



AUSTRALIAN ROAD RESEARCH BOARD

Peter Damen – Chief Operating Officer

#ShapingOurTransportFuture



Innovation

Who are we?





| Mission |

Creating knowledge for tomorrow's transport challenges and solutions for today.



| Vision |

Driving innovation to deliver an
adaptable connected future.



| Future Research Direction |



| Smart Roads |

| Connected Futures |

| Next Generation Asset Management |

| Human Factors in Community Use of the
Transport System |

An aerial photograph of a modern road interchange. The road is dark asphalt with white lane markings. The interchange features several green landscaped medians and islands with trees and grass. A white car is visible on the road. The background shows residential buildings and more greenery.

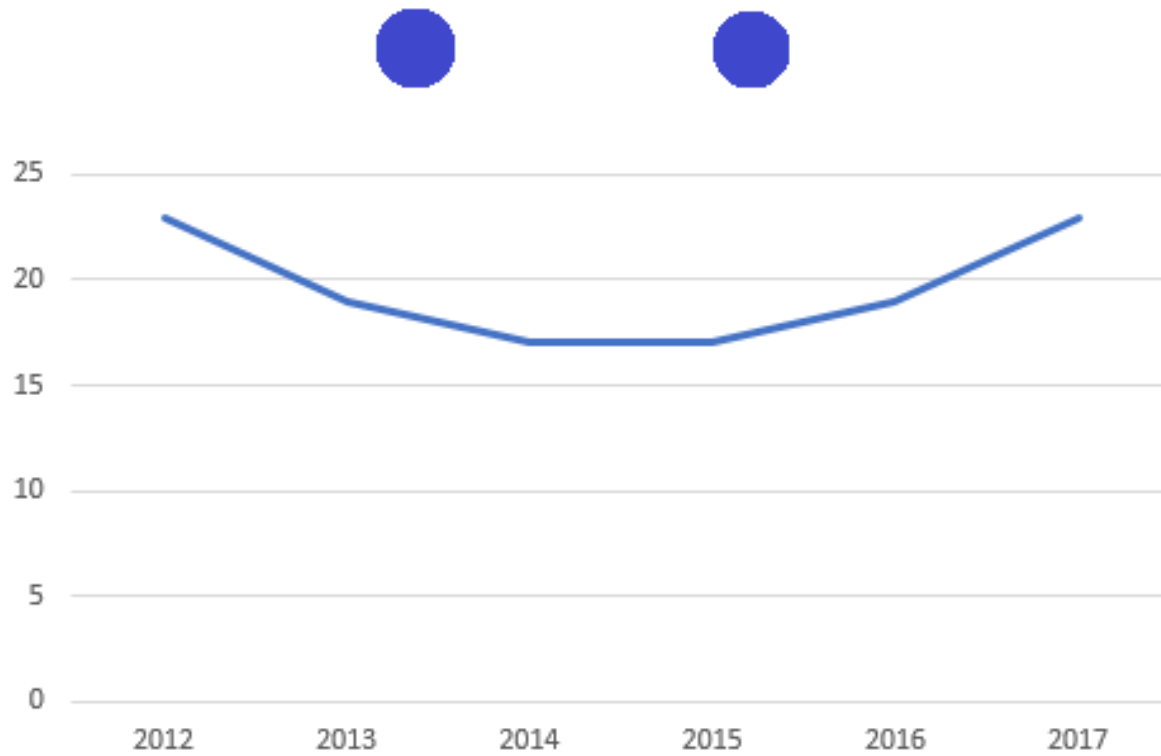
**| Innovating to achieve better
outcomes |**

| Innovation in Local Government |

- Where do we need to innovate?
- What are the future challenges?
- What does innovation look like?
- What are the barriers to innovation?
- How should we approach it?
- What do we need to change?

AUSTRALIA

Global Innovation Index Ranking 2012 - 2017



| Innovation Process |



| Innovation Opportunities |

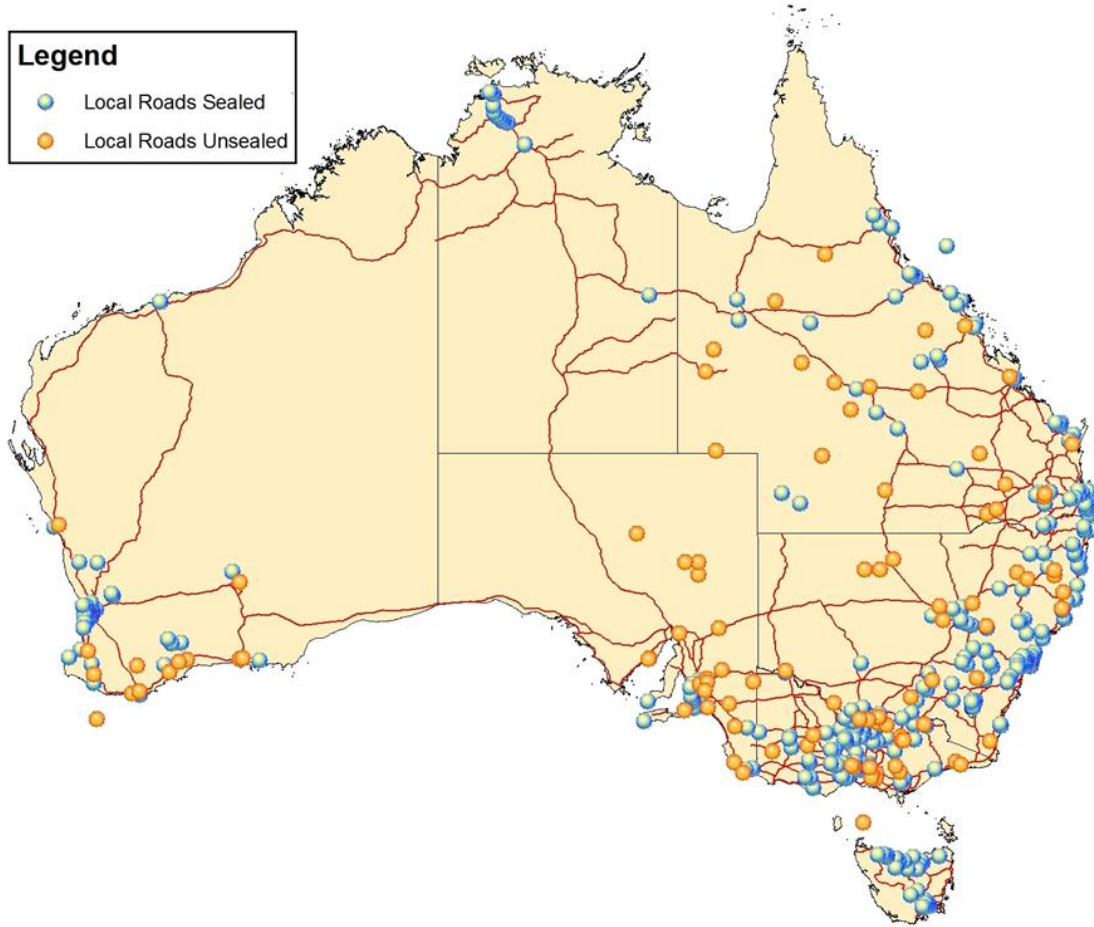
- Use of new innovative materials
- Adoption of new technologies
- Use of new field methods
- Use of new procurement, financing and contracting approaches



