



**Asia-Pacific
Economic Cooperation**

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On Board Mass Systems – A Win-Win

Submitted by: Australia



**Workshop on Regulating High Mass Heavy Road
Vehicles for Safety, Productivity and Infrastructure
Outcomes
Brisbane, Australia
3-6 April 2017**

On-Board Mass (OBM) Systems – *a win - win*

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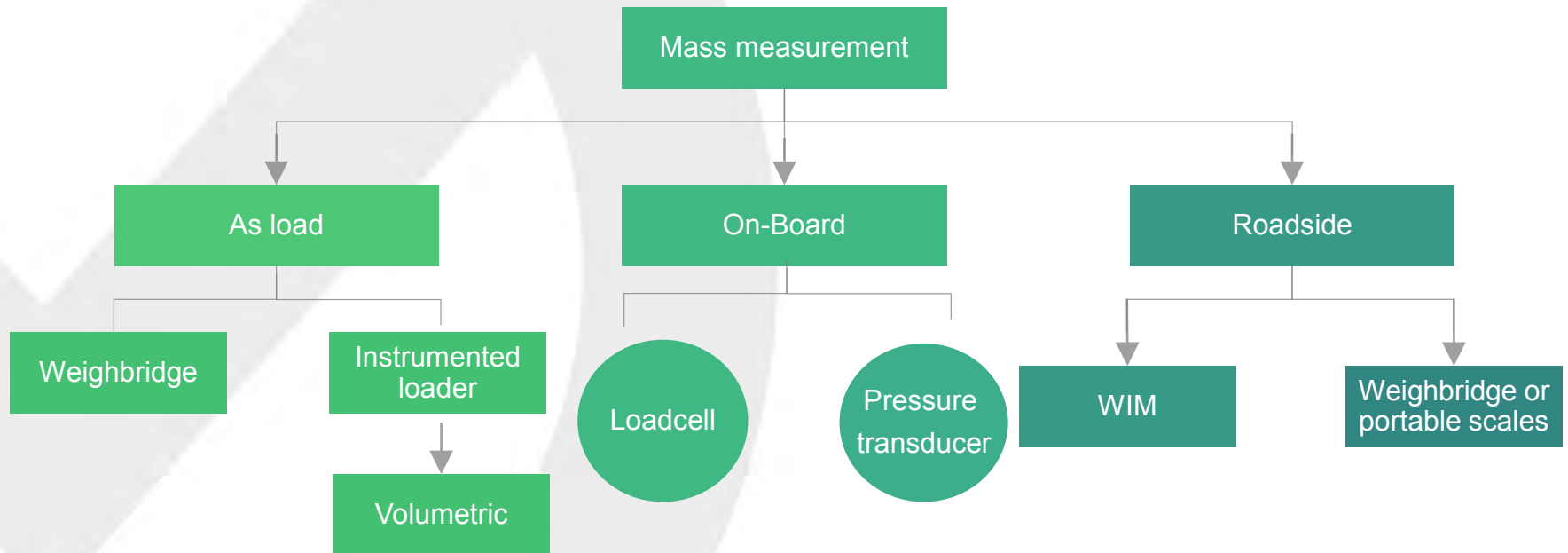
President / International Society for Weigh – in – Motion

**APEC Transportation Working Group Workshop
April 2017**

Overview

1. On-Board Mass (OBM) Systems
2. Australia's freight challenge
3. Intelligent Access Program (IAP) and OBM
4. Looking to the future

Methods of mass measurement



On-Board Mass (OBM) System

Installed on-board with the vehicle to continuously capture the mass even when the vehicle is moving



