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DEC 2019/JAN 2020

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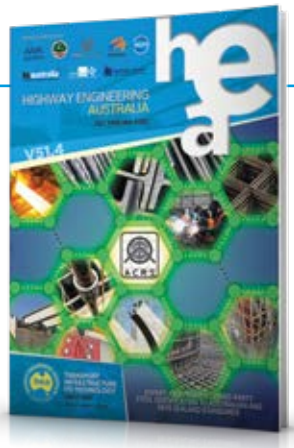

About the Cover

With the increasing number of different types of certification available in Australia and New Zealand, it has never been more important for industry to recognise the differences between the types of certifications and schemes available, and the different levels of assurance provided by the certificates issued by those schemes.

▶ Turn to **Page 12** for the full story.

Standing Together in the Face of Adversity

Dear Readers,

While I am loathed to repeat superlatives such as 'worst ever', 'most devastating' or most destructive', there can be no doubting the magnitude of the devastation in the wake of our current bushfire crisis.

Together with the devastating bushfires in Queensland (which have to date reportedly destroyed 38 homes and burnt over 250,000 hectares); Western Australia (more than 1.2 million hectares burnt and homes destroyed); Tasmania (8,000 hectares burnt and homes destroyed); and South Australia (which have sadly claimed four lives, destroyed more than 140 homes and burnt over 200,000 hectares - including a large proportion of Kangaroo Island); it is clear that New South Wales and Victoria are currently facing a bushfire crisis the likes of which we've never seen before.

Even as I write this, dozens of fires continue unabated, and although accurate statistics are understandably difficult to obtain due to the ongoing nature of the crisis, it appears from all reports that the current toll in NSW and Victoria stands at 23 confirmed dead (with more missing), over 1500 homes and many hundreds of other buildings destroyed (including several townships completely destroyed) and well over 6 million hectares burnt.

Unfortunately, even though there is a current lull in the weather – which is not only providing an opportunity for one of the largest area evacuations ever seen and, hopefully, giving exhausted fire crews an opportunity to strengthen containment lines and get control of some of the blazes – the weather is once again expected to worsen significantly over the next couple of days. Put simply, as the situation currently stands, it really is a case of 'where this ends nobody knows'.

With that in mind, I would like to use this opportunity to ask you, our many thousands of readers, to do what you can to help those who have been impacted by the fires – many of whom have lost their homes, their livelihoods, their stock, their crops... everything. And then of course, there's the abundance of injured wildlife that will need attending to.

Below you'll find QR Codes and 'short code' direct URL links to three of our favourite charities, each of whom do outstanding work in the field and are working tirelessly in the wake of the bushfires, even while they are still burning.

If you can spare a dollar for one or more these charities it will be very much appreciated – if you can spare more, all the better. The demand for their services is sure to be unprecedented, and every dollar will definitely help.

Australia has been built on the true values of 'mateship', and the capacity of all Australians to stand together in the face of adversity, working together to overcome the greatest hardships and almost insurmountable odds – is world renowned.

At this time, that 'Spirit of Australia' is needed more than ever.

Our thoughts and prayers are with all those affected by these terrible tragedies.

Anthony T Schmidt
Managing Editor

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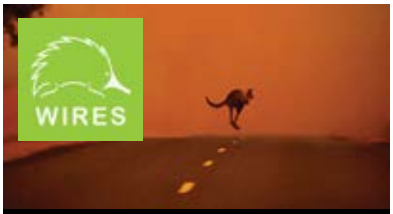
Salvation Army Disaster Appeal

https://l.ead.me/bbNNt9

SCAN ME



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SCAN ME

New MASH Products Now Available from Ingal Civil

QuadGuard® M10

Crash Cushion

MASH COMPLIANT

Reusable Non-Gating Redirective Crash Cushion

The QuadGuard® M10 is a redirective, non-gating crash cushion that consists of an engineered steel nose and crushable, energy absorbing cartridges surrounded by a framework of steel Quad-Beam™ panels. The system is tested to the Manual for Assessing Safety Hardware (MASH) Test Level 3. It can be used to shield fixed objects of 610 mm wide.

The QuadGuard® M10 system utilises two types of cartridges in a configuration designed and tested to address vehicles as defined by MASH for both lighter cars and heavier, high centre-of-gravity vehicles.

Advantages

- Self-supporting steel nose.
- Tension strut backup with Monorail guide stabilisers.
- Anchorage in concrete or asphalt (does not use anchoring chains or tension cables).
- High strength Quad-Beam™ panels.
- Damaged cartridges are replaceable

ET-SS

MASH COMPLIANT

Front Anchored Technology

MASH End Terminal

W-Beam End Treatment for End-on Impacts

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Assembly Advantages

- Splices at mid-span of the posts allow for easy assembly.
- Vertically compressed rail is flattened and maintains connection to unit for quicker repair and clean up.
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- Compatible with various proprietary and public domain guardrail systems.
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Infrastructure investment to drive total construction output in China to US$4.1 trillion by 2023

Driven by the Government's efforts to boost spending on infrastructure, the value of construction industry in China, measured at constant 2017 US dollar exchange rates, is expected to rise from US$3.3 trillion in 2018 to US$4.1 trillion in 2023, says *GlobalData,* a leading data and analytics company.

GlobalData's report, *'Construction in China – Key trends and opportunities to 2023'*, reveals that the country's construction industry is expected to expand at a relatively slower compound annual growth rate (CAGR) of 4.54% over the forecast period (2019–2023), as the government steadily shifts away from a policy of driving economic growth by investing huge sums in infrastructure developments.

Dhananjay Sharma, Construction Analyst at GlobalData, comments: "The escalating trade tension between the US and China is affecting China's exports, thereby hurting its economy and manufacturing industries."

Residential construction was the largest market in the Chinese construction industry, accounting for 48.4% of its total value in 2018. The market is expected to account for 43.3% of the industry's total value in 2023.

Over the forecast period, market output is expected to be supported by the ongoing urbanization and the government's efforts to renovate aging urban residential buildings.

The total construction project pipeline in China – as tracked by GlobalData, including all mega projects with a value above US$25 million – stands at CNY21.4 trillion (US$3.2 trillion). The pipeline, which includes all projects from pre-planning to execution, is skewed towards late-stage projects, with 77.4% of the pipeline value being in projects in the pre-execution and execution stages as of November 2019.

Sharma concludes: "Nevertheless, in view of the recent slowdown in construction, the authorities can still revert to infrastructure investment to prop up the industry and support the economy when necessary. As such, expansion will be driven by the government's efforts to boost its spending on infrastructure to counter economic slowdown caused by the ongoing trade tensions with the US."

Report finds recycled roads can lead recycling revolution

Australia can hugely boost domestic recycling by replacing virgin resources with recycled materials in roads and thereby enable the COAG ban on waste exports, according to a recent expert report released by the Australian Council of Recycling (ACOR).

Undertaken for ACOR by independent consultancy MRA, the report's research shows that by using recovered soft plastics, secondary glass cullet, and passenger tyre crumb in asphalt and/or road base in the nation's 12 biggest current road projects, such as Sydney's Westconnex, the Bruce Highway Upgrade in Queensland, and the CityLink Tunnel in Melbourne, Australia could:

- **At least double the amount of soft plastic that is currently domestically recycled;**
- **Increase tyre recycling by 50% and contribute to an immediate export ban on baled tyres that are often inappropriately disposed of in Asia, and;**
- **Help wipe out every stockpile of unused glass cullet in the country.**

Current recycling	Additional tonnes from 12 recycled roads
Glass: 627,000 tonnes (or 57%)	Glass: 1.34 million tonnes
Soft plastics: 89,900 tonnes (or 4.5%)	Soft plastics: 104,500 tonnes
Passenger tyres: 328,000 tonnes (or 2%)	Tyre crumb: 174,000 tonnes

Pete Shmigel, ACOR CEO, said: "Roads are Australia's largest single asset, and by building them with recycled materials, we can also deliver the goal of domestically sustainable recycling. Our message to Governments who build roads is: use recycled content to keep valuable stuff out of tips, deliver value for money to taxpayers, and generate more jobs."

"The report looked at a current total of about 1,000 kilometres of new road, and the results were very positive. In reality, some 10,000 kilometres of new roads are being constructed; so regular use of recycled material in roads according to a new standard would be a road-led recycling revolution for regional jobs and environmental benefits like greenhouse gas reduction" he added.

"It's important to recognise that recycled roads - compared to 'virgin roads' - are cost competitive and comparable, if not better, on quality and longevity. Every time you drive from Melbourne Airport to the city, you are driving on an excellent recycled road, and there's simply no reason why Governments should not do more of it."

"Eleven of the twelve projects modelled are part funded by the Commonwealth which can require recycled content as part of funding agreements. That's a great opportunity for our 'Recycling PM' to further deliver on his vision," Pete Shmigel said.

"The choice is before us. Drive recycled roads into a better economic and environmental future, or drive old roads straight to the tip," he concluded.

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Hyundai Autonomous Cars Hit the Streets in California

Hyundai, in collaboration with Pony.ai and Via, recently unveiled *BotRide,* a shared, on-demand, autonomous vehicle service operating on public roads. The service, which commenced during November, involves a fleet of self-driving Hyundai KONA Electric SUVs, providing a free ride-sharing service to the local community of Irvine, California.

"The pilot introduces BotRide to several hundred Irvine residents, including college students. The goal is to study consumer behaviour in an autonomous ride-sharing environment," said Christopher Chang, head of business development, strategy and technology division, Hyundai Motor Company.

"We are going to learn about ecosystems, where the vehicles travel and optimise the customer experience. BotRide, is another example of Hyundai's ongoing efforts to actively build expertise in mobility technology as well as the company's commitment to providing more user-friendly mobility services to customers."

Hyundai partnered with Pony.ai to build the self-driving system and with Via to create the BotRide on-demand ridesharing technology and application. Using the BotRide app (iOS and Android), riders can hail an autonomous Hyundai KONA Electric SUV directly from their smartphone. Via's advanced algorithms enable multiple riders to share the same vehicle, outfitted with Pony.ai autonomous vehicle technology. The app directs passengers to nearby stops for pick up and drop off, allowing for quick and efficient shared trips without lengthy detours, or inconvenient fixed routes and schedules.

Integrated Hyundai and Pony.ai technologies enable the BotRide vehicles to navigate complex road scenarios safely. These vehicles are equipped with Pony.ai's latest sensor hardware and proprietary software to identify the precise position of surrounding vehicles, handle pedestrian traffic in urban areas, accurately monitor its surroundings, predict the behaviour of other road users, and precisely plan actions accordingly. In addition to self-driving capabilities, BotRide is validating its user experience in preparation for a fully driverless future.

BotRide launches with multiple popular destinations where a passenger may hail a ride using the BotRide app. The service area covers several residential, commercial, and institutional points of interest. BotRide's technology prioritizes passenger-to-system interactions such as automated onboard passenger verification, giving riders the chance to familiarize themselves with technologies expected to become commonplace in an autonomous mobility future.

"Through BotRide, Hyundai is leveraging cutting-edge autonomous vehicle and mobility technologies to introduce a new, safe, and convenient form of transportation to the public," said Daniel Han, manager, Advanced Product Strategy, Hyundai Motor America.

"The BotRide pilot represents an important step in the deployment and eventual commercialization of a growing new mobility business. In addition to the technology partners powering BotRide, the broader city and community ecosystem have also played an important role in making BotRide possible. The BotRide pilot can serve as an example of how cities and companies can come together to truly enable smart cities and smart transportation systems of the future."

ABOUT HYUNDAI MOTOR COMPANY

Established in 1967, Hyundai Motor Company is committed to becoming a lifetime partner in automobiles and beyond with its range of world-class vehicles and mobility services available in more than 200 countries. Hyundai sold more than 4.5 million vehicles globally in 2018 and is currently employing more than 110,000 employees worldwide. Hyundai Motor continues to enhance its product line-up with vehicles that are helping to build solutions for a more sustainable future, such as NEXO, the world's first dedicated hydrogen-powered SUV.

ABOUT PONY.AI

Pony.ai aims to deliver autonomous mobility everywhere by building the safest and most reliable self-driving technology. Pony.ai is currently testing its self-driving system in multiple geographies across the US and China. The company was founded in late 2016 and its investors include Sequoia Capital China, IDG Capital, Legend Capital, among others.

ABOUT VIA

Via is re-engineering public transit, from a regulated system of rigid routes and schedules to a fully dynamic, on-demand network. Via's mobile app connects multiple passengers who are headed the same way, allowing riders to seamlessly share a premium vehicle. Via's technology is also deployed worldwide through dozens of partner projects with public transportation agencies, private transit operators, taxi fleets, private companies, and universities, seamlessly integrating with public transit infrastructure to power

Recycled plastic hits the road on five Melbourne streets

The City of Melbourne is using plastic previously destined for landfill – such as car bumper bars – to resurface five iconic city streets.

Lord Mayor Sally Capp said five prominent Melbourne streets would be paved with asphalt made from recycled plastics.

"The paving on these historically significant streets will look exactly the same as any other street. The difference is that using plastic in the asphalt creates demand for recycled products," the Lord Mayor said.

"We collect 11,000 tonnes of residential recycling each year. Using a mix of plastic to resurface our streets is one way we can support the circular economy and reduce landfill."

The first road within the City of Melbourne to be re-surfaced using recycled plastic was Flinders Street, with works occurring between Exhibition Street and Spring Street last month.

Sections of Anderson Street in South Yarra have also been resurfaced, together with sections of Alexandra Avenue in South Yarra.