| The local government challenge |




The Local Road Network



**Table 1.1: Australia's Road System
(Maintenance Activity in Constant 2014/15 Prices)**

Type of road	Length (km) 2015	Travel (million km) 2013/14	Maintenance Activity (\$m) 2015/16 ⁽¹⁾
Highways and Arterials	233,209	182,601	3,327
Rural	217,220	88,583	1,948
Urban	15,989	94,018	1,379
Local Roads	640,053	52,509	3,138
Rural	516,513	17,612	-
Urban	123,540	34,897	-
Private Toll Roads	165	4,655	107
All Roads	873,426	239,766	6,572

(1) 2015/16 local roads is an estimate Source: BITRE, BIS Oxford Economics

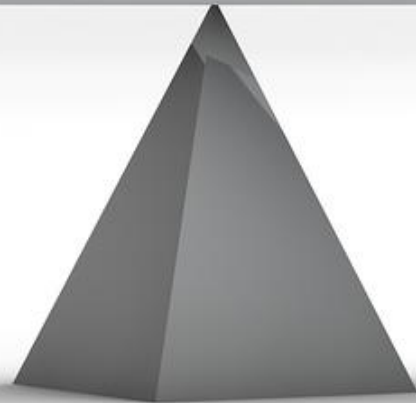
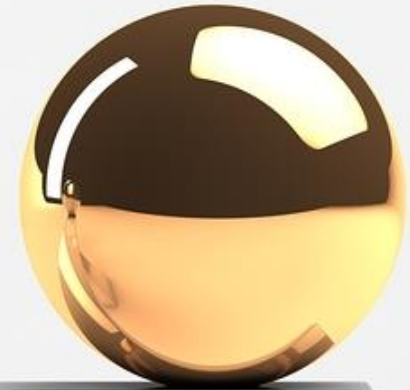
A photograph of a rural road with a cloudy sky and a utility pole in the background. The road is paved and has a yellow curb. The sky is blue with white clouds. The background shows a utility pole and a fence.

| ALGA (2015) analysis found that of the \$73.7 billion of roads under local government management, \$8.2 billion (11%) are in a poor to very poor state. |

