RE-ENGINEERING ROAD NETWORKS THROUGH ON-BOARD MASS (OBM) SYSTEMS

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My presentation

1. Defining performance based requirements for OBM
2. Creating disruption through mass data
3. Re-engineering road networks
Defining performance based requirements for OBM
OBM Systems

...commonly referred to as weigh scales or electronic weighing systems
Defining performance based requirements

On-Board Mass (OBM) System
Functional and Technical Specification

Released in April 2017

Freely available on our website
A focus on performance outcomes

- Physical Characteristics
- Environmental Characteristics
- Data Collection
- Record Generation
- Functionality
- Data Storage
- Data Security and Transfer
- Interconnection to a Telematics In-Vehicle Unit
- Installation, Calibration, Operation and Maintenance
A focus on performance outcomes

Our philosophy...

• *Performance-based* focus on required *outcomes*

• Innovation is encouraged!

• Performance outcomes can be achieved with:
  o OEM-fitted or an after-market products
  o ‘Shared components’ providing comparable functionality
  o Quality management system approach to calibration to maintain accuracy
A focus on performance outcomes

A key requirement of the Specification is accuracy:

The *axle group mass* shall not deviate from the *absolute axle group mass* by more than 2% of the maximum permissible mass (i.e., the legal mass limit for an axle group) of the axle group for 98% of observations.
Performance assessment

In May 2017 TCA began accepting applications for OBM Systems for type-approval.

1. A probity and financial assessment of OBM System suppliers

   *A critical indicator of business continuity and support expected by stakeholders*

2. A functional and technical assessment of OBM system ‘types’

   *To determine whether all performance requirements for a type-approved OBM System can be satisfied*
Performance assessment

The first type-approved OBM Systems became available in August 2018.
Creating disruption through mass data
The challenge...

Heavy vehicle access policies are challenging because of competing priorities

Asset life, productivity and safety outcomes are often in conflict
The challenge...

Heavy vehicle road use data is not consistently available to inform access decisions
The challenge...

Where data are available, conventional methods are typically limited to provide ‘point-based’ data collected methods.
The collection of data from in-vehicle technologies presents new options.

Access to location, configuration, mass and speed data across the network changes the paradigm.
Re-engineering road networks through OBM
Re-engineering road networks

Infrastructure managers and regulators are looking at ways to re-engineer the road network.

This is not about *physical engineering*...

...but the way we *engineer the most effective use of road infrastructure*.

Significant productivity gains can be derived *without* major investments in new infrastructure.
Re-engineering road networks

Heavy vehicle access is based upon a number of assumptions made by infrastructure managers.

Decisions about access often come down to a *conservative* set of assumptions...

...especially when it comes to mass loadings.

Loading assessments of bridges are typically based on *peak loads*, which leads to access constraints.
Re-engineering road networks

The Australian Standard for bridge assessment (AS 5100.7:2017) was updated in 2017.

The updated Standard incorporates reduced traffic load factors for vehicles monitored through the IAP and OBM Systems.

Bridge load factors reduced from **2.0 to 1.6** for monitored vehicles.
Re-engineering road networks

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Understanding the shift

Road & bridge access/vehicle size, type & mass

What’s sought
(by industry)

What’s possible
(by road managers)

What’s currently provided
(by road managers)
Understanding the shift

Road & bridge access/vehicle size, type & mass

- What’s sought (by industry)
- What’s currently provided (by road managers)
- What’s possible (by road managers)
- OBM taps into what’s possible
What does it mean?
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What does it mean?
Questions and comments
Thanks!

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