Further works will be completed during 2020 on sections of Spring Street (between Little Collins Street and Little Bourke Street) and Flinders Street and Collins Street in the CBD.

Deputy Lord Mayor Arron Wood said the paving consists of 50 per cent recycled plastics and other recyclable materials such as Slag Aggregates and RAP (Recycled Asphalt Products) with the rest made of virgin materials.

"The trial will allow us to assess whether we can use more recycled materials and plastic when we resurface our roads," the Deputy Lord Mayor said.

The trial is a joint initiative from the City of Melbourne, its subsidiary Citywide, and the Citywide North Melbourne Asphalt Plant using plastic waste sourced from metropolitan Melbourne.

The Deputy Lord Mayor said the trial was an important step towards building a circular economy.

"The City of Melbourne uses 10,000 tonnes of asphalt annually and we resurfaced eight kilometres of road last year. This trial will help us understand whether it's possible to use recycled plastic in more of our major projects," the Deputy Lord Mayor said.

"This is an example of how we can work towards building a circular economy. By using recycled plastic and other recycled materials on our roads we're creating more sustainable infrastructure and showing there are local markets for recycled materials," he concluded.

Australia wins 'Safety Innovation of the Year' Award at ITA Tunnelling Awards

Since 2015, the international competition, the *ITA Tunnelling Awards* has been rewarding ground-breaking innovation and outstanding projects in tunnelling and underground space use across the globe. This year the event took place in Miami, Florida in conjunction with the *Cutting Edge Conference.* After editions in Hagerbach (Switzerland), Singapore, Paris (France) and Chuzhou (China), the fifth ITA Tunnelling Awards moved to the United States of America for the 2019 event. The four previous editions of the ITA Tunnelling Awards received 333 entries and 139 nominations, rewarded 41 projects and personalities and gathered almost 1,000 attendees.

Through 8 categories and 1 Lifetime Achievement Award, the ITA Tunnelling Awards identifies and rewards major disruptive innovations and ground-breaking projects.

For the category *"Safety Initiative of the Year"*, the *Air Quality Working Group* project, submitted by the Australian Tunnelling Society, won the award. The *Air Quality Working Group* was an industry-first collaboration on silica dust control.

Silica dust is one major health issue for Australian tunnelling industry. In Australia, tunnel construction workers have an increased risk of developing occupational diseases such as lung cancer and silicosis, when compared to the general construction industry.

The Australian Tunnelling Society (ATS) is a strong proponent of the importance of health and safety in the tunnelling sector.

In 2019, tunnel construction projects planned and under construction in the state of New South Wales alone were valued at up to $20 billion in total. ATS stakeholders took a proactive approach to this health issue - leveraging the strong experience of their membership to produce a much-needed body of knowledge to support an ever-growing industry.

The entry highlights the ambitions of the whole Australian industry for the prevention of health issues.

Over a period of 12-months, the ATS facilitated an *Air Quality Working Group* (AQWG) which focused on sharing information to address the challenges associated with controlling silica dust, including the production of a much needed body of reference material that previously did not exist in the tunnel construction industry's body of knowledge.

Several conclusions were produced by this initiative, including:

- standardised awareness materials that could be effectively delivered during toolbox talks and tunnel inductions;
- addressing higher-level business processes associated with the tunnel construction life-cycle so that the risk of silica dust exposure could be effectively considered by client organisations during project planning and design;
- numerous case studies on engineering controls including those on ventilation scrubber systems, portal misting systems and Roadheader cabin air filtration, in addition to general information on ventilation.

Since its publication 4 months ago, the published body of knowledge has been accessed over 1,630 times, demonstrating the level of interest and importance of this work.

THE 2019 ITA TUNNELLING AWARD WINNERS:

- **Major Project of the Year (over €500M)** - Tuen-Mun Chek lap Kok Link - Northern Connection Subsea Tunnel Section - Hong-Kong, China
- **Project of the Year (between €50M and €500M) -** Regional Connector Transit Project - Los Angeles, USA
- **Project of the Year incl. Renovation (up to €50M) -** Modernization of the Vladivostok tunnel of the Far Eastern Railway, Russia
- **Technical Project Innovation of the Year -** Toulouse Line A Underground Stations Extension, France
- **Technical Product/Equipment Innovation of the Year -** Autonomous TBM, Malaysia
- **Innovative Underground Space Concept of the Year -** Underground Green Farming, Switzerland
- **Safety Initiative of the Year -** Air Quality Working Group An industry-first collaboration on silica dust control, Australia
- **Young Tunneller of the Year -** Amanda Kerr, USA
- **Lifetime Achievement Award -** Dr Harvey Parker

Busways 'BusBot' awarded best automated vehicle in Australia at prestigious ITS Awards

Busways' Coffs Harbour Automated Vehicle Trial *'BusBot'* has been awarded the Automated Vehicle Award at the recent Intelligent Transport Systems (ITS) Australia National Awards 2019.

Busways was nominated for its On Demand, shared automated vehicle pilot for regional public transport, known as the BusBot Project, operated in partnership with Transport for NSW, Coffs Harbour City Council, EasyMile, Via and Papercast. The prestigious ITA Australia National Awards award program is now in its 10th year with nominees for each award category determined by a ten-person judging panel made up of ITS professionals, representing industry, government and academia.

BusBot – operated in the coastal New South Wales town of Coffs Harbour - is the first Australian study of driverless shuttles in regional communities, gaining international interest, verifying real use-cases and proving to be of real value to a range of resident groups. Project development, safety assurance and operation were successfully delivered, developing a sustainable business model and blueprint which can be scaled to multiple operations around the country to accelerate the safe introduction of automated vehicles (AVs) onto Australian and international roads.

"Automated vehicle trials such as BusBot have great potential to increase non-car journeys and revitalise regional mobility. Receiving this award for a project based on finding future transport solutions demonstrates how important these trials are – it's fantastic to be a part of it," Managing Director of Busways, Byron Rowe, said.

"BusBot has given us and our project partners an abundance of knowledge when it comes to future transport solutions in driverless and electric technology that not only work to deliver a seamless transport network but also help the environment as we move towards electric passenger vehicle use," he added.

The BusBot trial involves three phases, each testing specific transport use cases for tourism; retirement villages or closed-off communities; and recreation in diverse environments and increasing levels of complexity. The trial is determining barriers and opportunities for delivering new AV mobility options and improving transport options in rural and regional communities.

"Busways has been thrilled to lead this innovative trial in our own backyard. To see Transport for NSW bring trials to regional towns such as Coffs Harbour proves how important it is to identify the transport needs of these residents and what works for them. Congratulations to the teams involved in such a successful trial of BusBot," Mr Rowe said.

Busways would like to thank our project partners Transport for NSW, Coffs Harbour City Council, EasyMile and Via. Busways also congratulates the other award recipient in the category – Queensland Department of Transport for their CHAD pilot, known as ZOE2, as well as the other nominees in the category, Aurrigo and SAGE Automation.

For more information: Facebook, Twitter and Instagram: @BusBotAU or visit: **www.busbot.com.au**

Rumble strips a welcome improvement to roadwork safety

SafeWork NSW welcomed the addition of a new safety measure to be introduced on roadwork sites across the state.

Transport for NSW has initiated the use of rumble strips on selected roadwork sites where the speed limit is 60 kilometres per hour or less, to help keep workers and motorists safe.

They are 20mm high, bright yellow pieces of plastic that vibrate when driven over and will alert drivers that they have entered a roadwork zone.

SafeWork NSW Executive Director Operations, Tony Williams, said the high number of vehicle related incidents on roadwork sites has prompted the need for smarter initiatives.

"With the current amount of roadwork projects in NSW the more workers we have out there developing infrastructure, the more we need to address the risks associated with construction work," said Mr Williams.

"Many workers are seriously injured or killed when hit by moving plant, or in on-site vehicle collisions. Only recently a worker sustained multiple fractures after he was struck by a vehicle when collecting warning signs at a Hornsby roadwork site."

"Rumble strips are a simple way to remind drivers and motorists that they are in a higher risk area."

"Other essential safe work systems include separating workers from moving plant and vehicles wherever possible, with physical barricades, exclusion zones and segregated work processes, Mr Williams added. "I can't overstate the importance of having a well thought out traffic management plan that reduces and controls any risks that cannot be eliminated."

Rumble strips are safe to drive over, and motorists should heed signage and slow down as they approach, remaining alert to workers and hazards in the zone. Pedestrians and cyclists will have safe, alternative paths to travel around the strips.

"Slow down and look out so we can all ensure that improving NSW infrastructure is a safe and collaborative endeavour," Mr Williams concluded.

For information on roadwork construction safety, please visit: **www.safework.nsw.gov.au**

IT'S TIME

Australia is moving to MASH tested Crash Cushions on December 31st 2019
and the time to prepare, is NOW!

According to the Austroads / ASBAP *'Transition to MASH'* process, tenders called for new crash cushions installed on Australian roads after December 31st 2019, will require them to be tested and approved under the AASHTO MASH guidelines, rather than the superseded NCHRP350 guidelines.

With this date rapidly approaching, **NOW IS THE TIME** to start preparing for this critical transition.

SMART CUSHION has been **ASSESSED, APPROVED & RECOMMENDED FOR ACCEPTANCE** throughout Australia by ASBAP (Austroads Safety Barrier Assessment Panel).

SMART CUSHION has been used in the USA for almost two decades and in Australia for over 5 years.

SMART CUSHION is the ONLY crash cushion to have passed both the NCHRP350 and MASH-2016 crash test standards.

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SMART CUSHION

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SAVE MONEY...

In 90% of all impacts in Australia, the only spare structural parts needed for repairs are 2 shear pins (COST <$5). After 59 impacts in Australia, the average cost for each reset was $169.

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After more than 20 years of successful service internationally and over 5 years successful service in Australia, SMART CUSHION has been directly credited with saving numerous lives and significantly reducing the severity of injuries in literally thousands of impacts.

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THE ACRS DIFFERENCE

With the increasing number of different types of certification available in Australia and New Zealand, it has never been more important for industry to recognise the differences between the types of certifications and schemes available, and the different levels of assurance provided by the certificates issued by those schemes.

In this special feature, Philp Sanders, CEO of ACRS provides a valuable insight into recognising these differences, what the limitations are, and the risks of automatic acceptance of certificates offered by different suppliers.

Certification types, certification differences, and your risks

by Philip Sanders, CEO, ACRS

As focus continues to intensify on non-conforming building materials, ACRS is increasingly asked questions about what certification does and which certificates can be relied upon. Unfortunately, these questions are sometimes only asked when it has been discovered that the materials delivered to, or worse still, installed on the project, have not met expectations.

The first thing to recognise is that there are several different types of certification.

The second, that in each type of certification there are the different levels available, offering different levels of product assurance to the end user.

These differences can be difficult to see at first look. For example, one certification level commonly offered, is "Type 5 certification". This type comes from ISO 17067 which is a guideline document (NOTE: not a Standard) offering possible options to certification providers. Unfortunately, this is often presented as being the highest level of certification. What's more, many also assume that any "Type 5" certification will deliver as well as any other.

This is, simply, incorrect.

As ISO 17067 itself describes, for "Type 5 certification" there are (only) four certification activities listed and further, it states *"...the extent to which the four surveillance activities are conducted may be varied for a given situation as defined in the scheme."*

Put simply, that means different schemes assessing the same product and process may:

- Do different things
- To different technical levels,
- Using different levels of expertise
- With different levels of rigour...

... and still legitimately issue certificates described as "Type 5" certification that, on the face of it, look the same, leaving certificate users who do not understand the differences potentially risking use of non-conforming materials.

"The only way to be truly sure that the materials being used conform fully with the appropriate Australian and New Zealand Standards and are fit for purpose, is through independent, expert third party certification with ongoing validation."

Below, I've listed some of the most common questions ACRS is asked by specifiers and users in relation to recognising these differences, what the limitations are, and the risks of automatic acceptance of certificates offered by different suppliers.

Why and How to Use the ACRS Steel Certification Scheme for Conformity Assurance for Infrastructure Construction Projects

Is ACRS the only JAS-ANZ accredited product certification body for steel to AS/NZS Standards?
Absolutely not. JAS-ANZ accredits many product certification bodies, and several of these are accredited to provide product certification to AS/NZS steel Standards.

So, can I accept any other JAS-ANZ accredited product certification body to AS/NZ Standards?
Yes, of course. However, as I've highlighted in previous articles, it is critical to remember "The extent to which ... surveillance activities are conducted may be varied for a given situation as defined in the [individual] scheme."

What's the catch?
JAS-ANZ accreditation of product certification schemes and certifiers does not mean that JAS-ANZ is saying all schemes do the same thing,

and provide similar outcomes - even if JAS-ANZ accredits them to certify the same products to the same Standards.

The potential catch, therefore, is that whilst you can choose to accept any scheme you wish, you cannot say that any JAS-ANZ accredited product certification scheme, by definition, provides the same level of assurance as any other. Again, as stated previously, different schemes assessing the same product and process may: do different things, to different technical levels, using different levels of expertise, with different levels of rigour.

So, on the face of it, while various schemes and certificates might look very similar, they may offer very different levels of assurance.

With that in mind, as a specifier, or user of steel product certification, you must be confident that the individual scheme and its certification does what you expect, and you should always check what schemes and certificates are acceptable to the client – especially in government work.

What is ACRS and why is it different?

ACRS specialist certification gives the highest level of steel certification available in Australia and New Zealand. Since 2001, ACRS has provided assessment and verification of manufacturers and suppliers using the 2-stage assurance process adopted in UK and modified for Australian and New Zealand Standards and practices.