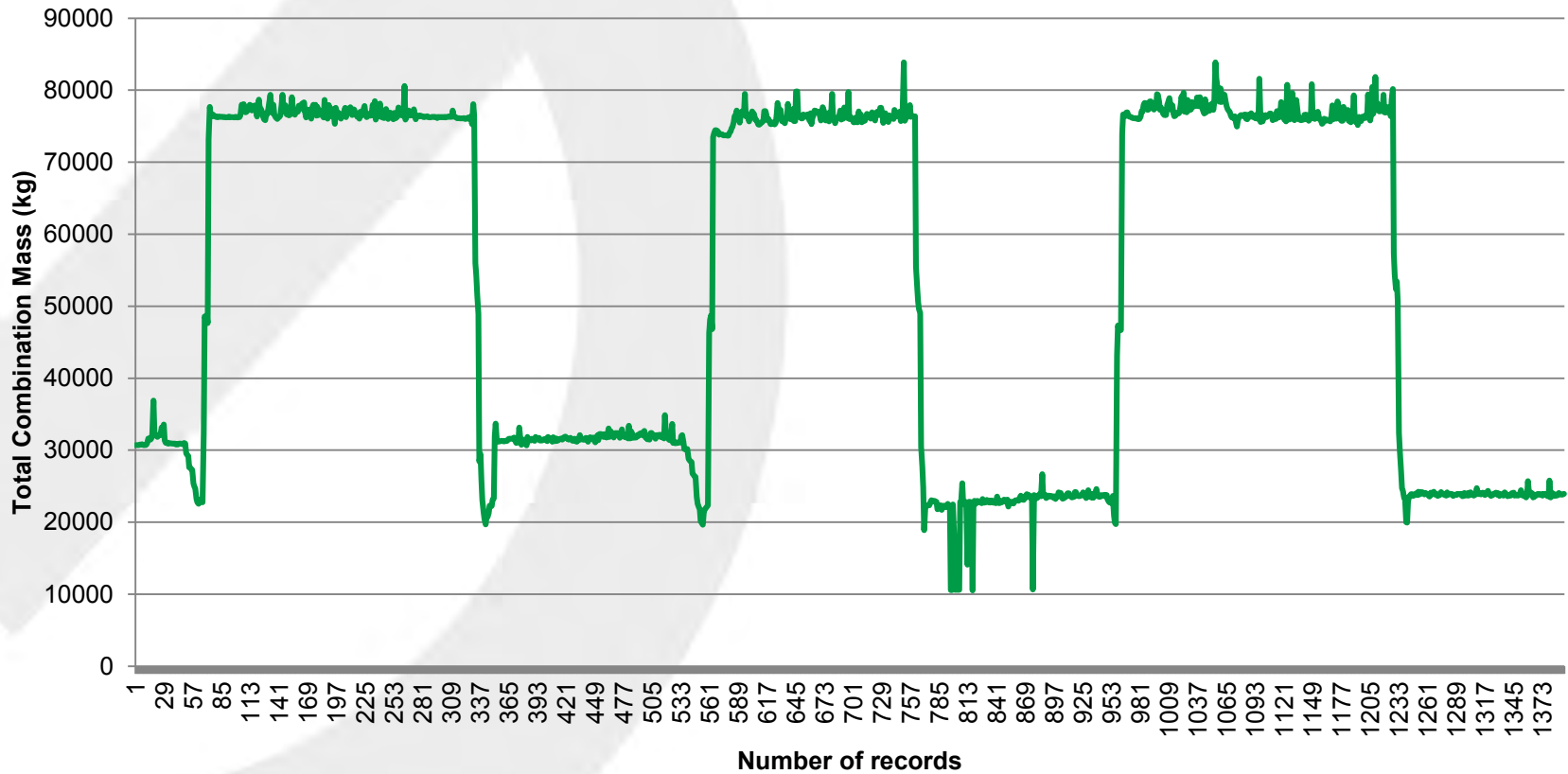
Air pressure transducer



Load cell

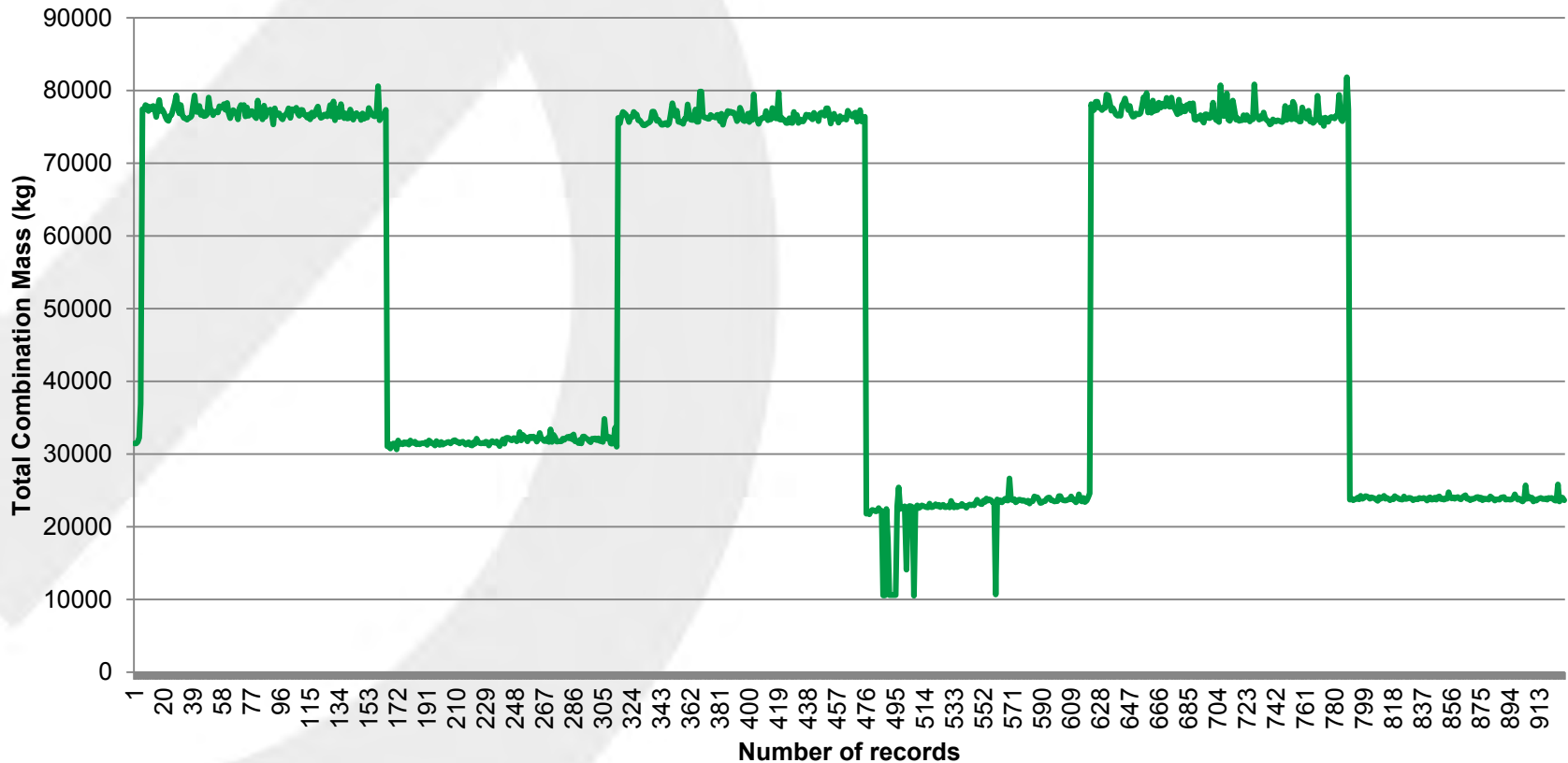
Truck total mass

Truck total mass for one day