**Stakeholder
expectations**

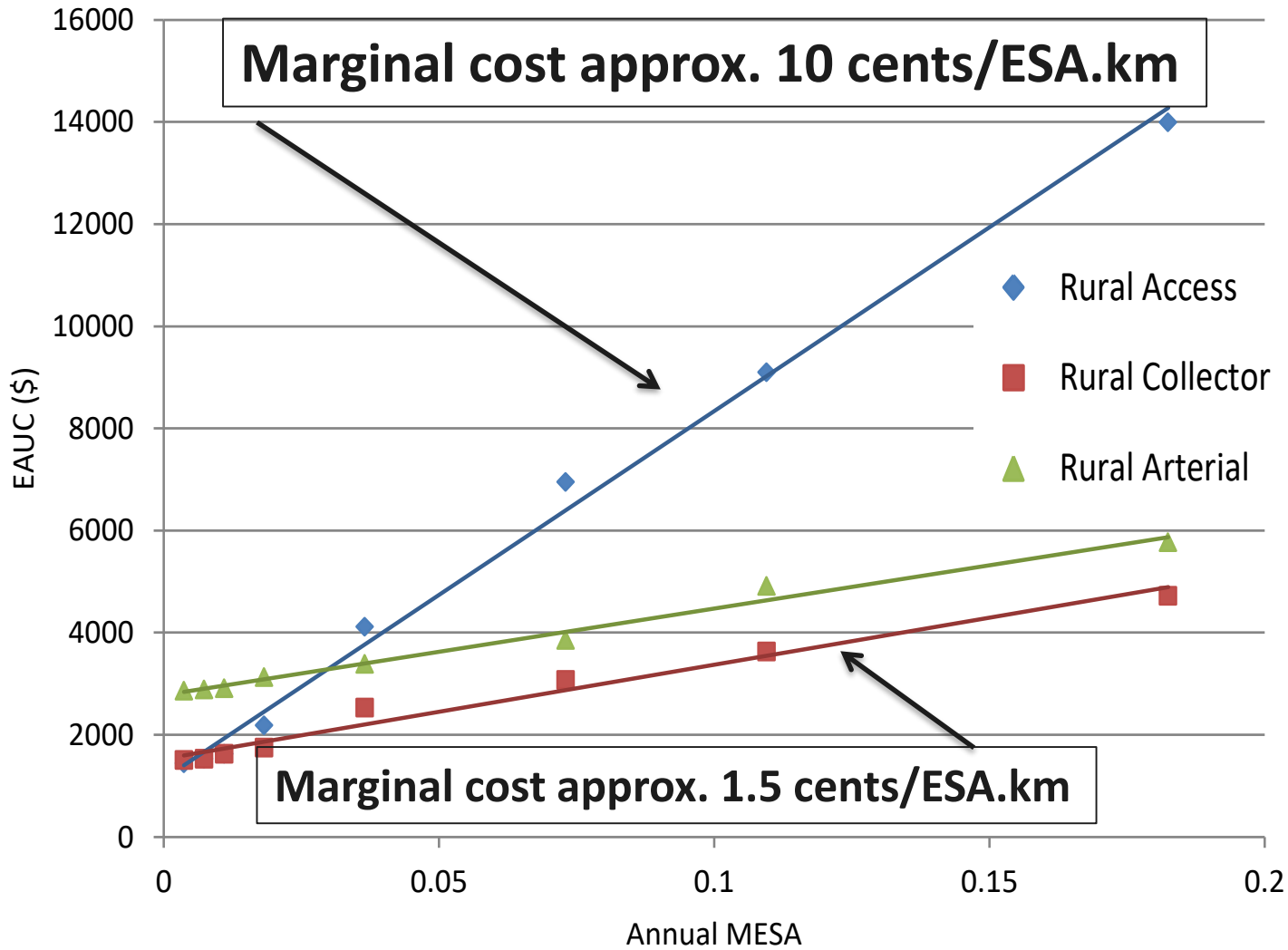


\$



Cost impacts are growing

Thorntonwaite = 10 CBR = 12



User Guide

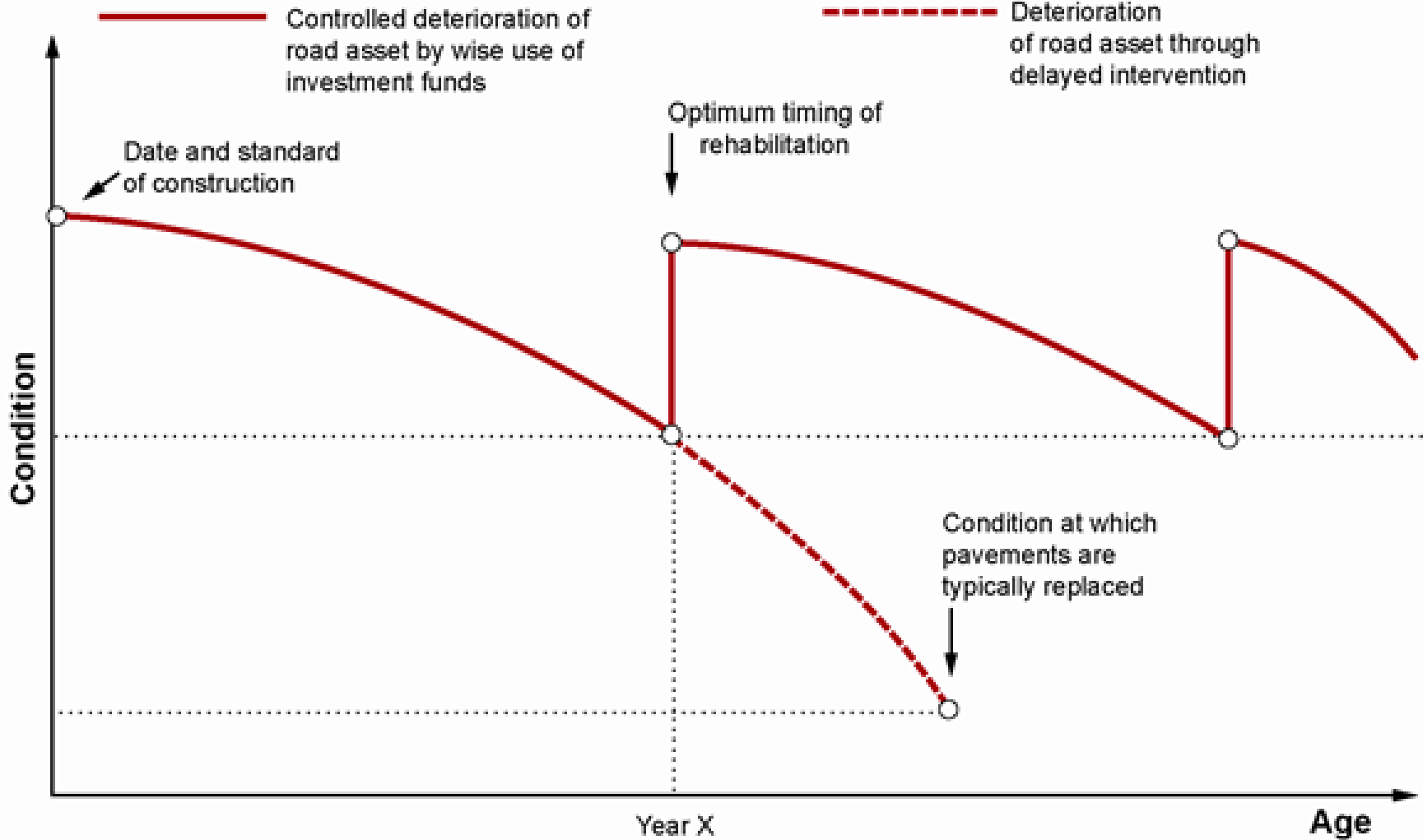
Estimating the Incremental Cost Impact on Sealed Local Roads from Additional Freight Tasks