I've checked ACRS scheme and it stresses two stages of certification are necessary, not just one. Why should I require both stages?

A lot can happen before steel arrives on your project. So, you should call up both stages to ensure you have certification covering more than simply steel manufacture.

One of the potential drawbacks of reliance on a single stage scheme, particularly if it is only for the mill of manufacture, is that such schemes usually cannot take into account what happens to the steel between leaving the mill and being dispatched to site. ACRS was designed to do more.

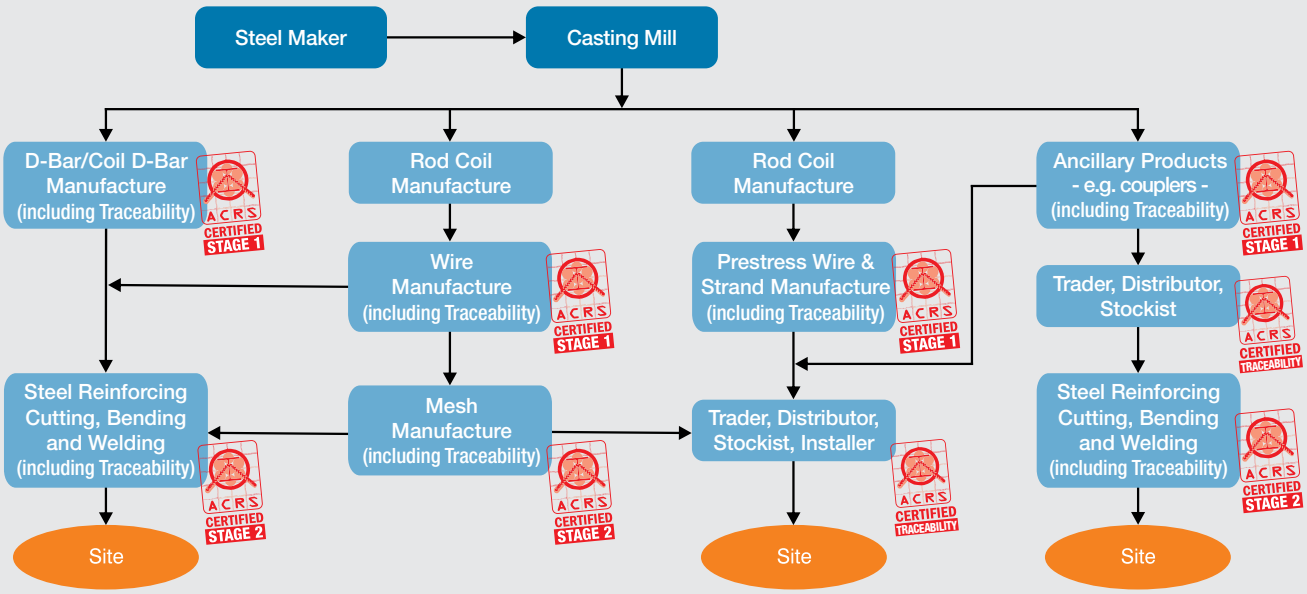
Quality (that is "compliant") structures need conforming steels. Steel can be processed, fabricated, and welded perfectly, but if the steel used is "wrong", the structure is wrong.

That's why you need to specify steel certification that independently verifies the steel used conforms consistently to the right standards and is fully traceable through the supply chain from the steel mills used to the welded section fabricator with no substitutions, or mixing of sources. Only ACRS 2-stage certification system gives you chain of custody already included as part of steel product certification.

If you don't use ACRS certification together with any other certifications you may choose to use (e.g. ISO 9001 quality systems certification, ISO 3834 welding systems certification, and general steelwork fabricator certification) you will need to actively sign-off the conformity of all the steel used for every delivery on your project. This is not an easy task for anyone, and it can come with real risks you won't be able to verify all the steel to Standards.

So, choose ACRS Stage 1 steel manufacture certification and ACRS Stage 2 steel welded section certification. Simply specifying ACRS 2-stage certification makes demonstrating steel conformity easy for the steel suppliers, easy for the steel fabricators, and easy for you.

ACRS Reinforcing Steel Chain of Certification



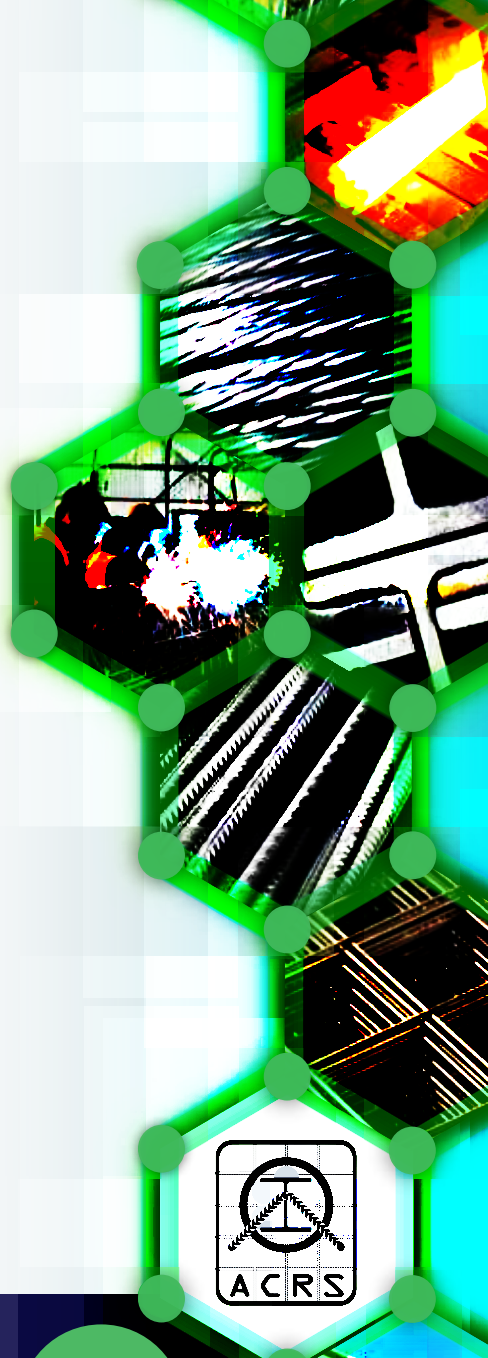
For reinforcing steels, ACRS certifies BOTH the steel mill that manufactures the steel AND the steel reinforcement processor and mesh supplier. Verification of the outputs of both these supply streams is essential for any steel reinforcing materials claiming to conform with the Standards.

Can I use welded section fabricator or rebar processor certification by another scheme if the supplier assures me they will only use ACRS "Stage 1" manufactured steel?

As above, you can choose a scheme other than ACRS. However, ACRS does not cover material transformed by other "Stage 2" certifiers because ACRS has not assessed and validated the fabricated product for both source material and what has been done during processing or welded fabrication, nor has ACRS reviewed materials traceability between the steel mill and the processor, or fabricator.

ACRS has had to disappoint several enquirers recently. Some discovered that despite assurances from the supplier, material was not even ACRS stage 1 certified and was unable to be verified to the steel Standard. Others have found that welded section fabricators and mesh manufacturers could not demonstrate that even where ACRS Stage 1 materials were used, that the steel was still conforming to Standards after fabrication, and were having problems with acceptance.

You need to be sure your steel procurement policies and specifications reference both ACRS steel manufacture certification (ACRS Stage 1) and then either ACRS rebar processing certification or ACRS structural steel welded section certification (ACRS Stage 2) to properly manage your risks of receiving non-conforming steel.



HOW DO I SPECIFY ACRS CERTIFIED STEELS?

The easiest way to manage and minimise the risk of non-conforming construction steels, is to specify ACRS certified steels.

FOR STRUCTURAL STEELS

"Structural steels shall comply with AS 1074, AS 1442, AS 1579, AS/NZS 1163, AS/NZS 1594, AS/NZS 3678, AS/NZS 3679.1, or AS/NZS 3679.2, as appropriate.

Structural bolts shall comply with AS/NZS 1252.

Where applicable, materials shall be fabricated in accordance with the "Fabrication" requirements in Section 14 of AS 4100 or Appendix G of AS 5100.6, or AS/NZS 2327, or NZS 3404, and the requirements of AS/NZS 5131.

Acceptable manufacturers of structural steels, structural bolts, and the fabricators of structural welded sections must hold a valid certificate of approval issued by the Australasian Certification Authority for Reinforcing and Structural Steels Ltd (ACRS), or to such other accredited product certification system as shall be demonstrated by the supplier to be directly equivalent in scope and technical rigour to ACRS and approved as such in writing by the specifier.

Evidence of the supplier's compliance with this clause must be obtained when contract bids are received."

FOR STEEL REINFORCING MATERIALS

"Steel reinforcing and steel prestressing materials for concrete shall comply with AS/NZS 4671 or AS/NZS 4672, respectively.

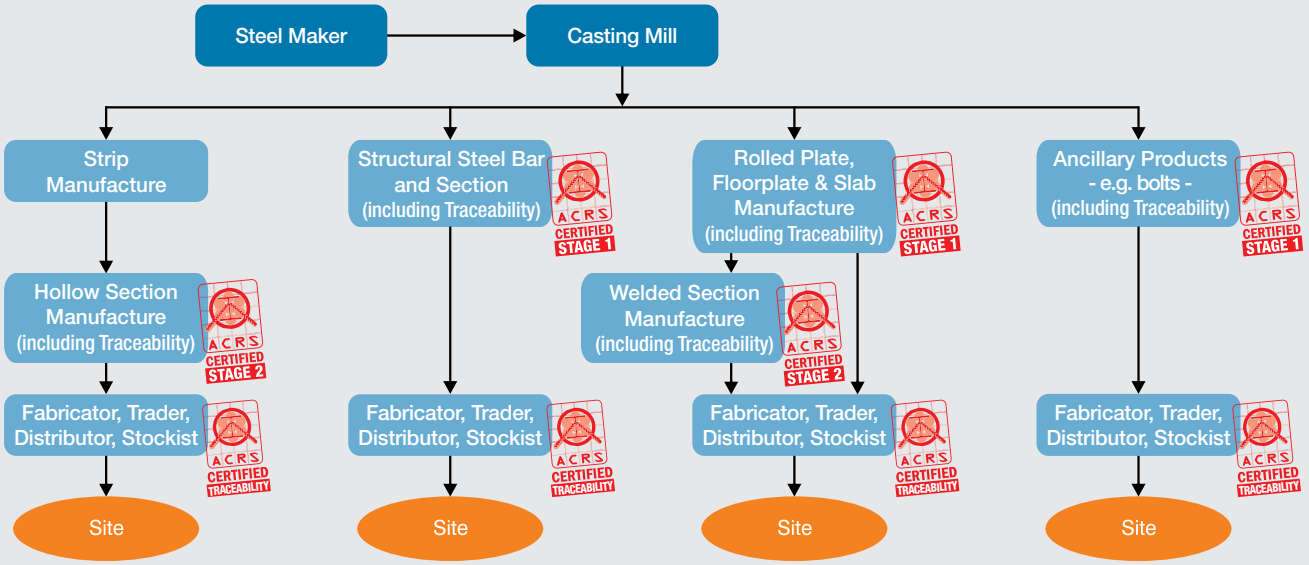
Where applicable, materials shall be cut and bent in accordance with the requirements of the "Material and Structural Requirements for Reinforcing Steel" clauses in AS 3600 or AS 5100.5, or the "Reinforcement" clauses of NZS 3109.

Reinforcing couplers shall comply with RMS specification RMS SF2013/184115 Approval of Mechanical Reinforcing Bar Splices, or NZTA SP/M/022 Bridge Manual (technical approval sections), as specified.

Acceptable manufacturers and processors of steel prestressing and steel reinforcing materials, including both manufacture and application of reinforcing couplers, must hold a valid certificate of approval issued by the Australasian Certification Authority for Reinforcing and Structural Steels Ltd (ACRS), or to such other accredited product certification system as shall be demonstrated by the supplier to be directly equivalent in scope and technical rigour to ACRS and approved as such in writing by the specifier.

Evidence of the supplier's compliance with this clause must be obtained when contract bids are received."

ACRS Structural Steel Chain of Certification



For structural steels, ACRS certifies the steel mill of manufacture, who must actively demonstrate traceability of their supply to the steel distributor. ACRS is working with Steelwork Certification Australia to develop "end to end" certification from mill to site that will provide confidence in fabricated structural steels from the purchase of verified steel from ACRS certified mills right through to delivery of the finished fabricated steel to the project site.

Independent, Expert, Third Party Certification

The only way to be truly sure that the materials being used conform fully with the appropriate Australian and New Zealand Standards and are fit for purpose, is through independent, expert third party certification with ongoing validation.

ACRS is an independent, expert, not for profit steel conformity body set up for consumer benefit. ACRS provides a fully independent, expert assessment and certification for both Australian and internationally sourced construction steels, including reinforcing steels, structural steels and prestressing steels and includes product traceability.

All ACRS auditors are qualified metallurgists with many years of experience working with steels.

ACRS certification makes checking for compliance with the relevant Australian and New Zealand Standards easy. It demonstrates INDEPENDENTLY and EXPERTLY that the supplier consistently meets the Standards stated on the certificate.

By using ACRS certified construction steels, builders and contractors can be confident that they are getting the AS/NZS compliant materials that they ordered, and engineers and building certifiers can be confident that steel meets the requirements of the Building Code and associated Standards.