Truck total mass with speed >20km/hr

Truck total mass with speed >20km/hr for one day



Comparison

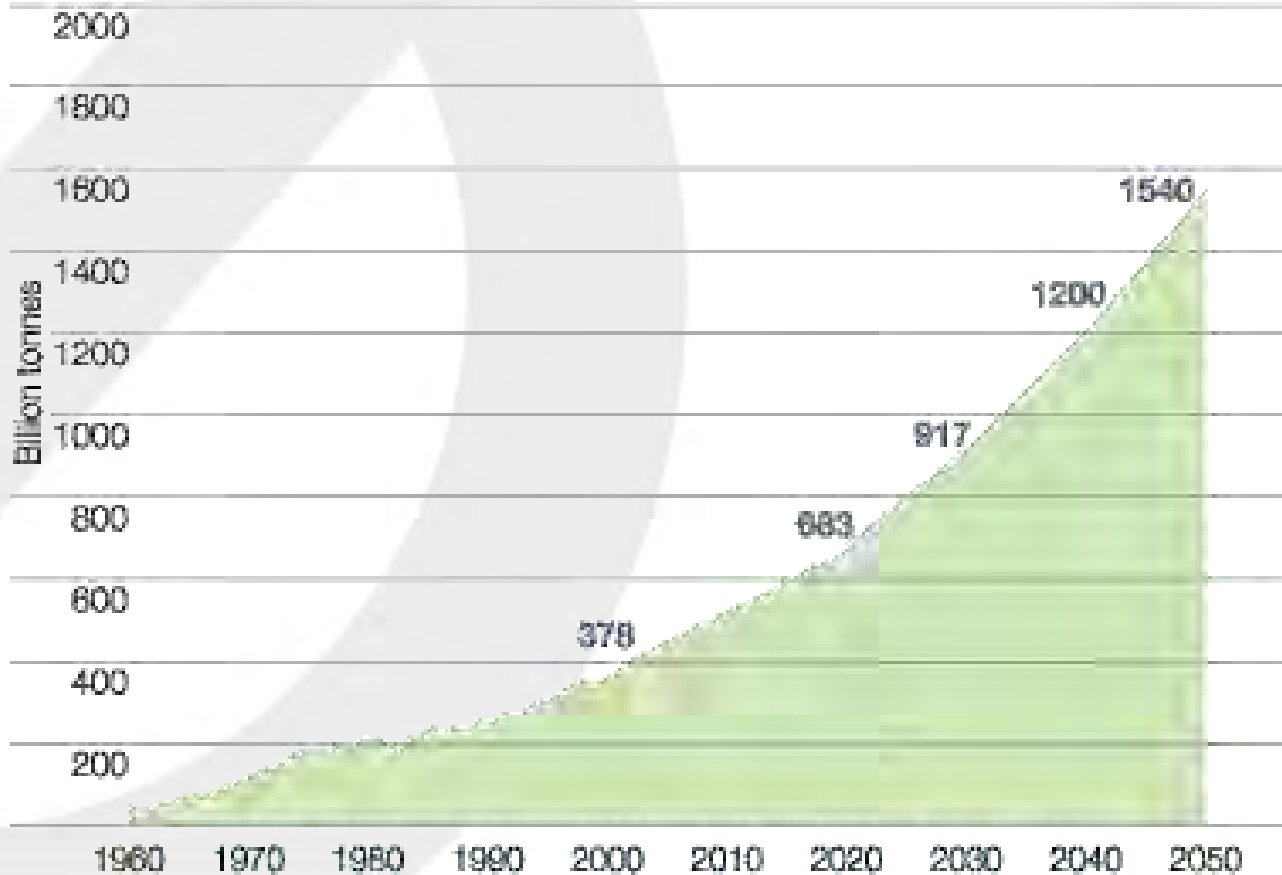
	 Accuracy	 Monitoring	 Cost
OBM	 Highly accurate	 In-vehicle	 Small unit cost per transport operator
WIM	 Very accurate	 On-road at set locations	 Larger cost per Agency site