DATE: MAY 2015
VERSION NO: 1



Benefits of scale & timeliness

Accelerated Road (& Bridge) Rehabilitation Program



| New Innovative approaches |



AUTONOMOUS DRIVE
DEMONSTRATION VEHICLE

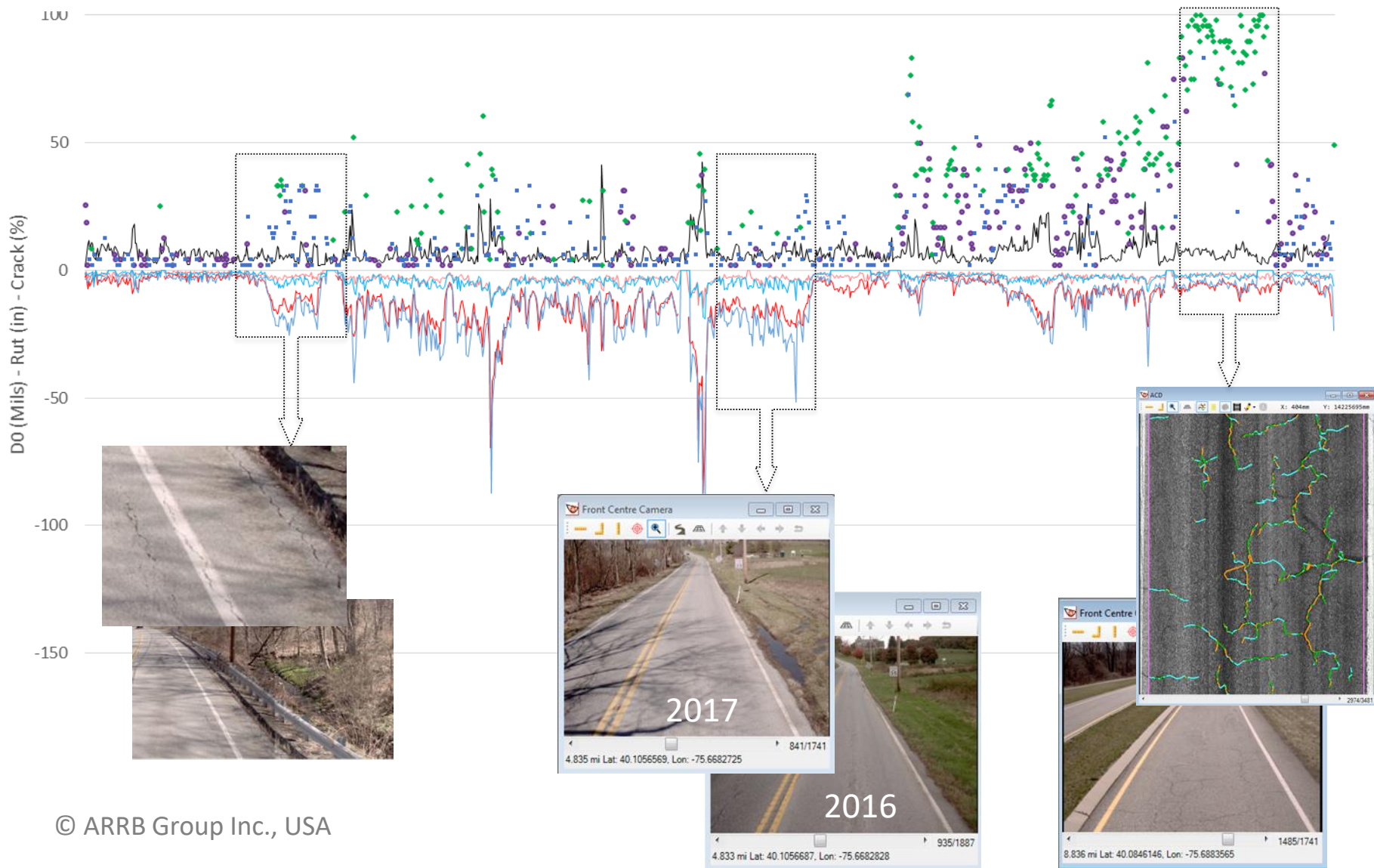
| Data is the Oil |

- New advanced data sources
- New innovative equipment
- Procuring data more efficiently
- Using the advanced data analytics lab
- All leading to getting better insights