ACRS has operated to the UK version of the EU system since 2001, and ACRS is unlike any other system in Australia or New Zealand. As such, the ACRS scheme assesses several important aspects of supply of steel to Australian and New Zealand construction projects:

1. Steel manufactured to a specific standard (ACRS "Stage 1"), including:
   - Steel reinforcing bar
   - Steel reinforcing wire
   - Prestressing bar, wire, and strand
   - Structural steels

2. The subsequent working of ACRS "Stage 1" steel into its final form (ACRS "Stage 2"), including:
   - Processed (fabricated) steel rebar,
   - rebar threading and application of the coupler
   - welded steel mesh manufacture
   - structural steel welded sections from steel plate

3. The traceability of the steel between Stage 1 and Stage 2 to ensure integrity of supply, viz:
   - ACRS Stage 1 and ACRS Stage 2 certificate holders must hold ACRS certificates for all their sites and for all their AS/NZS materials to demonstrate they can manage full traceability of conforming materials;
   - ACRS Stage 2 certificate holders must only use ACRS Stage 1 materials
   - ACRS Stage 2 certificate holders must demonstrate that their process does not render Stage 1 steel non-conforming

Visit ACRS' website at **www.steelcertification.com** for full details of all Stage 1 and Stage 2 certificate holders and materials to update your preferred supplier lists.

ACRS 'End-to-End' Traceability

What Does End-to-End Really Mean?

When we say 'end-to-end', we're talking about the ability to track information on all raw materials, components, and associated processes across the supply chain, including the design, manufacturing, supply, and delivery phases.

'End-to-end' traceability is directly comparable to ACRS product certification scheme's cornerstone 'All products, all locations rule' which has provided market confidence in steels supplied under ACRS product certification for nearly 20-years.

The ACRS 'Chain of Certification'
Construction steels manufactured to AS/NZS Standards can be rendered non-conforming by poor transformation, e.g. through such processes as cutting, bending and welding.

Certification systems that only assess the mill of manufacture do not provide for validated performance to Standards of the as-delivered product.

ACRS' 2-stage steel certification scheme and the new ACRS traceability scheme have been developed to give you confidence in your steel supply.

For reinforcing steels, ACRS certifies BOTH the steel mill that manufactures the steel AND the steel reinforcement processor and mesh supplier, while for structural steels, ACRS certifies the steel mill that manufactures the steel, AND the welded section manufacturer, who must actively demonstrate traceability of their supply to and from the steel distributor.

ACRS completes first coupler system and first coupler supplier certification to Road and Bridge Specifications

ACRS co-operation program with the UK for certification of coupler manufacture and supply to the Australian and New Zealand construction industries sets a new international benchmark.

ACRS has developed this new system with its UK sister organisation, UKCARES, with each benchmarking its processes and procedures against the other's certifications. This process, is the first in a series of planned joint developments and delivers an unprecedented level of cooperation between international accredited product certification bodies, benefitting Australian and New Zealand consumers, construction industries, and conforming international product suppliers.

Under this signature new system, ACRS can now utilise relevant UKCARES' technical reports and audit reports to leverage compatible technical information where equivalent to Australian and New Zealand requirements, reducing costs to suppliers and time to decision for ACRS certification. Similarly, UKCARES is able to accept compatible ACRS information.

ACRS coupler manufacture certification (Stage 1) and coupler application certification (Stage 2) is JAS-ANZ accredited and covers the requirements of both RMS and NZTA for approval of mechanical reinforcing bar splices, as well as the audit and verification requirements of the ACRS Product Scheme.

ACRS' continued delivery of certification levels for the local businesses and agents of the coupler suppliers ensures the most rigorous verification-based system available, exceeding the EU system in some important respects for suitable supply to Australian and New Zealand specifier and consumer requirements.

Be sure your coupler procurement policies reference both ACRS coupler manufacture certification (Stage 1) and ACRS coupler application certification (Stage 2) to manage your risks of both procuring non-conforming couplers and possible subsequent non-conforming application of approved couplers.

ACRS Benchmarks against EU Peak Certifiers

ACRS recently met peer certification bodies in UK, Germany and Italy, continuing ACRS' longstanding program of information and technical exchange operating since 2008.

This program of detailed discussions across a range of subjects between peer, independent certification bodies ensures ACRS continues to deliver assessment methodology, meeting Australian and New Zealand industry requirements to the highest levels.

Following on from these meetings, ACRS will be developing new areas of certification in consultation with key stakeholders, including Austroads and Engineers Australia representatives.

Please contact ACRS, free of charge, if there is any aspect of steel specification, procurement, and supply that your team would like to discuss. All enquiries are confidential. Email: info@steelcertification.com or call +61 2 9965 7216.

BIO-MATERIALS HERALD NEW CHAPTER IN AUSTRALIAN AUTO MANUFACTURING

University of Queensland researchers are developing a new generation of sustainable composite materials designed specifically for electric vehicles. Queensland-founded startup *Australian Clean Energy Electric Vehicle Group* (ACE-EV) launched its electric van (pictured) in Australia in August and is now working to ensure the vehicle is designed and built onshore, using Australian research expertise.

Australian Institute for Bioengineering and Nanotechnology research fellow Dr Nasim Amiralian said UQ's researchers were passionate about creating manufacturing opportunities for Australia in the bio-economy.

"Working with ACE-EV will hopefully be the beginning of a new chapter in Australian automotive manufacturing," Dr Amiralian said.

The Co-Director of the UQ Centre for Advanced Materials Processing and Manufacturing, Dr Michael Heitzmann, said UQ had exceptional expertise in developing bioplastics and composites.

"It's a logical next step for our UQ team to support a local start-up in implementing these new materials," he said.

"We see great potential in replacing non-renewable traditional composite and polymers with bio-based materials that have a much lower carbon footprint."

Australian Institute for Bioengineering and Nanotechnology research fellow Dr Nasim Amiralian said UQ's researchers were passionate about creating manufacturing opportunities for Australia in the bio-economy.

From left: UQ's Dr Michael Heitzmann, Mark Butler MP and UQ's Dr Nasim Amiralian with the ACE-EV electric van.

"Working with ACE-EV will hopefully be the beginning of a new chapter in Australian automotive manufacturing," Dr Amiralian said.

ACE-EV managing director Greg McGarvie said UQ's world-class bioengineering and nanotechnology research had prompted ACE-EV to keep its research base in Queensland.

"Working together, we can all be part of a solution to the impending climate emergency, softening the impact by creating new jobs, new careers and new businesses that profit from reducing carbon footprints," Mr McGarvie said.

"A transition to electric vehicles that use bio-based materials like 'green' plastics will mean cleaner, healthier cities and significant savings in household budgets."

Mr McGarvie, originally from Maryborough in Queensland, said the company hoped to assemble ACE-EV vehicles in regional Queensland.

Flinders University researchers will collaborate with UQ and ACE-EV on the research.

APPLYING AN EXTRA TAX ON EVS WOULD MAKE AUSTRALIA A GLOBAL LAUGHING STOCK

A recent report from Infrastructure Partnerships Australia that reportedly suggests an additional 'road user charge' on electric vehicles should be introduced is economic illiterate and should be rejected out of hand, according to the Electric Vehicle Council.

Electric Vehicle Council CEO Behyad Jafari said the vast potential of EVs to improve the nation's air quality, energy security, and carbon output meant it was time to stop recycling the foolish idea of an additional tax.

"Imposing an additional tax on EVs would disincentivise uptake, especially for the emerging mid-tier market. Although this economically illiterate report somehow managed to claim otherwise, sticking a tax on things discourages purchase," Mr Jafari said. "This report also completely ignores the hazardous effect of our dependence on foreign oil, both to our national security and balance of trade."

"While the rest of the world has introduced fuel efficiency standards and incentives for EVs, Australia has none," Mr Jafari added. "Under these proposed changes we would go a step further and actively encourage the purchase of polluting cars that cost the health system billions of dollars each year. Air pollution from combustion engine vehicles kills many more people than the annual road toll."

"These recommendations would make Australia conspicuous as the only nation to tax EV use rather than incentivise it."

Mr Jafari said that he believes that Australians want to drive

cleaner and greener vehicles, however, the current policy settings push against that. He believes a road users tax at this point would be an additional step backwards and a global embarrassment.

"In the long-term there may be a need for government to collect additional revenue to replace fuel excise intake. But the idea that the logical way to make up this shortfall is to disincentivise the take-up of zero-emission vehicles with a new tax at this early stage is truly muddleheaded," he said.

"The recommendations of this report would be disastrous to governments efforts to reduce emissions and combat the effects of climate change. Transport is one of Australia's highest sources of emissions, rising each year and our transport energy efficiency is rated among the lowest in the developed world," Mr Jafari concluded.

Australia is one of the few countries in the world not to have a fuel efficiency standard. The USA introduced its policy in the 1970s and countries including China, India, Japan, Canada and the UK have all embraced the model.

IEEFA REPORT: SOLAR POTENTIAL IN AUSTRALIA WARRANTS INVESTING IN ELECTRIC VEHICLE MARKET

Australia has great potential to capitalize on its exceptional solar resources and save people big dollars by driving growth in electric vehicles powered by residential rooftop solar and batteries, according to a report released by the *Institute for Energy Economics and Financial Analysis* (IEEFA).

The report, *Steering by the Southern Sun - Australians Are Missing a Trick on Solar-Powered Electric Vehicles,* finds enormous potential for the rapid adoption of electric vehicles in Australia, highlighting one fifth of households have already installed rooftop solar to reduce overly high electricity bills.

"We are seeing rapid change in Australia with people totally on board in adopting new energy technologies," says IEEFA analyst Gerard Wynn.

"Australia is leading the world in rooftop solar market share, and people are looking around for the next carbon-free innovation.

"The beauty of electric vehicles is they can be charged by a household's rooftop solar plus battery, with savings generated by on-site power generation and from avoiding the cost of constantly fuelling a conventional car."

While rooftop solar in Australia is already achieving payback periods of 5 years or less, with consumers then benefiting from 20 to 25 years of free electricity, the report found Australia is lagging behind other developed countries in building an electric vehicle market.

"At the moment, the combination of an electric vehicle with rooftop solar plus battery has a payback period of nine years, falling to 4 years in 2025, and less than 2 years in 2030," says Wynn.

"With the right government incentives, this payback period can fall to about five years today and be zero by 2030.

"In a market where electric vehicles and batteries are made more affordable, transport and fuel costs are also reduced for people across Australia.

"Electric vehicles will become increasingly attractive to Australian consumers who have already demonstrated their passion for early solar adoption through more effective policies and incentives."

The report finds in 2018, Australia registered just 1,800 electric vehicle sales, a tiny 0.21% share of national sales. That number trails far behind other countries similar in economic size or region, such as Korea (29,630 new electric vehicle sales last year), the Netherlands (25,070), Canada (22,660), and New Zealand (4,360).

The report also looked at other countries such as Germany and Norway for examples of lessons that could be applied to Australia. Norway achieved rapid electric vehicle growth through incentives including removing GST and import tariffs on electric vehicles, exemptions on road tolls, exemptions from motor vehicle taxes, free public parking, and consumer capital starter-packs of up to A$6,500.

"When the government introduces the right mix of incentives, people in Australia will benefit from cheap, solar-powered charging for their vehicles sooner," says Wynn.

"Electric vehicles are cleaner, quieter, and less carbon-emitting than conventional cars.

"With rooftop solar being installed at faster rates per capita than anywhere in the world, Australia has a big opportunity to jump on the bandwagon and reduce everyday bills for Australians even further, while kicking climate goals."

BLACKBOX CONTROL OBTAINS TYPE-APPROVAL FOR NEW TELEMATICS DEVICE

Transport Certification Australia is pleased to announce the type-approval of a BlackBox Control Telematics In-Vehicle Unit (IVU).

The new IVU is an original model designed and developed in Australia that positions BlackBox Control to offer new applications and features now available through the National Telematics Framework.

Details of the new type-approved IVU from BlackBox are listed in the table below.

TCA type-approval involves a functional and technical assessment of performance outcomes contained in the IVU specification, and an assessment of the organisation's business standing to support the technology and meet customer service and support.

BlackBox Control is a Certified Service Provider, and already supports numerous applications available through the National Telematics Framework, including:

- Hill Descent Monitoring (HDM)
- Intelligent Access Program (IAP)
- Intelligent Speed Compliance (ISC)
- Certified Telematics Service (CTS)

"Our new type-approved IVU has the capability to support new applications and features being offered through the Framework, including Intelligent Mass functionality, which is being rolled-out during 2020," said Mark Langford, General Manager of BlackBox Control.

"Obtaining type-approval for our new IVU demonstrates our commitment to helping our transport customers to become safer and more productive. It follows September's announcement where BlackBox Control became the first provider certified for the new Hill Descent Monitoring (HDM) application," he added.

A list of type-approved IVUs is available on the TCA website.

For more information on the National Telematics Framework, please contact TCA on (03) 8601 4600 or Email at: tca@tca.gov.au or visit the website: **www.tca.gov.au**

Provider	IVU Model Number	Firmware Version	Approved User Interfaces	
BlackBox Control	8004IAPC-4G	1.02.01	2 User Interface types	tca Type-Approved IVU

USE OF NEW ROAD INFRASTRUCTURE MANAGEMENT APPLICATION EXPANDS FURTHER IN NSW

Road managers and regulators are now using Transport Certification Australia's (TCA) *Road Infrastructure Management* (RIM) application to drive productivity and safety reforms, while reducing costs. RIM enables the collection of road use data from vehicles fitted with a telematics devices.