Australia's challenges

- The Australian road network is facing challenges that are increasingly in conflict including:
 - A growing population, transport and freight task
 - Constrained road budgets
 - Pressure from industry to:
 - permit operation of existing vehicles in new ways, and
 - larger vehicles to meet demand
 - Community expectations about the safety of the road network

Challenges

Australia's domestic freight growth
Historical and projected, 1961 - 2050



Australia's challenges

- There is no alternative mode for the bulk of freight movements to warehouses, retail outlets, construction sites and homes
- Heavy vehicles offer a flexible door-to-door service.
- Only 9% of the current and projected road freight task faces competitive pressure from other modes.

What is the policy response?

Policy options:

- (1) Do nothing
- (2) Invest heavily in road infrastructure
(competition for public funds)
- (3) Get smart

Do nothing = an additional 50,000 trucks on roads
(1 in 4 vehicles in urban areas are trucks in 20 years)

Getting Smart - Intelligent Access Program (IAP)

IAP provides the strongest assurances that
the right truck....

is on the right road....

at the right time....

within the permitted speed....

with the right mass

- Increases government confidence that heavy vehicles are complying with agreed access conditions (eg location, time, speed, mass etc)
- Underpinned by legislation and system integrity to provide 'evidentiary quality' data

Managing risk

- The effective use of technology provides a negotiating platform between government and industry
- There are opportunities to ‘squeeze’ more access from vulnerable infrastructure.....
 -so long as road managers and transport operators **work in partnership** to manage risk
- There are strong examples of how reforms are being delivered

Examples of IAP access arrangements – www.tca.gov.au

IAP What's In It For Me?



REMUNDIS AUSTRALIA PTY LTD WASTE SOLUTIONS

"The IAP is terrific because of its effectiveness as a compliance and access tool."



EVOLUTION OF A BUSINESS RELATIONSHIP WITH BRISBANE CITY COUNCIL

Thiess Services secured its first waste management contract with the Brisbane City Council (BCC) in 1984. This partnership remains in place today, with REMUNDIS Australia assuming responsibility as part of its acquisition.

Under the original contract, Thiess Services was responsible for receiving, spreading, compacting and filling eight landfill refuse disposal facilities. Responsibilities were expanded in 1999 to operate four waste transfer stations on behalf of BCC under an integrated waste management contract, including transport of waste to the Brisbane landfill at Rosedale.

IAP What's In It For Me?

AT A GLANCE

- Truck fleet operates at Higher Mass Limits (HML) under the Intelligent Access Program (IAP) providing a commitment to environmental sustainability
- Confidence that the fleet complies with agreed access conditions set by road managers
- IAP Service Provider – Transport Compliance Services (TCS)

OVERVIEW

REMUNDIS Australia Pty Ltd (REMUNDIS Australia) commenced operations in 1982 and forms part of the German based REMUNDIS AG, a global leader in the water, waste and environmental industry.

REMUNDIS AG is a family owned business founded in 1934, with approximately 22,000 employees operating in 28 countries across Europe, Asia and Oceania, serving the needs of approximately 30 million people.

In July 2012, REMUNDIS Australia acquired 100 percent of the assets of Thiess Services Waste Management (Thiess Services) from Legitton Holdings. The acquisition, which included transfer stations, landfills, logistics depots and recycling facilities in Queensland, New South Wales and Victoria, positioned REMUNDIS Australia as one of the nation's top five waste management organisations.

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AT A GLANCE

- Without the IAP Wettnhall Logistics would not have been able to provide the necessary assurances to road managers, allowing them to operate 30m Performance Based Standards (PBS) B-Doubles
- Wettnhall Logistics participated in a trial of a 30m PBS B-Double on local roads within the City of Greater Dandenong
- The Councils of Hobsons Bay, Wyndham and City of Port Phillip have approved access
- 30m PBS B-Doubles provide an opportunity to improve productivity under the Victorian Government's Moving More With Less Policy
- The prime mover is fitted with front and side underlump protection systems. These units are restricted to 90 km/h.