iPAVE Intelligent Pavement Assessment



Single pass data collection

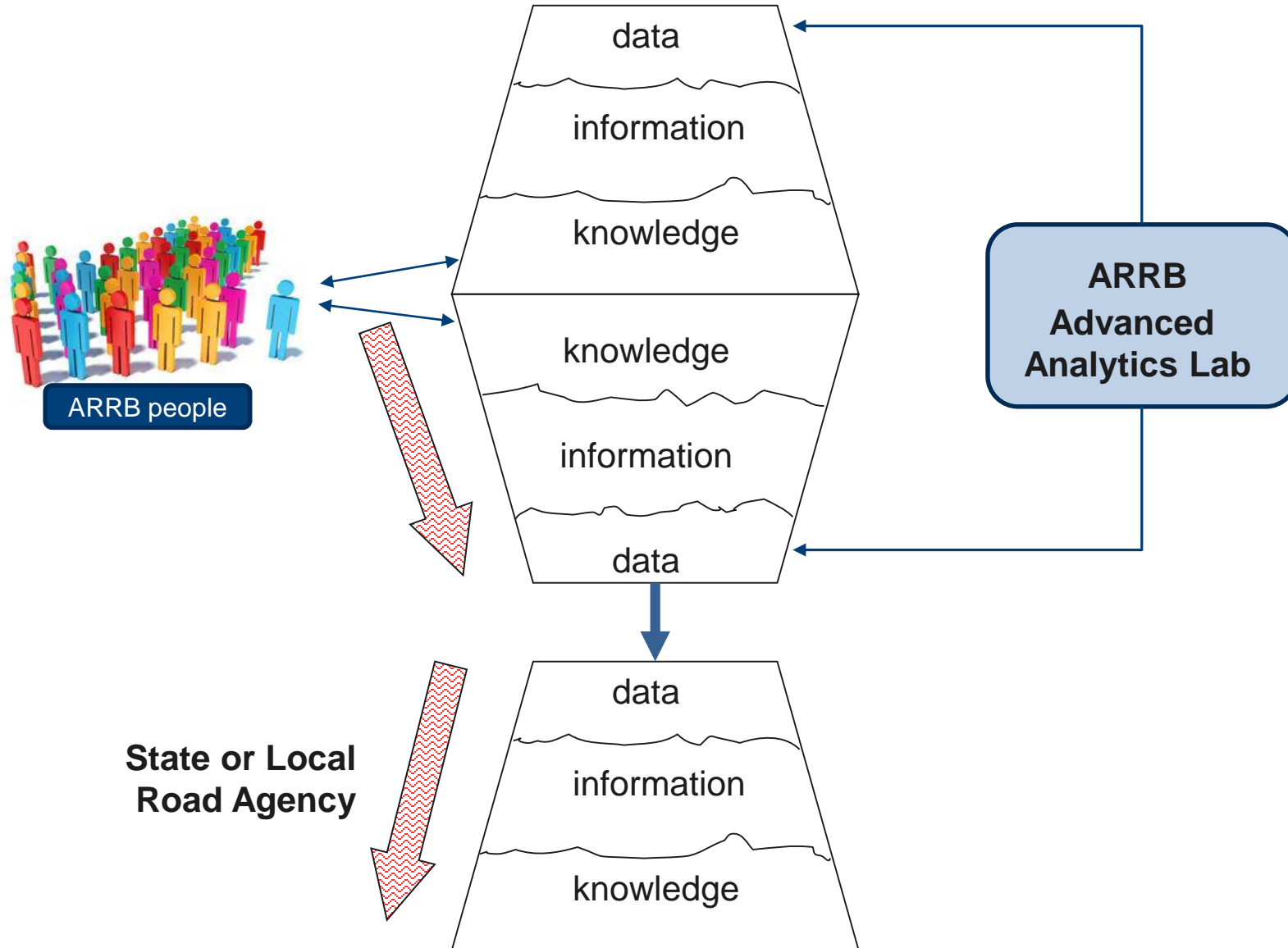


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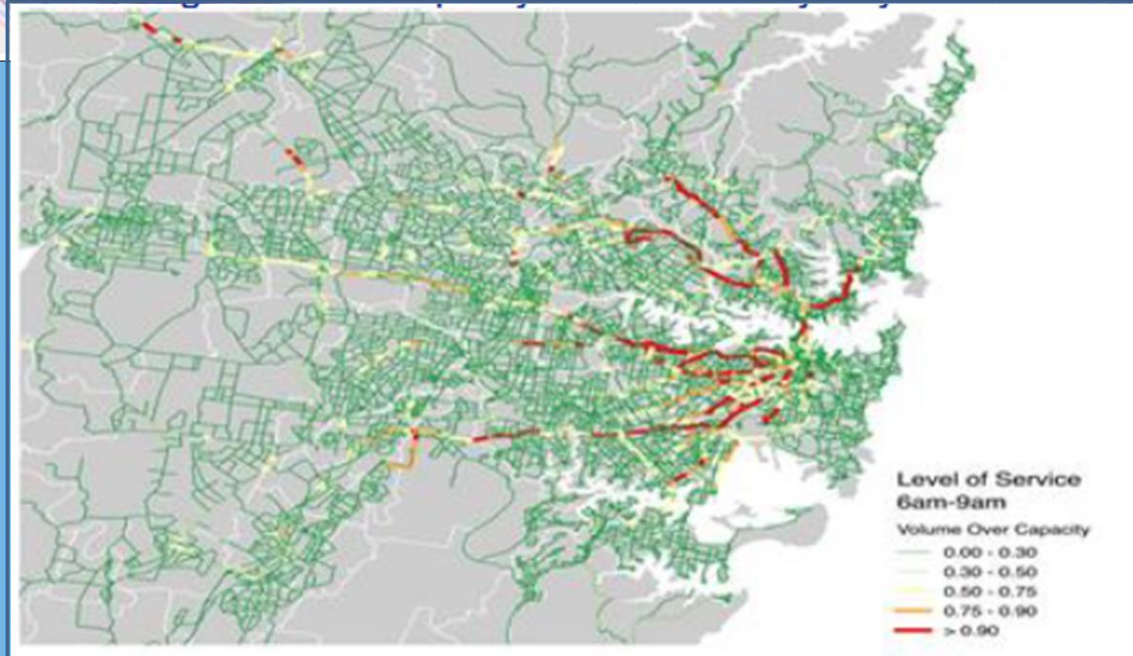
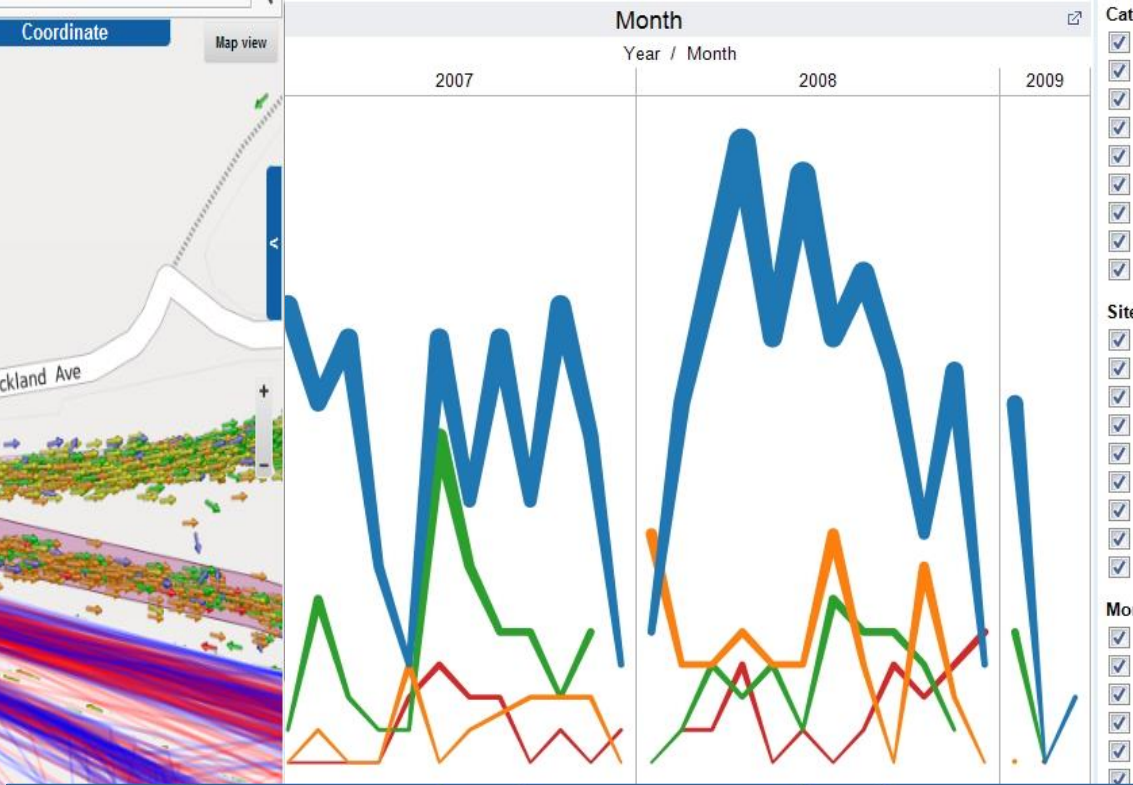
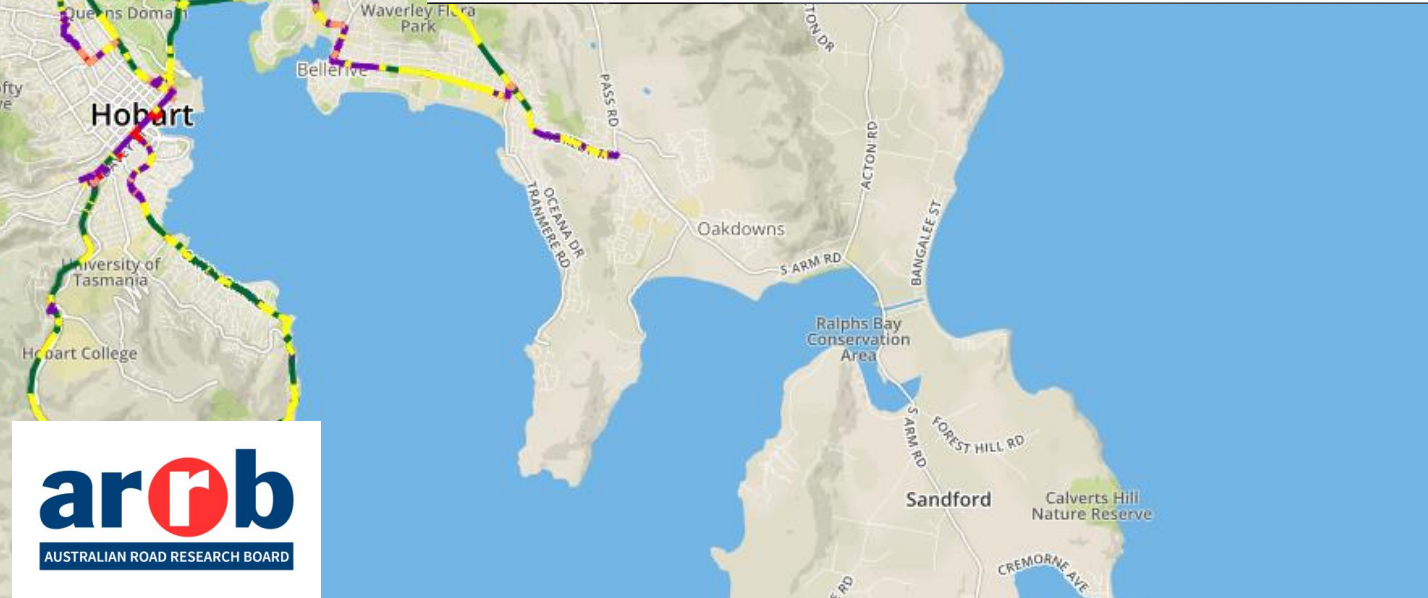
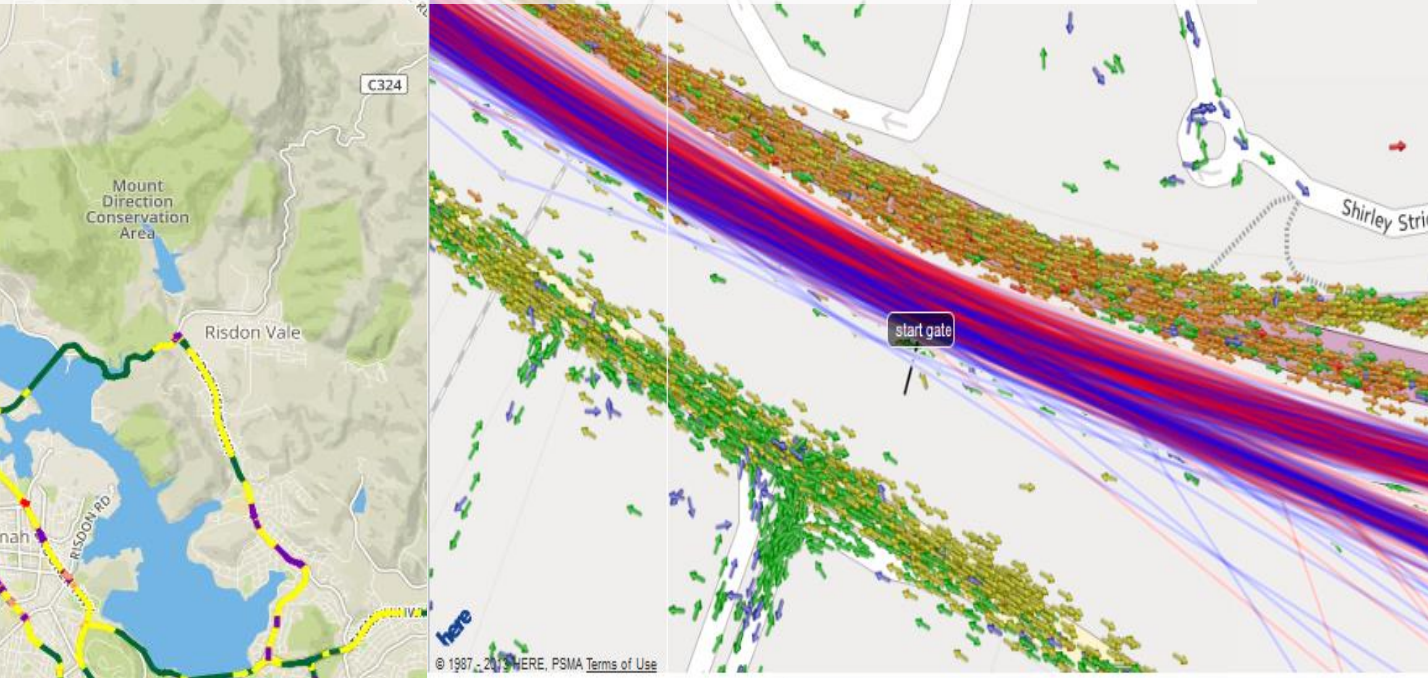
Collect it once and use it many times