Transport for NSW has further expanded the use of the RIM application with the release of New South Wales Class 3 Port Botany Container Transportation Mass Exemption Notice 2019 (No. 1). This is the second use of the new RIM application in NSW (following SPECTS).

The Port Botany Notice is aimed at improving safe, efficient and compliant movement of shipping containers; and increasing the ability for road managers to make improved access and road infrastructure investment decisions, through the collection of road use data using RIM. It allows eligible heavy vehicles carrying freight containers to operate at axle group masses consistent with Concessional Mass Limits (CML) when fitted with vehicle safety equipment and telematics monitoring. The Notice enables travel to or from a prescribed stevedore terminal at Port Botany on approved routes within the Greater Sydney Area.

Eligible heavy vehicles must also meet the following additional conditions:

- Be enrolled in TCA's Road Infrastructure Management (RIM) application
- Be fitted with safety systems including lane departure warning systems, emergency braking systems, vehicle braking systems, electronic stability control systems and trailer braking systems.

The Port Botany Notice is the second use of the new RIM application in NSW, following the updated SPECTS Business Rules in July 2019. Construction vehicles operating under SPECTS need to meet all conditions including enrolment in the RIM application.

RIM is an application of the National Telematics Framework and is one of the 16 initiatives contained in the business case approved by the Transport and Infrastructure Council (TIC) in November 2018.

The RIM application provides an efficient, standardised way of collecting and analysing telematics data from vehicles, and incorporates safeguards to ensure transport operator and vehicle-specific data is protected.

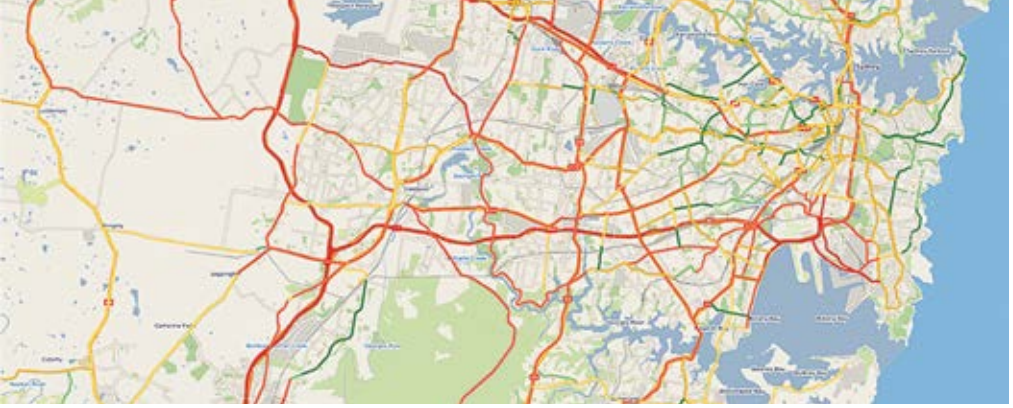
Road managers and regulators use the Telematics Analytics Platform (TAP) to view map-based representations of data collected through the RIM application to optimise access decisions, network maintenance and infrastructure investment.

A key element of the RIM application is that transport operators can use their existing telematics devices and providers.

If you are a transport operator, or wish to find out about RIM, including how it works and its benefits, please speak to your service provider to ensure they are moving to register for RIM. Your service provider will handle the enrolment process for you.

TCA is now engaging with providers wanting to register for RIM. If you are a technical provider, please contact TCA directly by phone on (03) 8601 4600 or email to: tca@tca.gov.au to obtain an information pack for RIM registration.

For general information on RIM, or to access the RIM Functional and Technical Specification or the Telematics Data Exchange (TDE) Functional and Technical Specification, please visit the TCA website: **www.tca.gov.au**



TRANSPORT FOR NSW PUTS TELEMATICS TO USE IN ITS FREIGHT DATA HUB

Transport Certification Australia (TCA) commends Transport for NSW (TfNSW) for taking the lead in publishing road freight data through the NSW Freight Data Hub. TCA and TfNSW have worked closely together to develop interactive maps which provide unparalleled insights into vehicle movements across the New South Wales road network.

With NSW being the first to publish this kind of analysis, it provides valuable insights into the movement of freight vehicles across NSW.

The interactive map presents heavy vehicle data for individual road segments, including journey counts and bi-directional movements. Reports from the NSW Freight Data Hub are derived from applications administered through the *National Telematics Framework*.

As the Australian entity responsible for administration of the *National Telematics Framework,* TCA provides assurance in the use of telematics and related intelligent technologies. TCA performs a critical, independent role between industry and government in collecting, de-identifying and aggregating telematics data for broader use. This provides certainty to stakeholders that:

- transport operator and vehicle-specific data is protected;
- commercially sensitive information is securely managed; and
- privacy-by-design principles are upheld.

The new *Road Infrastructure Management* (RIM) application provides a new way of collecting road use data from vehicles to better inform and optimise the management of road networks, and will provide valuable inputs into future versions of the interactive maps.

TfNSW is already using the RIM application for the Safety Productivity Environment and Construction Transport Scheme (SPECTS) and Port Botany Container Transportation Mass Exemption Notice 2019. Both initiatives provide productivity benefits to transport operators in exchange for sharing their data through RIM.

Standardised data collection and consent mechanisms made available through the RIM application make it easy for transport operators to 'opt-in'.

With vehicles now enrolling in the RIM application, future versions of the interactive maps on the NSW Freight Data Hub will benefit from an increased sample size and vehicle representation.

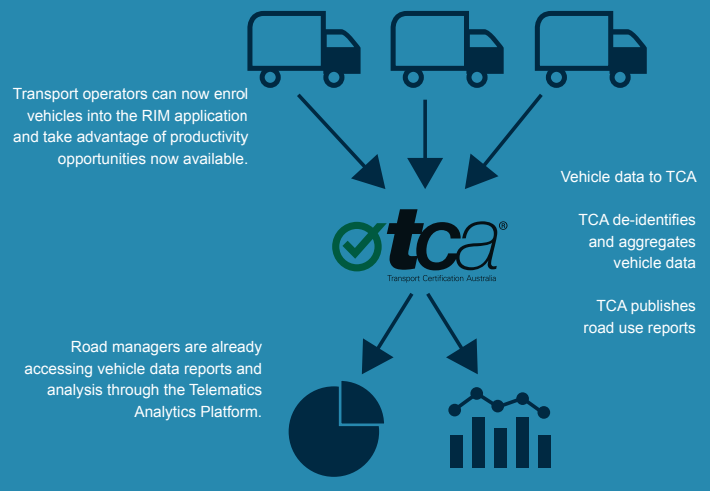
The New Road Infrastructure Management App Is Here

The Road Infrastructure Management (RIM) is a new application of the National Telematics Framework.

It is an efficient, low cost way of collecting road use data from vehicles to optimise the management of road networks.

Registration is simple, no charge.

RIM provides the right level of assurance needed for road usage reporting, by focusing on 'big data'.



RIM National Telematics Framework Registered Provider tca

Technology providers registered for RIM are recognised by the 'RIM Registered Provider' logo.

Visit TCA's website for further information:
www.tca.gov.au/rim

Talk to us about RIM –
call TCA directly on (03) 8601 4600.

FIRST PROVIDER REGISTERED FOR THE ROAD INFRASTRUCTURE MANAGEMENT APPLICATION

Transport Certification Australia is pleased to announce V-DAQ as the first approved registered provider of *Road Infrastructure Management* (RIM), an application of the *National Telematics Framework.*

V-DAQ is an Australian company that provides the opportunity of intelligence and connectivity to vehicles using its high precision telematics device and data distribution platform. V-DAQ makes it easy for transport operators to benefit from data across a range of applications and services, such as asset management and smart infrastructure integration.

"At V-DAQ, we work hand-in-hand with advanced and emerging technologies to provide industry leading products and services to a wide range of applications," said Rylan Kolb, Managing Director at V-DAQ. "We're delighted to be a part of RIM."

As the first provider registered for RIM, V-DAQ can now provide the RIM application to the market. This complements the work of transport operators already participating in the initial deployment of RIM through the SPECTS road access scheme.

A key element of the RIM application is that transport operators can use their existing telematics devices and providers.

"We look forward to working with transport operators who are seeking to use RIM to collect and benefit from road data from their vehicles - it's easy to get started, we'll handle the enrolment process for you," said Mr Kolb.

If you are a transport operator, or wish to find out about RIM, including how it works and its benefits, please speak to your service provider to ensure they are moving to register for RIM. Your service provider will handle the enrolment process for you.

For general information on RIM, or to access the RIM Functional and Technical Specification or the Telematics Data Exchange (TDE) Functional and Technical Specification, please visit the TCA website: **www.tca.gov.au**

TYPE-APPROVED ON-BOARD MASS SYSTEMS

A market of type-approved OBM systems now available

A selection of type-approved on-board mass (OBM) systems is now available through the National Telematics Framework.

Type-approved OBM systems deliver the levels of accuracy and reliability that transport operators demand.

Look for the TCA type-approval logo when choosing an OBM system for your vehicle:

tca Type-Approved™

OBM

Use type-approved OBM systems to manage:
- ✓ Safety
- ✓ Vehicle loading
- ✓ Chain of responsibility obligations.

Service Providers

LOADMAN ONBOARD SCALES · Tramanco PROVEN STRENGTH Since 1975 · e-max · AIRTEC CORPORATION

We're here to help
Call (03) 8601 4600 or email tca@tca.gov.au.

Suppliers of type-approved OBM systems are Loadman Australia, Tramanco Pty Ltd, E-Max Australia Pty Ltd and Airtec Corporation.

THE CHOICE IS YOURS!

RANGE OF MODELS
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At A1 Roadlines we understand that our customers have a range of preferences when it comes to fleet vehicles. That's why we fit and service the Scorpion II TMA across a full range of suitable host vehicles from world-leading manufacturers including **ISUZU, UD, FUSO** and **HINO** to name a few.

So, when it comes to selecting a fully MASH tested, passed and eligible TMA that has also been **ASSESSED, APPROVED & RECOMMENDED FOR ACCEPTANCE** throughout Australia by ASBAP (Austroads Safety Barrier Assessment Panel), the only name you need to remember is **Scorpion II® TMA** from **A1 Roadlines**. When it comes to the brand of host vehicle... that's up to you!

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GET THE FACTS!

on TRUCK MOUNTED ATTENUATORS (TMA's)

BEWARE OF 'FAKE NEWS'

With the move from NCHRP350 testing to MASH (Manual for Assessing Safety Hardware) as the preferred testing for Truck Mounted Attenuators (TMA's) in Australia currently progressing there has been confusion amongst some equipment owners as to what equipment is compliant and, perhaps more importantly, what the status of their equipment will be after Australia moves to MASH as the testing standard.

This situation has no doubt been inflamed by the inaccurate information and spurious claims that have surfaced over the past 12 months – including claims that some units will no longer be permitted to be used after December 31, 2020.

With that in mind, the following fact sheet has been developed to provide key FACTS as to the current status of the 'Transition to MASH Guidelines'.

FACT!

The move by the Austroads Safety Barrier Assessment Panel (ASBAP) towards MASH testing and certification is a complex process that will take some time to implement. The Panel is transitioning the current suite of accepted road safety barrier systems and devices within the Australasian market to MASH guidelines over an extended timeframe, with Part 2 Products (which includes TMA's) to be completed by 31 December 2020.

FACT!

This **DOES NOT** by any definition mean that non-MASH tested equipment is suddenly obsolete or can no longer be used. It also **DOES NOT** render TMA's that have been previously approved as tested under NCHRP350 guidelines obsolete or unusable **– to suggest otherwise is simply NOT TRUE.**

FACT!

While there is a formal agreement on the transition to MASH testing from NCHRP350 testing, there is **NO CUT-OFF DATE** for using equipment that has been certified under the NCHRP350 testing while it is operational **– to suggest otherwise is simply NOT TRUE.**

FACT!

Even if a TMA is recommended for acceptance at an Austroads level by ASBAP, it must still be approved for use in individual jurisdictions by the relevant State Authority.
The State Authorities are responsible for approving the use of TMA's in their individual jurisdiction.

FACT!

The transition to MASH guidelines is a lengthy and ongoing process and lists of 'Austroads Approved Products' are currently a Work in Progress. If a product does not currently appear on a jurisdiction's list, or is not currently recommended for acceptance at an Austroads level by ASBAP, it **DOES NOT** mean that it has not been successfully tested and certified to MASH guidelines, or that it is not acceptable for use in that jurisdiction. It may simply have not yet been assessed by ASBAP.

FACT!

The Scorpion® II Truck Mounted Attenuator was **the first TMA to be fully certified as Tested, Passed and Eligible to MASH 16** by the U.S. Department of Transportation Federal Highway Administration.
The U.S. Department of Transportation Federal Highway Administration *Safety Eligibility Letter CC-132* for the Scorpion® II TMA can be viewed online at:
https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/barriers/pdf/cc132.cfm

FACT!

The Scorpion® II Trailer Attenuator is also fully certified as Tested, Passed and Eligible to MASH 16 by the U.S. Department of Transportation Federal Highway Administration.
The U.S. Department of Transportation Federal Highway Administration *Safety Eligibility Letter CC-138* for the Scorpion® II Trailer Attenuator can be viewed online at:
https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/barriers/pdf/cc138.cfm

CHECK THE FACTS

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THE RIGHT TOOLS FOR THE JOB

CHASSIS LINE BOOSTS TRANSPORT SAFETY WITH PRECISION TORQUE WRENCHES FROM ENERPAC

Precision torque wrench technology from Enerpac is being used by Toowoomba truck and trailer service and manufacturing specialist Chassis Line to boost suspension safety and reliability on vehicles used locally and across Australia.