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IAP What's In It For Me?



HELPING GRAINHART TRANSPORT EXCEED WORLD BEATING STANDARDS FOR PRODUCTIVITY, SAFETY AND THE ENVIRONMENT

Grainhart Transport is a company that has always been quick to progress and embrace new technologies. The Intelligent Access Program (IAP) and On-Board Mass (OBM) monitoring have helped open up access for a new generation of higher productivity freight vehicles which are delivering major benefits for the entire supply chain extending from the farm gate to the end consumer.

ABOUT GRAINHART TRANSPORT

Grainhart Transport, which is based at Oakley on the Darling Downs in Queensland, specialises in the movement of containerised grain to the Port of Brisbane for export.

Grainhart Transport is an innovative company that has been quick to understand the importance of running an efficient trucking operation using purpose built equipment in order to enhance supply chain efficiency.

According to Grainhart Transport's Managing Director, Peter Hart, the operation consists of five trucks, comprising one B-Double operating at Higher Mass Limits (HML) and four Performance Based Standards (PBS) 2B vehicles.

Due to the seasonal nature of bulk grain movements, the company's fleet is supplemented by up to twenty sub-contractors, who undertake additional work on an as required basis.

UNDERTAKING OF

Wettnhall Logistics an Government to approve Freight Vehicles (HPV's) Freeway.

"We participated in a tria roads within the City of Operations Manager at W road."

"Council representatives, National Transport Comm opportunity to observe first an operational environme

"These trials gave Council operators at least as safety lessing this combination a meet safety requirements path."

www.tca.gov.au

"The officials we dealt with professional, cooperative and upfront in their dealings with us."

"Following these trials, the City of Greater Dandenong gave us approval to operate at four local roads."

"I have no doubt that the requirement for us to enrol the 30 metre PBS B-Doubles in the IAP provided added assurance regarding access." Mr King said.

Wettnhall Logistics has approached several other councils seeking approval to operate on selected local roads.

"It am pleased to say that Wyndham City Council has approved access on two local roads for our 30 metre B-Doubles and the Councils of Hobsons Bay, Wyndham and City of Port Phillip have each approved access onto one of their local roads. We have also applied to Maryborough Council for access on two local roads," said Mr King.

A FOCUS ON

Mr Hart said that, company that has times and embra

"Transport is a hiq and better."

"Achieving the big safety and the en effectively respo and meeting all o obligations are at

"We were quick to we were able to r Port of Brisbane a embrace PBS-2 became possible managers throu made available B and Main Roads

"The Intelligent Access Program (IAP) has helped unlock big opportunities for improved safety, productivity and environmental outcomes for the Toowoomba to Port of Brisbane corridor."

INTRODUCTION

Opening up access to state-of-the-art high-productivity Performance Based Standard (PBS) 2B vehicles on the route between Toowoomba and the Port of Brisbane is generating some big opportunities for the export of grain to international markets.

Enabling access to high-productivity vehicles means fewer truck trips, less wear and tear on roads, reduced greenhouse gas emissions and big savings for the entire supply chain – including consumers.

But none of this would have been possible without transport operators, trailer manufacturers, road and port authorities, governments, telematics businesses, road safety bodies and IAP Service Provider Transtech Driven all working together towards a common goal.

The route from Toowoomba to the Port of Brisbane is particularly important to grain growers seeking to access export markets.

They have seen productivity gains of up to 100% for the carting of grain to the port through the introduction of PBS 2B vehicles, with Andrew Rankine, Port of Brisbane Pty Ltd (PBPL) Manager, Logistics, saying that: "Approval of these PBS 2B vehicles added enormously to productivity and efficiency, with the benefits extending all the way from the farm gate to export markets."