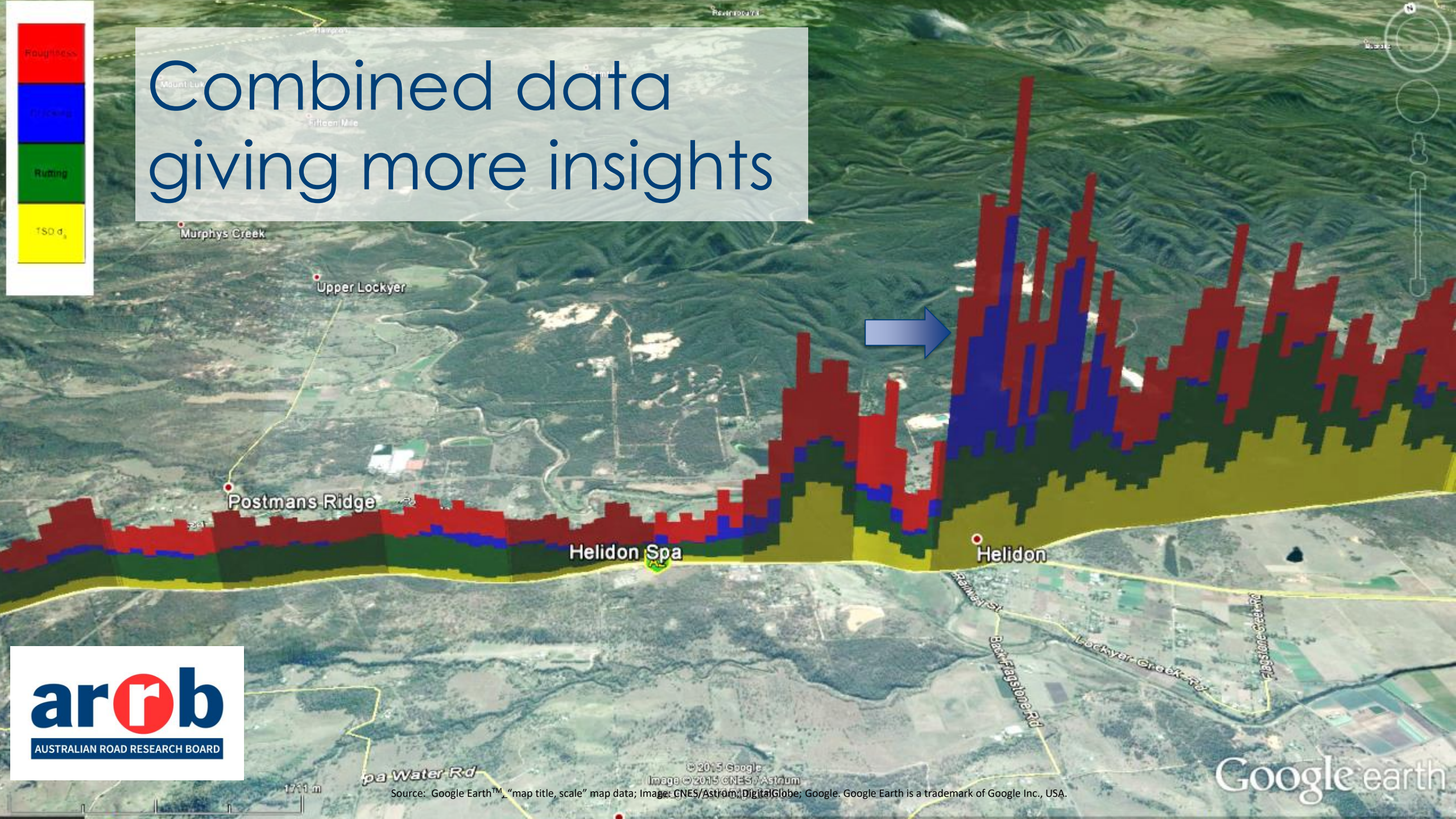
Advanced analytics - giving us what we need