"You need precise and even torqueing of suspension components to get the best out of them and to prevent accidents," says Chassis Line Director Warren Southee. "Too often we are seeing vehicle suspensions coming here that have been fastened up crudely and unevenly, maybe with a ratchet pipe and beam."

"Before long, one of the less torqued components works loose, then the axle starts to move, then other suspension components start to cycle and work loose. This can quickly lead to a very expensive failure – or even an accident. It's not worth the risk."

"Yet often it just takes good technology and professional practice to prevent this happening – often the best technology involved is also the most time-efficient, so it doesn't need to cost more to do the job right," said Mr Southee, who has gained extensive experience over 35 years at his south-east Queensland business employing 18 people, and where hardly a day goes by without a major job underway on a truck or trailer. The company takes pride in providing quality work under time-sensitive schedules, always attending to the important details and professional practice that will ensure work is done right and lasts.

In keeping with its quality and traceability objectives, Chassis Line is using the tough new Enerpac CE certified PTW Series pneumatic torque wrench technology for tasks ranging from suspension servicing through to component replacement and installation.

In keeping with its quality and traceability objectives, Chassis Line has introduced tough new Enerpac CE certified PTW Series pneumatic torque wrench technology for tasks ranging from suspension servicing through to component replacement and installation.

Enerpac Pneumatic Torque Wrenches – in maximum torque capacities from 1,356-8,135 Nm (1,000-6,000 ft lb) – share the global service, backup and reliability of Enerpac tools in widespread use throughout Australasia and worldwide. The new technology is part of a range designed for cost-efficient, safe and simple operation and which is delivered with a calibration certificate to ensure accuracy and safety.

The new technology is used by Chassis Line on all makes and models of trucks and trailers, ranging from local delivery, removal vehicles, tankers, flat tops and refrigerated vehicles, through to long-haul semis ranging as far as Western Australia, serving major Outback and rural industry such as farming, mining and energy, oil and gas, food supply, stock transport and remote industries sometimes accessible only by rough roads that play havoc with truck suspensions.

"Why anyone would compromise on safety and reliability is beyond me. It isn't a cost – it's an investment in uptime and risk management by removing a cause of accidents," said Mr Southee. "I think some people just don't appreciate that you have to torque everything to the exact specifications, right down to the wheel nuts, otherwise there is a real risk of failure – and accidents in the worst case."

Designed to optimise service life and minimise downtime, the square drive wrenches used by Chassis Line incorporate low-friction planetary gearboxes to minimise wear and extend uptime. They also feature commonality of motors and parts to facilitate maintenance in demanding industries including mining, oil and gas, construction, transport, ship building, manufacturing and power generation.

Chassis Line's experience ranges from new vehicle manufacturing, such as the trailer (left), through to repairs, servicing, modifications, safety assessments, and chassis straightening (right) - extending even to twisted chassis such as this example, which was damaged in a rollover.

"Because of their cost-efficient, simple and rapid high speed continuous rotation operation – using standard factory and mobile compressors found across a huge range of industries – Enerpac pneumatic torque wrenches will be especially suited to workshop tasks and on-site applications requiring speed and easy operation," says Enerpac Territory Manager SE Queensland, Sandy Whyman, who works with customers to deliver the best controlled force torqueing solution for their particular needs.

"Working with our outstanding distributor network, we can deliver the best solution for particular needs because we are not committed to just one technology – we have a whole range of controlled force solutions. PTW technology complements the full global Enerpac ranges of controlled bolting solutions for joint assembly, controlled tightening and separation. Enerpac technologies span mechanical, pneumatic, electrical and high-pressure hydraulic (700 Bar/10,000 psi) technologies including hexagonal and square drive torque wrenches, tensioners and complementary solutions-based technologies all available from the one source."

Warren Southee replaced his older pneumatic torqueing technology after Ms Whyman introduced him to the range of options available to suit his application.

"We already knew and liked the Enerpac brand – they make good stuff and back it up with service. We actually have other Enerpac tools in the workshop and have had for many years. But we weren't aware of just how good the range of alternatives was – and how good the new technology would be in service. For us, they are the complete package," said Mr Southee.

Features and benefits of Enerpac pneumatic torque wrenches include:

- Ergonomic design with weight-distributing handle and simple shape providing easy handing for repetitive tasks while eliminating trap points for fingers and impact hazards with older, imprecise manual tightening methods
- Simple operation – just set the air pressure and pull the trigger. Continuous rotation means no time is needed to re-stroke tools, saving time.
- Low-vibration design to reduce fatigue and the risk of vibration-related injuries, particularly hand (HAV) hazard. Planetary gearbox design eliminates hammer action.
- Low- noise air motor (under 85 dba) for quiet, consistent performance for indoor and outdoor applications.
- Common to all models, the proven air motor means fewer parts need to be carried by service centres.
- High commonality of drive and reaction arm options for lower inventory and speedier maintenance
- Convenience features including easily accessible tightening/loosening switch and standard 3m hose and standard reaction arm, complemented by a wide assortment of optional custom arms and accessories
- Availability with or without standard easily portable filter/regulator/lubricators to enhance reliability and durability under demanding service conditions

For more information about Enerpac equipment please contact Enerpac on: +61 (0)2 8717 7200, E: sales@enerpac.com.au or visit the website: **www.enerpac.com.au**

ABOUT ENERPAC

Enerpac is an international market leader in high-pressure hydraulics, which has been established in Australasia as a major supplier of high-pressure (700 bar) hydraulic equipment for 50 years, having nationwide service backup and a strong distribution network. Enerpac is wholly owned by the Enerpac Tool Group, a premier pure play industrial tools and services company serving customers from operations in more than 30 countries and is headquartered in Menomonee Falls, Wisconsin.

For further information on Enerpac Tool Group a nd its businesses, visit the Company's website at: **www.enerpactoolgoup.com**

New Enerpac products designed for safety and efficiency in heavy vehicle maintenance include: ❶ a complete range of torque tools and pumps, including battery pumps; ❷ Cordless non-trip emission-free outstandingly powerful ZC cordless hydraulic pumps; ❸ telescopic cylinders that make confined space jobs simpler and safer, including the RLT series of single-acting cylinders in capacities from 4-74 tons and collapsed heights of 45-114mm; and ❹ LG series Lock Grip Pullers for removal of shaft-mounted parts.

HYDRAULINK HELPS NSW FIREFIGHTERS PROTECT THEIR COMMUNITIES WITH FREE HOSE FIXES

ABOVE: Hydraulink Port Macquarie repaired hoses free of charge on trucks from both the Lake Cathie and Lake Innes RFS brigades.

Hydraulink Port Macquarie Director Simon Bell (right) and Hydraulink technician Andre Bouwer with one of Lake Cathie Rural Fire Brigade's trucks after they had repaired the rear water pressure hose.

As NSW battles one of the worst bushfire seasons on record, the community-minded Hydraulink Port Macquarie branch has come to the aid of local firefighters to repair their broken hoses, so they can continue to protect the community.

Blackbutt Engineering, which operates as an authorised Hydraulink dealer in Port Macquarie, enthusiastically repaired hoses completely free of charge for the Lake Cathie Rural Fire Brigade and Lake Innes Rural Fire Brigade.

"These firefighters are going above and beyond the call of duty to protect families and their homes in a time of crisis. Being able to provide them with any amount of assistance was highly rewarding," said Mr Simon Bell, Director, Blackbutt Engineering.

Lake Cathie Rural Fire Brigade

For the Lake Cathie brigade, Mr Bell and Tradesman Andre Bouwer determined that the fire engine's pumper live reel (the hose at the rear of the truck) had a leak on the reel end of the water pressure hose.

The two trained hydraulic technicians got to work promptly and repaired the leak, to get the fire truck back on road as quickly as possible, so that it could keep helping in the efforts to contain and manage the bushfires in local areas.

Lake Cathie Rural Fire Brigade was highly appreciative of the service and posted to their social media pages, *"Huge credit to Simon and the Boys at Blackbutt Engineering & Hydraulink Port Macquarie enthusiastically repairing our pumper live reel free of charge this morning. Absolute legends! Thank you."*

Lake Innes Rural Fire Brigade

For the Lake Innes brigade, Hydraulink efficiently fixed five hoses with holes in them, to get the firefighters ready for one of the worst predicted fire days the very next day.

The Lake Innes Rural Fire Brigade also greatly appreciated the assistance, posting on social media, *"A big thanks !! to Simon and the awesome team at Blackbutt Engineering & Hydraulink Port Macquarie. The guys have donated their time to make some emergency repairs on our firefighting hoses."*

Blackbutt Engineering

Blackbutt Engineering & Hydraulink Port Macquarie is one of more than 400 Hydraulink hydraulic service points throughout Australia and New Zealand that proudly provides exceptional 24/7 service, a can-do attitude and quality products to all their customers. Group Marketing Manager, Daniella Laurenzi, says she is not at all surprised by the great work done by Simon and Andre.

"This kind of helpful, 'get in and do whatever is needed' attitude is what our Hydraulink network is known for."

"We have a tag line that refers to being 'best under pressure' and this is evident in all the stories I hear from our customers and network. Hydraulink strives to provide the best customer service in the industry and our technicians have a reputation for always going above and beyond and this is just another fantastic example," she said.

"We're very proud to have Blackbutt Engineering as part of our network," Ms Laurenzi added.

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ENVIRONMENTAL QUESTIONS?
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In today's market you need a productive, cost-effective asphalt plant. You also need to prove to the community that you comply with or exceed the latest environmental requirements.

The Ammann ABA UniBatch Asphalt-Mixing Plant helps you do both. It leverages Ammann's cutting-edge technology to deliver exceptional output of high quality mixes. It also answers key environmental concerns through standard offerings and options that include:

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AMMANN

Asphaltech's Top Tower 2500 plant is equipped with the latest generation of RAP recycling system which can either inject RAP either directly into the mixer or potentially through Drum Dryer collar to produce hot mix asphalt with up to 70% RAP.

WHEN IT COMES TO RACETRACK ENGINEERING ASPHALTECH IS AT ITS BEST!

In early 2019, Asphaltech was the successful bidder to resurface the Barbagallo Racetrack for the Western Australian Sporting Car Club (WASCC) in Wanneroo, with a specially designed Asphaltech 7mm Stone Mastic Asphalt (known as SMA). The Barbagallo Racetrack is the first racetrack in Australia to be resurfaced with SMA.

Asphaltech Group's Managing Director, Tony Tufilli, says that the 7mm SMA product has proven its excellence worldwide for surface texture and skid resistance - providing a more durable, consistent high-grip surface and longer service life expectancy for the racetrack.

"This decision was also made based on Asphaltech's confidence in their accumulated experience of sophisticated SMA manufacture and placement of over 1 million tonnes over the past twenty years in WA," Mr Tufilli said.

Producing the high standard specially designed 7mm SMA was one of the first tests for Asphaltech's new state-of-the-art asphalt plan. Supplied by Marini Group, the new plant provided the required high production capacity, combined with reduced energy consumption. Asphaltech's Production and Construction Teams successfully completed the project in just two shifts - delivering a total of 1,700 tonnes of specially designed 7mm SMA for the racetrack.

The results of Asphaltech's innovative works for the Barbagallo Racetrack attracted widespread media attention, with Asphaltech's special SMA and its unique surface texture was featured on news channels across the state.

The V8 Supercars raced on the track in May this year, and all agreed that the new surface was a resounding success. The May event provided an ideal demonstration that the grip between the Super V8 Racing car tyres and the surface texture of the SMA was incredibly high. Indeed, the performance of the SMA surface has made the Barbagallo Racetrack both the fastest and safest racetrack in Australia.

ASPHALTECH'S NEW TOP TOWER 2500

Asphaltech's board decided to replace the 20-year-old, well maintained 60 t/h asphalt plant at the Malaga premises. After extensive research and a visit to Europe, it was determined that Marini's high-end 200 t/h Top Tower 2500 was the best replacement to suit their requirements.

Developed with a focus on production efficiency and energy saving, the new Top Tower 2500 plant has been designed for modern asphalt production technologies, including Warm Mix Asphalt, SMA and RAP recycling with high percentages of recycled material.

In particular, Asphaltech's Top Tower 2500 plant is equipped with the latest generation of RAP recycling system. Designed to inject RAP either directly into the mixer or potentially through Drum Dryer collar, Asphaltech is able to produce hot mix asphalt with up to 70% RAP, without negatively influencing the quality of the produced asphalt mix.

Asphaltech's Production Engineer, Ryan Huan, was particularly impressed with the option of this new plant having the capability of introducing RAP into the drum dryer collar, which enables the RAP material to be heated to 90-100°C.

Mr Huan expressed that, "...going forward, this option will be very important to us, in that it supports Asphaltech's focus on innovation in sustainable asphalt mix design."

"Using heated RAP in asphalt mixes, will enables to produce partially recycled asphalt mixes, whilst still maintaining the highest quality," he said.