Queensland's Department of Transport and Main Roads (TMR) General Manager of Road Safety and System Management, Mr Bruce Orlason, adds: "The decision on access for PBS 2B vehicles followed an extensive assessment of their performance, bridge loading effects and road safety implications."

TMR engaged ARRB Group to conduct a route assessment of these roads using PBS principles, while the loading effects on bridges were conducted by TMR's Engineering & Technology Division."

"Access is available within the Toowoomba urban area to 27 Metropolitan Road and to the remainder of Holly and Miller streets, which is subject to the Toowoomba Regional Council. Access is then available to the Port of Brisbane via the Toowoomba Highway, the Burnett Highway, the Colongvale Highway, each of which is owned by the TMR, the Logan Highway, the Calvea Motorway and the Port of Brisbane Motorway, each of which is owned by Queensland Motorways Ltd, and the routes to the port itself, which are owned by the Port of Brisbane Pty Ltd."

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IAP What's In It For Me?



PORT KEMBLA PORT CORPORATION

An example of how the Intelligent Access Program (IAP) is helping to improve port access for transport operators and is delivering benefits for the entire supply chain.

ABOUT PORT KEMBLA

Situated in Wollongong, approximately 80 km south of Sydney, Port Kembla has become a major transport and logistics hub for goods entering and exiting NSW.

Building on its traditional trading of raw materials for steel manufacturing, coal and grain exports, Port Kembla has successfully diversified its trade to include general cargo, break bulk cargo and containers. More recently it has earned the mantle for being Australia's major port for motor vehicle imports.

According to the Port Kembla Port Corporation's Chief Executive Officer, Mr Don Figgemont, the port of Port Kembla currently generates over 3,800 jobs directly and indirectly and contributes \$816 million to the regional economy. Located close to the rapidly growing community of south-western Sydney, these figures are set to grow and further port expansion is underway.

"The importance of the port to regional exporters, importers and to the local economy means the Port Corporation puts a high priority on being an efficient and competitive operator," Mr Figgemont said.

"Over just the last year total trade through Port Kembla has grown 17.5% in tonnage terms with vessel visits up from 862 to 1,001. This level of growth is expected to continue well into the future and plans are in place to expand the port to meet the growing freight demands of our customers."

Mr Figgemont said this role, the standard of access routes and its location away from residential areas means the Port Corporation and transport operators are well positioned to take advantage of HML access.

