direct weight enforcement using WIM is in practice globally, including the United States, with more than 1,500 lanes in operation over the last 10 years. Our proposed change to handbook 44 incorporates significant input from industry on lessons learned, best practices and continuous quality improvement from these systems.