New sources of data



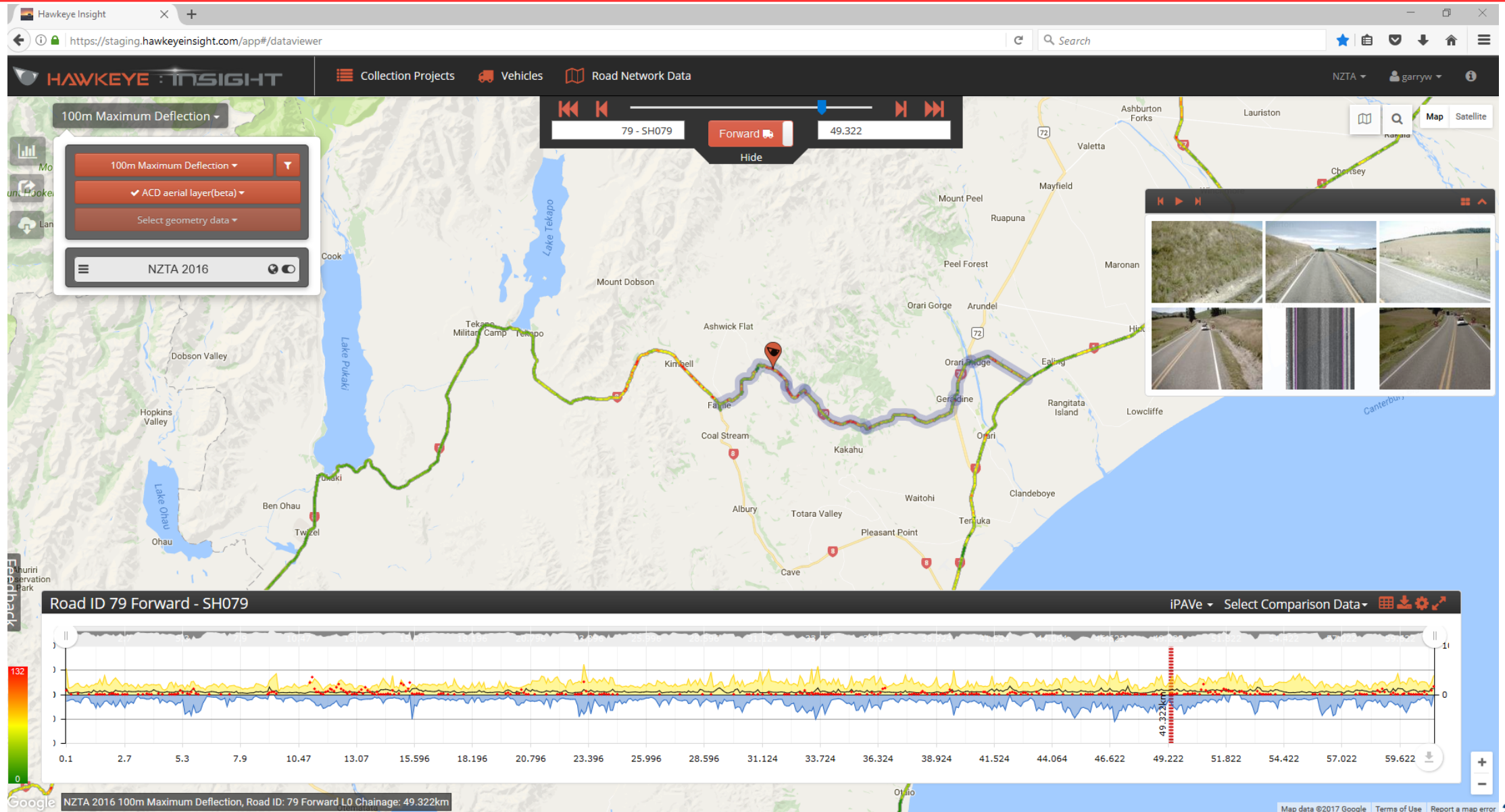
Combined data giving more insights



© 2015 Google
Image © 2015 CNES / Astrium
Source: Google Earth™, "map title, scale" map data; Image: CNES/Astrum, DigitalGlobe; Google. Google Earth is a trademark of Google Inc., USA.