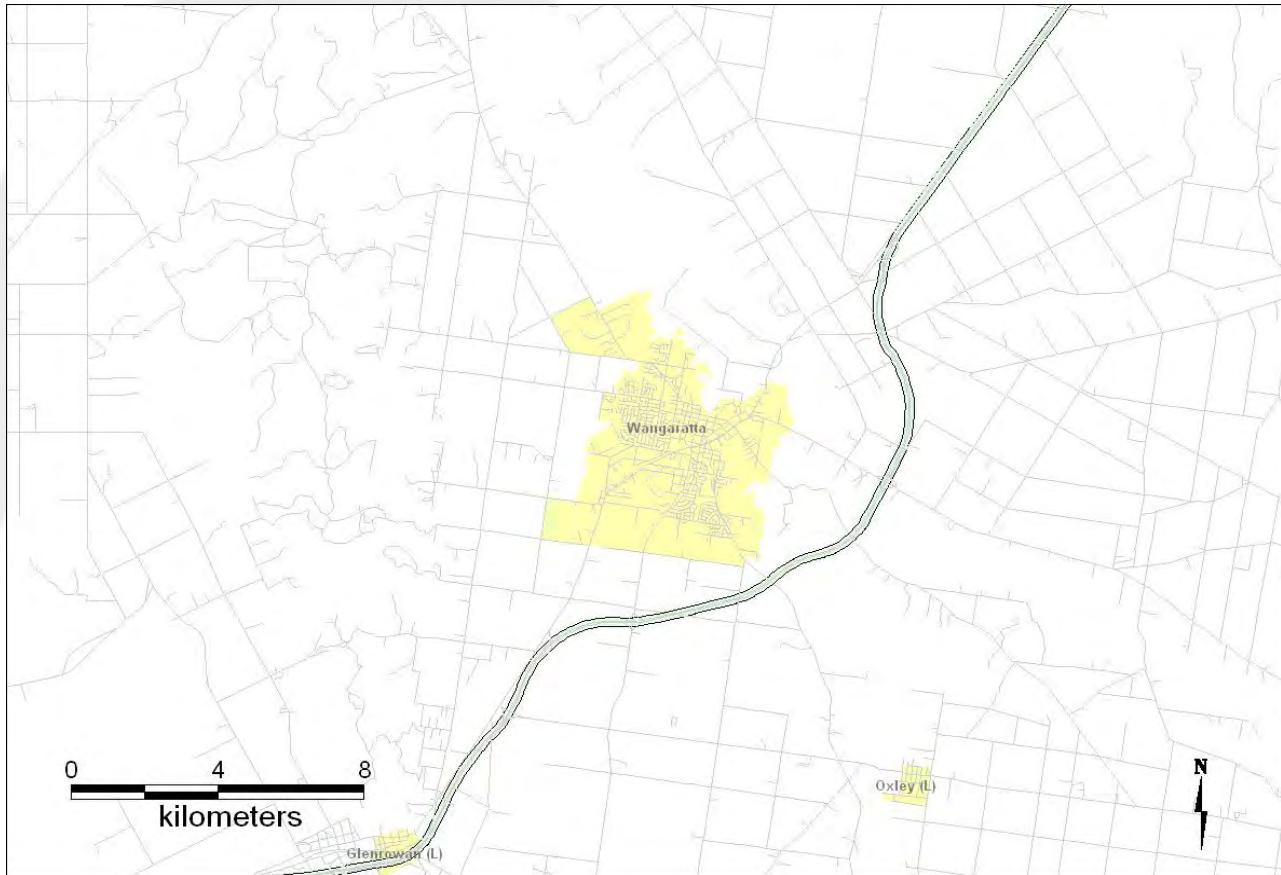
"Indeed, the local community was concerned about plans to trial the Higher Productivity Freight Vehicles (HPV's). We focused very heavily on having community information sessions to inform and alleviate any concerns and questions. The fact that the overall design of the HPV results in a significant reduction in vehicle movements went a long way to addressing the concerns of the community. The community are still able to express their views on our operation."

www.tca.gov.au

based electronic weighing specialist Tranimoss, successfully developed a proposal to link on-board mass monitoring to the IAP.

www.tca.gov.au

Example IAP route



Non-compliant behaviour



Case Study – A - Double

- Innovative A-Double carrying two 40 foot (or four 20 foot) containers
- 30m long and permitted to carry up to 79 tonne Gross Combination Mass
- Monitored for route, speed and mass compliance



A case study (2)

- Operate some 160 km to the Port of Brisbane
- Specifically servicing the farming (grain harvest) task



Case Study (3)

- To maximise the value of the innovative new vehicle combinations, structural engineers were able to reduce the bridge load factor from the standard 2 to 1.8
- **Agreeing to the reduced factor of safety was contingent on there being a demonstrable compliance with route, maximum permitted speed and axle group loadings under the IAP**

- Allow road managers to grant access to routes previously unavailable due to infrastructure risks
- Transport operators can unlock productivity gains
- Active demonstration of mass compliance
- Precursor to heavy vehicle user charging (especially for the larger vehicles)

Looking to the future

Opportunities for integrating in- vehicle OBM and on road WIM

May be used to cross check with each other:

- WIM is operated and maintained by government while OBM is kept by transport operators
- Multiple OBM installed vehicles running pass a WIM site can be used to calibrate and self check each other
- Assist in identifying potential faulty OBM & WIM systems