Designed with a focus on maximum efficiency, the innovative engineering of the plant's drying and filtering system provides a number of advantages when compared to traditional plant designs, including:

- **Reduced Thermal Loss:** The connecting pipe between the dryer and the baghouse filter is completely insulated (in traditional plants it is often not insulated) and much shorter in length; this reduces the thermal losses of the gases in the zone between the dryer gas outlet and the filter gas inlet.
- **Reduced Energy Consumption:** The baghouse filter is positioned directly above the drum dryer, with heat from the drum dryer transferred to the baghouse filter, thereby reducing the drying energy consumption by 8%.
- **Reduced Maintenance Costs:** The recovered fines silo is installed directly under the baghouse filter and is filled by gravity (the fines collected by the filter bags flow to the horizontal recovered fines silo). Compared to most traditional plant designs - where the recovered fines silo is at ground-level - the Marini solution requires only 1 screw conveyor (instead of 5 or 6 screw conveyors) and the filler elevator to fill the recovered fines silo, thereby significantly reducing both maintenance costs and energy consumption.
- **Reduced Footprint:** The unique design of the drum dryer and baghouse filter system allows for a 30% reduction in foundation footprint for the plant when compared to more traditional designs. Together with the reduced space requirements, this reduced plant footprint also delivers the added benefit of reduced construction costs.

Not surprisingly, the innovative features and modern design of Asphaltech's new Top Tower 2500 asphalt plant has also gained widespread attention across Australia, with a number of other major Australian asphalt companies also looking at the new plant. Hardly surprising perhaps, considering that together with the benefits of a high production output capacity of up to 200 t/h, the Marini Top Tower 2500 asphalt plant offers an array of options including, RAP recycling into the drum dryer collar, RAP recycling into the mixer, warm mix asphalt, and an asphalt silo capacity of up to 300 tonnes, together with options for liquid additive injection systems, fibre dosing systems and many more. In addition, the fact that the plant can be transported inside standard 40' HC containers, results in significant savings in transport costs.

For further information, please contact the Australian distributor, BLISS & REELS Pty Ltd, T: +61 (0)3 9850 6666, E: sales@blissandreels.com.au or visit the website: **www.blissandreels.com.au**

Developed with a focus on production efficiency and energy saving, the new Top Tower 2500 plant has been designed for modern asphalt production technologies, including Warm Mix Asphalt, SMA and RAP recycling with high percentages of recycled material.

Perth's Barbagallo Racetrack in Wanneroo is the first racetrack in Australia to be resurfaced with SMA (Stone Mastic Asphalt). Supplied by Asphaltech using their new Top Tower 2500 plant, the 7mm SMA provides a more durable, consistent high-grip surface and longer service life expectancy for the racetrack.

Wirtgen Compact Carbine milling tools with their extremely robust carbide cutting edge are particularly suitable for stabilizing cohesive soils interspersed with large pieces of rock.

NEW MILLING TOOLS FOR SOIL STABILISATION

Soil stabilisation, a process widely used throughout the world, is the ideal solution for producing compactable soil with good paving properties from a sub-base with insufficient bearing capacity.

In this context, companies need to be able to process a wide variety of soil types, from "highly cohesive" to "interspersed with coarse rock" to "abrasive." Wirtgen has developed a range of special milling tools specifically for these applications.

In addition to the point attack cutting tools with conventional carbide tips that have been widely used to date, the company's range of picks for soil stabilization now includes Wirtgen Compact Carbide (WCC) milling tools.

SPECIFICALLY DESIGNED FOR SOIL INTERSPERSED WITH STONES

Thanks to both their shape and the materials used in their manufacture, Wirtgen's newly developed WCC milling tools are perfect for mixing of cohesive soils interspersed with large pieces of rock. They have a highly wear-resistant carbide cutting edge that is virtually unbreakable and therefore impact-resistant due to the enormous strength of the material, making WCC picks a clever alternative to traditional point-attack cutting tools.

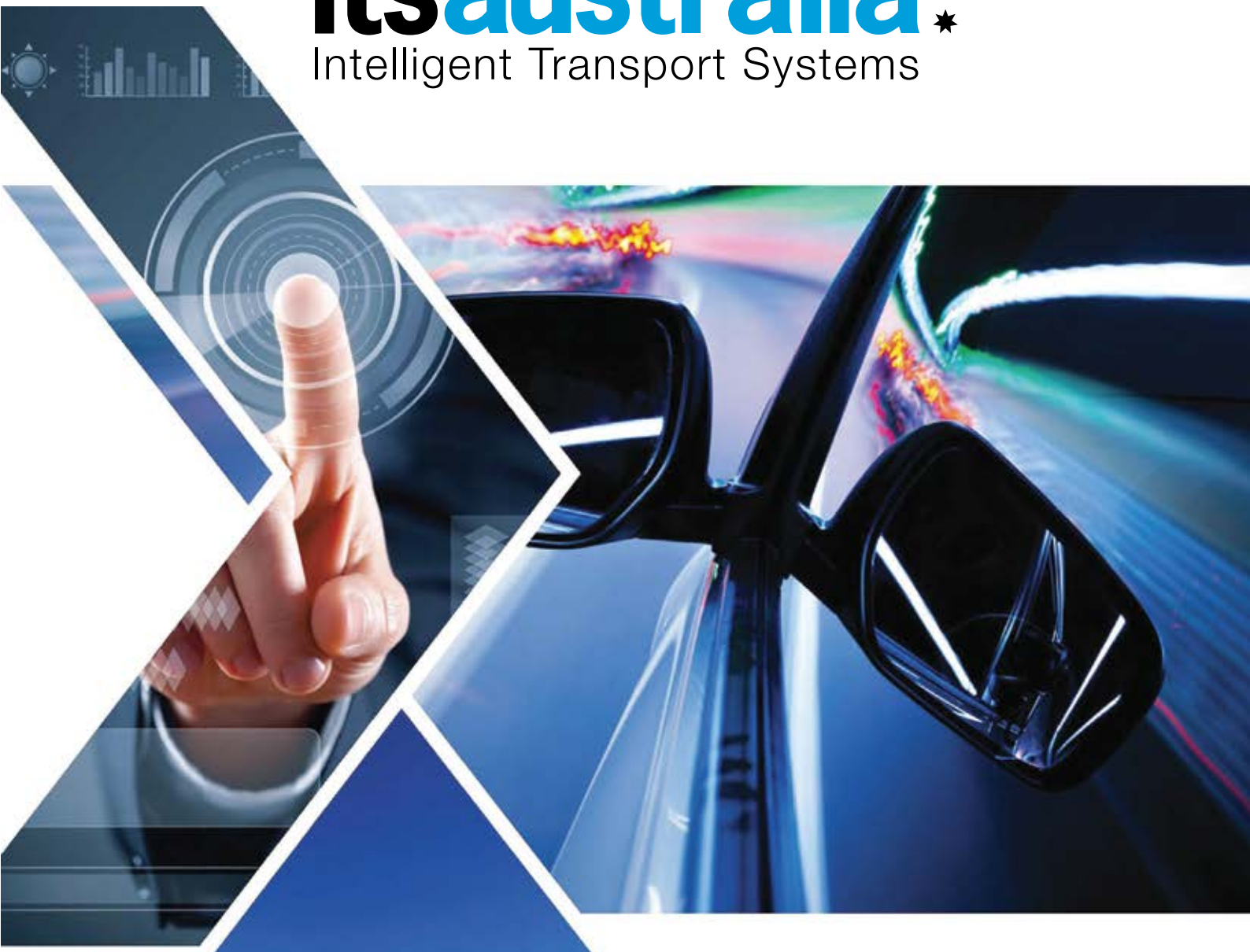
Depending on their application, WCC milling tools are a useful addition to the existing range of point-attack cutting tools with *GENERATION Z* being the all-rounder for cold recycling and soil stabilization. Even the hardest base courses and soils can be economically processed with these point-attack cutting tools.

GENERATION Z point-attack cutting tools and the HT22 quick-change toolholder system were developed by Wirtgen especially for the specific requirements of cold recycling and soil stabilization. Cutting tools with a shaft diameter of 22 mm or 25 mm are available to suit specific site requirements.

For further information, please visit: **www.wirtgen.com**

The enormous strength of the cutting edges and the high break stability of the carbide cutters, enables them to withstand even the highest impact loads, which is particularly advantageous when working with large pieces of rock.

itsaustralia
Intelligent Transport Systems



ITS SPECIAL FEATURE

Intelligent Transport Systems
News and Feature Articles

2019 ITS AUSTRALIA NATIONAL AWARD WINNERS ANNOUNCED

Australia's Intelligent Transport Systems (ITS) industry came together in Adelaide recently to celebrate the tenth year of the *ITS Australia National Awards*. The Awards recognise the outstanding projects and people that have significantly advanced Australian transport technology throughout the year. Recognising professional ITS expertise and excellence, the awards raise awareness across all levels of government and community about the benefits of ITS technology to Australian people, cities and communities, the economy, environment, and transportation.

Speaking about the Awards, ITS Australia President Dean Zabrieszach, said: "Once again, our awards nominees and winners demonstrate the excellence and innovation that makes our industry a world leader."

"ITS Australia is making progress that is equal to, if not surpassing, that of our overseas counterparts."

"We are internationally recognised as world-leading, and bring together industry, government, multinational corporations, start-ups, and research organisations to help shape future transport," he said.

"The ITS Australia National Awards are a great opportunity to reflect on the innovative nature of Australian technology development and we congratulate the winners, and all the nominees, in 2019," Mr Zabrieszach added.

The keynote speaker at the awards ceremony was Matt Cowdrey OAM MP, who delivered a speech on behalf of Stephan Knoll MP, South Australia's Minister for Transport, Infrastructure and Local Government.

Matt Cowdrey OAM MP, Member for Colton in South Australia, was Keynote Speaker at the ITS Australia National Awards ceremony.

MAX LAY LIFETIME ACHIEVEMENT AWARD

This year's recipient of the Max Lay Lifetime Achievement Award is Brian Smith. Brian is a leader in the advancement of Australian navigation

All the winners from the 2019 ITS Australia National Awards pictured with Gino Dompietro (far left), Awards Committee Chair, and Dean Zabrieszach (far right), ITS Australia President.

technology. In 1995 he played a major role in developing the first digital navigation map available in Australia. Then in 2000, Brian played another key role in the transition of the White and Yellow Pages to online electronic directories, which changed the way we access location-based content today.

Brian Smith (centre), recipient of the 2019 Max Lay Lifetime Achievement Award, pictured with Brian Negus (left), ITS Australia Ambassador and Dean Zabrieszach (right), ITS Australia President.

2019 YOUNG PROFESSIONAL AWARD

The 2019 Young Professional Award winner is Yale Zhuxiao Wong, Doctoral Candidate and Research Analyst at the Institute of Transport and Logistics Studies, University of Sydney Business School. Mr Wong said: "This win has been a huge honour and very much testament to the support and guidance of my supervisors and peers at ITLS."

Yale Zhuxiao Wong (centre), recipient of the Young Professional Award, pictured with Dennis Walsh (left), ITS Australia Vice-President, and Dean Zabrieszach (right), ITS Australia President.

"My involvement with the association has brought immense learnings and professional development opportunities. I especially thank ITS Australia for its support and belief in young people," he added.

As part of the Award, ITS Australia will sponsor Yale to attend the 17th ITS Asia Pacific Forum, which will be held in Brisbane next May. The event will bring an expected cohort of 1,500 industry professionals from across the Asia Pacific region to Queensland and Yale will join his peers to participate in a robust program of conference sessions, technical tours, and demonstrations.

ITS Australia also recognised the ITS Young Professional runners up, Anthony Leducq, Senior Solutions Architect, Cubic Transportation Systems; Daniel Gunek, Network Intelligence and Asset Reliability Engineer, DM Roads; Mitchell Price, Regional Director of Government Strategy & Policy – Asia Pacific, Lime; Patrick Busby, ITS Engineer, Transurban; Sepehr Ghasemi Dehkordi, Research Associate – Centre for Accident Research and Road Safety – Queensland (CARRS-Q), Queensland University of Technology; and Tegan Ross, Undergraduate Engineer, Aurecon. ITS Australia commends all of the nominees for their demonstrated dedication to the industry and their passion for their chosen fields.

AUTOMATED VEHICLE AWARD

This year, the Automated Vehicle Award resulted in a tie. The award was shared by Busways for BusBot – An On-Demand, Shared Automated Vehicle Pilot for Regional Public Transport, the first Australian study of driverless buses in regional communities, and the Queensland Department of Transport and Main Roads for the Cooperative and Highly Automated Driving (CHAD) Pilot's Connected and Automated Vehicle (ZOE2) which delivered a prototype Level 4 Cooperative and Automated Vehicle (CAV) known as ZOE2 and was undertaken to overcome barriers to the safe and successful introduction of driverless vehicles to Australia.

Byron Rowe, Managing Director of Busways, said: "It's fantastic to receive the Automated Vehicle Award."

"These AV trials are important in finding future transport solutions that meet mobility needs in regional areas. With the BusBot Trial, we're one step closer to determining what these solutions could entail."

"Congratulations to our team for such a successful trial of BusBot so far and to the nominees in this category," Mr Rowe added.

GOVERNMENT AWARD

The 2019 Government Award winner was the Department of Transport Victoria for Cross Boundary Incident Management through Multi-Party Managed Motorway Control System Centre-To-Centre (C2C) Interface, an integrated network management approach which allows the State and Private Road Operator to implement or further enhance the interface between control systems to include or expand device type control and automation of system responses.

INDUSTRY AWARD

The Industry Award was presented to Uber Australia for their Mobility as a Service (MaaS) Innovation in Partnership with Transport for NSW. This year Uber launched two products in Sydney that will significantly impact public transport networks: FerryConnect provides an affordable, flat-fare Uber Pool between the Manly ferry wharf and surrounding suburbs; and Journey Planning which integrates Sydney's public transport into the Uber app, allowing Uber users to plan and map their trip, as well as compare the cost and duration of public transport with Uber product in real-time. Sydney is the fourth city in the world to gain access to this technology.