Integrated information at your fingertips



Smarter, stronger, longer, lower cost



Original plan – full rehabilitation, estimated cost **\$197,000**
 Revised plan – small localised rehabilitation, resurface the rest, estimated cost **\$130,000**

Western Australian Road Research and Innovation Program



EME2 Enrobés à Module Élevé (Class 2)



WARRIP

WESTERN AUSTRALIAN ROAD RESEARCH
AND INNOVATION PROGRAM



<http://nacoe.com.au/>

BCR of >10



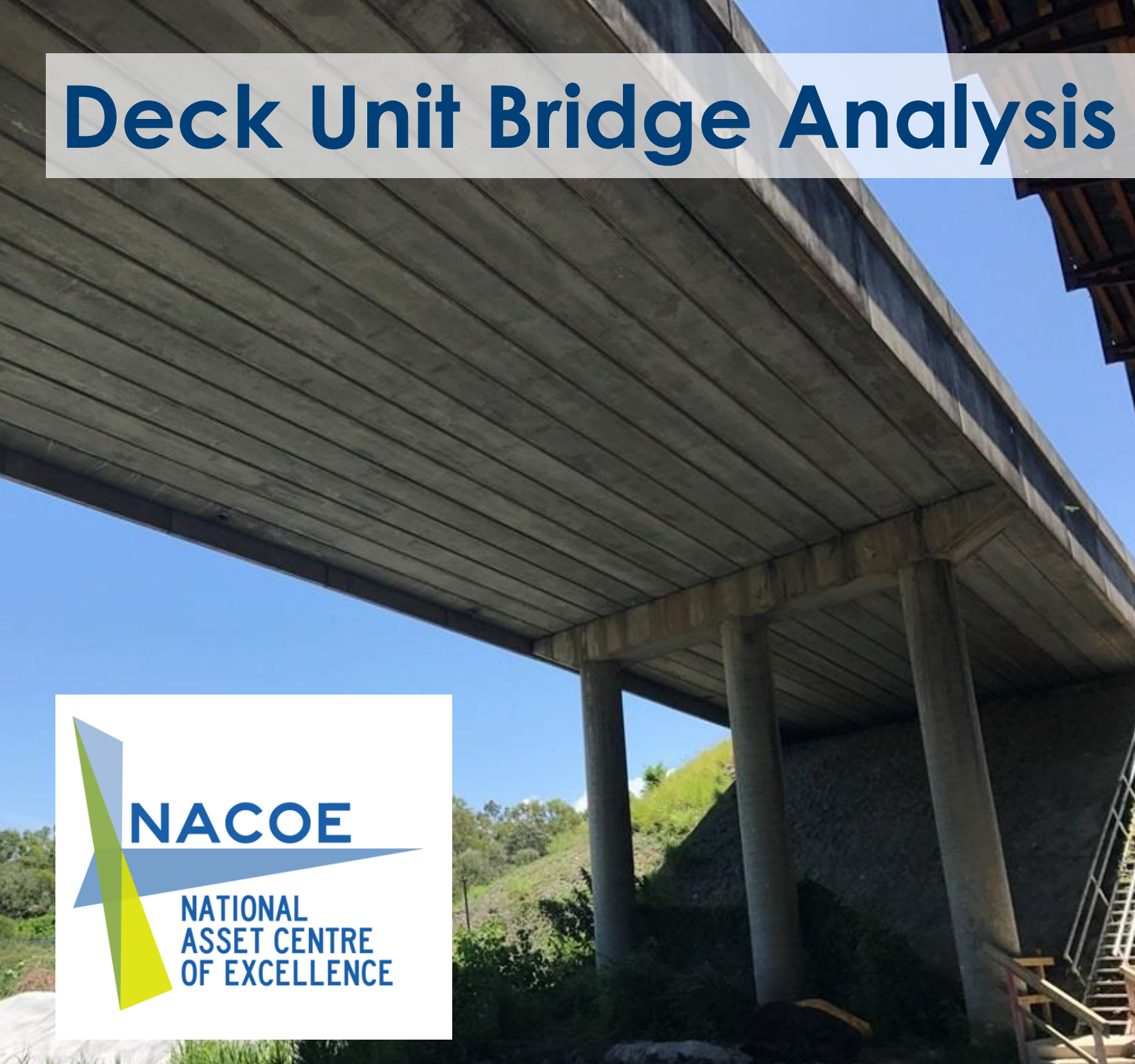
Queensland
Government

arob
AUSTRALIAN ROAD RESEARCH BOARD

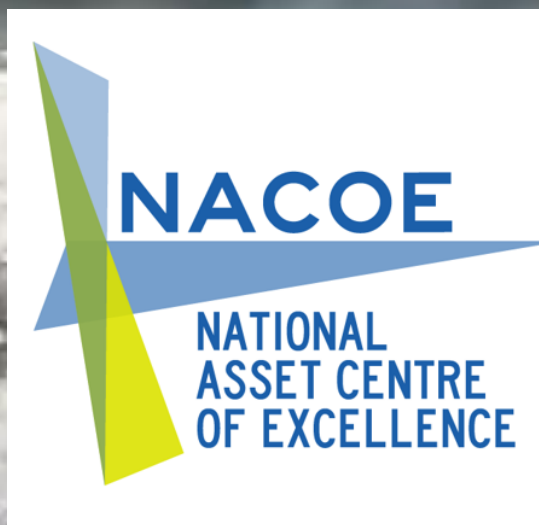


NACOE
NATIONAL
ASSET CENTRE
OF EXCELLENCE

Deck Unit Bridge Analysis Under Live Load



Optimum evaluation for rain & flood events



Other material innovations



- Crumbed rubber
- Cold mix asphalt
- BBME – higher modulus wearing courses
- Ultra thin asphalt surfacing
- Use of higher percentage of RAP
- Designing for fatigue at elevated temperatures
- Use of perpetual pavement designs
- Use of nanotechnology
- Self-healing pavements

Transport Infrastructure Product Evaluation Scheme (TIPES)



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SHAPING OUR TRANSPORT FUTURE.

Thank you!

Peter Damen – Chief Operating Officer

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