RESEARCH AWARD

The Research Award was won by Monash University for VRAV: Augmented On-Road Driving Simulator for Autonomous Vehicles Using Virtual Reality. The winning team at Monash University has developed a Virtual Reality Autonomous Vehicle (VRAV) that enables on-road testing of autonomous vehicles, offering a potential means to test drivers' responses to unsafe driving conditions.

ABOUT ITS AUSTRALIA

Intelligent Transport Systems (ITS) Australia is the peak body for advanced transport technology in Australia. Formed in 1992, it has partnered with government, industry, and academia to shape future transport for more than 25 years. Australia is a global leader in intelligent transport, and ITS Australia works on behalf of more than 125 member organisations to promote the development and deployment of technologies that enable all Australians to move more safely, efficiently, and sustainably through the nation's transport networks.

For further information, please visit: **www.its-australia.com.au**

ITS AUSTRALIA BOARD ELECTIONS

The election of ITS Australia's Board of Directors took place at the recent Annual General Meeting held in Adelaide. Following the vote, all seven directors who were up for re-election maintained their board seats. There was significant interest in the directorships with 13 candidates nominating for the seven vacancies.

ITS Australia congratulates the re-elected Board members:

- Dr Dale Andrea – VicRoads
- Mr Chen Cai – Data61 / CSIRO
- Mr Jeff McCarthy – Roads and Maritime Services
- Ms Nathalie Sassen – Keolis Downer
- Mr Dennis Walsh – Queensland Department of Transport and Main Roads
- Mr Chris Woods – Robert Bosch Australia
- Mr Dean Zabrieszach – HMI Technologies

They will join ongoing members of the Board:

- Mr Gino Dompietro – Jacobs Group
- Mr Jeremy Nassau – Transurban
- Mr Brian Negus – ITS Australia Ambassador / CICA Group
- Prof Majid Sarvi – University of Melbourne / Founder of AIMES
- Ms Silje Troseth – Q-Free Australia
- Mr Soren Tellegen – Kapsch TrafficCom Australia
- Mr Tom Walker (Replacing Dirk Van de Meerssche) – Cubic Transportation Systems
- Mr Michael Watts – Transmax Pty Ltd

"The reappointment of all those directors who were up for re-election this year reflects the great confidence that ITS Australia's members have in the leadership of their Board of Directors," said Dean Zabrieszach, ITS Australia President.

"Certainly, ITS Australia is a strong now as it has been at any time in its 27-year history. That is due, in no small part, to the outstanding contributions of my colleagues on the Board."

"With the 17th Asia Pacific Forum on Intelligent Transport Systems taking place in Brisbane next May, hosted by ITS Australia, the Board and I look forward to 2020 being another landmark year for the organisation," he added.

ITS Australia's Board of Directors will continue to be led by Dean Zabrieszach as President and Dennis Walsh as Vice President, following their re-appointment by the new board for a subsequent two-year term.

Tom Walker, Senior Vice President & Managing Director, Asia Pacific, Cubic Transportation Systems will fill the board seat that is vacated by Dirk Van de Meerssche, also of Cubic Transportation Systems, following his recent resignation and relocation overseas. ITS Australia President, Dean Zabrieszach, acknowledged the great contribution made by Van de Meerssche throughout his three-year tenure on the board.

Zabrieszach also recognised the long-term contribution to the ITS Australia Board of Directors of the Federal Chamber of Automotive Industries, first through the six-year term of James Hurnall and, more recently, the valuable participation of Lenore Fletcher.

PTV SOFTWARE ANALYSES DEPLOYMENT POSSIBILITIES FOR AUTOMATED PUBLIC TRANSPORT VEHICLES

Cities around the world are testing self-driving minibuses and shuttle vehicles. But what's required to move from these still very limited test operations to regular options in public transportation? This was the focus of the "LEA (mini) bus" research project funded by the German Federal Ministry of Transport and Digital Infrastructure.

Under the direction of the PTV Group, this research project examined the prerequisites and deployment possibilities for automated and electrically powered (mini) buses in public transport. In the process, the scientists illuminated the topic from all angles: starting with the status quo and current obstacles on through to the necessary technical sophistication.

The research covered aspects ranging from design of the infrastructure and legal aspects, to issues concerning operation and efficiency in different areas, on through to acceptance in society. The examination incorporated previous experiences from international test operations, as well as expert interviews and surveys of authorities and the population.

An important component of the study was also a virtual analysis of the various deployment possibilities for fully automated and connected vehicles, viz: What might regular operation look like when all the hurdles have been overcome?

Using an actual transit model for the Stuttgart region created with PTV Visum, the researchers examined three different transit areas:

- A residential area at the edge of a large city with commuter rail connection
- A medium-sized city with core area and peripheral districts
- A rural community

Two scenarios apiece were played through in each of these areas. On the one hand, regular service with a timetable and fixed stops; on the other hand, demand-oriented so-called 'on-demand' transport with minibuses without schedules and/or fixed stops – in each case with fully automated and electric vehicles.

The simulation that took into account the real transport demand was able to demonstrate that using self-driving vehicles in public transport, especially minibuses, opens up a multitude of new possibilities for designing more flexible offerings and organisational operation. In addition, it can significantly reduce operating costs under certain conditions as compared to current public transport.

"In particular, there is significant potential for driverless on-demand transport in rural areas where demand is weak, where there are few buses today. In the urban environment, outlying areas and times can be served well," explains Prof Dr Christoph Walther of PTV.

"However, as soon as there is high demand and there are only limited possibilities for bundling trips, very large vehicle fleets are suddenly required, and these make operation inefficient."

"Regardless of whether large city or rural community, the key is always the actual conditions on-site. That's why simulations that demonstrate the possible effects of vehicle deployments are especially important tools."

The two-year (2017-2019) project LEA (mini) bus - research into the prerequisites and possible applications of automated and electric (mini) buses in public transport was carried out by a consortium consisting of PTV Planung Transport Verkehr AG (management), PTV Transport Consult GmbH, the Karlsruhe Institute of Technology (KIT) and the consulting and auditing company Rödl & Partner GbR.

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OPEN THE BOX FOR COMMERCIAL VEHICLE SAFETY AND SAVINGS

Of the 19.5 million vehicles on Australian roads, four million are commercial, including 624,000* heavy vehicles. With more commercial vehicles on our roads, up 16.4 per cent in the last five years,* comes higher fuel consumption, more fatalities, crashes and poor driving, with heavy vehicles disproportionately involved in casualty crashes.**

One solution that goes a long way to mitigating these issues is improving driver behaviour through the installation of telematics - telecommunications and informatics systems. This is supported by studies from the Transport Research Laboratory (TRL), which shows that a one kilometre per hour reduction in speed leads to a three per cent drop in accidents.

Telematics technology produces myriad data variables to monitor live and historical journeys, as well as location information integrated with Workplace Health and Safety (WHS) and National Heavy Vehicle (NHV) compliance systems. Real-time alerts track maintenance requirements, harsh braking, dangerous cornering, idling time, seat belt-use and rest breaks. Remote disable systems track portable assets such as containers, trailers and cargo.

"The technology is gold-standard, with the latest data around every business imperative, from environmental impacts to customer service," says Chris Witt, CEO of Euclidic Systems, a developer of telematics technology. "But often it's just left in a drawer. Companies invest in the latest technology to comply with the regulations and tick the compliance box. Then it's ignored."

"There's little monitoring, management or training, which is exactly what the technology is designed to encourage. Companies are wasting money on their fleets and drivers. Ultimately the end customers are missing out," he said.

"The benefits of using the technology are potentially life-saving. Fewer accidents, improved safety, driver and passenger protection, reduced fuel consumption, maintenance and servicing make the case for less damage to the environment and the bottom line," he added.

Chris believes a careless or uninformed approach to technology is the bane of any business. It can often be put down to data fatigue or simply that the department purchasing the technology is distant from the department using the technology.

Employers should have business practices, training, procedures and review processes in place. Regulators can only do so much. Under Heavy Vehicle National Law, an employer's obligation is '...to eliminate or minimise potential harm or loss by doing all that is reasonably practicable to ensure safety'.

Under Work Health and Safety laws, which cover light commercial vehicles, the aim is to '...secure the health and safety of workers and workplaces'.

Regulators provide a framework and step in only after an incident. Their mandate doesn't cover commercial outcomes, the customer experience or environmental impacts.

Euclidic Systems was founded in 2015 through start-up business Plantcom. Today, Euclidic has a technology partnership with its strategic investor partner, Intelematics Australia, a wholly owned subsidiary of the Royal Automobile Club Victoria (RACV). The company may be new, but it's made up of seasoned veterans, who have all been at the forefront of vehicle-tracking systems since their emergence in the late 1990s. Euclidic has developed proprietary technology that streams and analyses telematics data for on-road and off-road assets. This includes Sat Trakka, a 4G and satellite-tracker for assets 'off-the-beaten-track' as well as geo-fencing systems to monitor on and off-road assets.

"Savvy businesses and fleet owners, getting the jump on their competition, are making the most of a partnership with Euclidic Systems. By installing the Euclidic telematics system, for the equivalent cost of a few litres of fuel a day, there can be an overall saving of 10 to 15 per cent on fuel costs alone," Chris Witt said.

"One of the features included is Data-as-a-Service (DaaS), to increase driver accountability and reduce running costs, while helping the environment. Above all else, is the incalculable worth of improved driver, passengers and public safety," Chris added.

ABS July 2019 Motor Vehicle Census

Light Commercial Vehicles increased by 17%; Light rigid trucks increased by 23%; Heavy rigid trucks increased by 7%; Articulated trucks increased by 10% = overall increase 16.4%

Department of Infrastructure and Regional Development, Bureau of Infrastructure, Transport and Regional Economics, July 2016:

Heavy truck safety: crash analysis and trends: Heavy trucks are disproportionately involved in casualty crashes: approximately 16 per cent of road crash fatalities and 4 per cent of injuries involve these vehicles. In general, involvement of a heavy truck is associated with more severe injury outcomes.

Chris Witt, CEO of Euclidic Systems, has 34 years' experience in the technology and communications industry, including management of field operations, distribution networks, marketing and sales, and strategic relationships. Chris has had 18 years with large multi-national companies, including Worley Parsons, Motorola, Telstra and AT&T. He has had an equally long career as an entrepreneur, having worked within his family robotics manufacturing firm, Unique Solutions and start-ups such as Mobile Mate (mobile data networks), Health Communications Network (medical software) and Asia Pacific Cloud (data centres).

In 2007 he founded the UNSW Centre for Innovation and Entrepreneurship and served as its inaugural Director until 2010. The effort links research prowess with pathways for commercialising emerging technology and knowledge. Over the years, Chris has held numerous board positions, including with Telstra, Motorola, Brasserie Bread, Health Communications Network, CVC Private Equity, Digitran and Unique Solutions. He has significant international experience, having worked in the USA, NZ, Asia, Latin America and Eastern Europe.

Chris is a fellow in the Australian Institute for Company Directors (AICD) and has written reference texts on Succession Planning for Small-Medium sized businesses and Capital Raising for Private Companies. He holds an MBA from the Kellogg Graduate School of Management and has a BS in Industrial Engineering and an honour's degree in Economics from Northwestern University, Chicago.

ABOUT EUCLIDIC

Founded in 2015 by Mark Ronalds as Plantcom, Euclidic systems is a telematics-driven solution for the management of fleets, commercial and heavy vehicles as well as off-road assets. Euclidic develops proprietary technology, Data as a Service (DaaS), continuous product enhancements and releases.

Equity partner with Intelematics a wholly owned subsidiary of the Royal Automobile Club of Victoria (RACV) Teams in Sydney, Brisbane, Melbourne and Auckland and a national network of 152 dealers.

For more information, please visit: **www.euclidic.com**

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TURNING THE TABLES ON SIGNS

Traffic Management Association of Australia (TMAA) President Stephen O'Dwyer

How often have you driven on a roadway and viewed a speed reduction sign, or workers ahead sign, to find there is no one working on that stretch of road? We have all fallen victim to this scenario, but the damage it does is turn 'the boy who cried wolf scenario' into real life consequences for roadworkers and motorists alike.

Traffic Management Association of Australia (TMAA) President Stephen O'Dwyer said it was vital motorists and road users respected the mandatory speed signs at roadworks and behaved accordingly. He also said it was important those companies working on the road, remove or covered signs when the conditions and speeds did not apply, post work, or post project.

"It is inevitable some signs are required to remain in a permanent project or for long time projects to assist driver safety and behaviour, even if there is no one working on site," he said.

"However, signs which are no longer required and not removed not only confuse motorists, they can also become dangerous objects in weather events if left unattended and unsecured on a site."

Mr O'Dwyer said companies needed to be vigilant at the end of the day, the week, the project, to ensure only mandatory required signage was securely in place.

"Too often I discuss this concern with government, traffic management companies, civil contractors and road workers," he said.

"The TMAA lobbies heavily for safety at roadworks and education of learner drivers and experienced drivers, especially in the acknowledgement of, and obedience expected around site signage."

"But when signs are irrelevant and there is no site in progress, motorists become disenchanted with the system. This may result in them ignoring signs on 'active' sites, causing a ripple effect of dangerous driving practices around road work sites, and subsequently, unsafe conditions for traffic controllers and roadworks."

"Let us all be vigilant in getting it right and making sure the signs have meaning and reason to protect those using and working on our roads."

Mr O'Dwyer said government, contractors, and the public need to work together to report unattended or precariously positioned signage, or signage on defunct sites, so that these are removed from the area, avoiding confusion and potential object hazards in bad weather.

"Only recently, government noted again that in poor weather conditions signage can become dangerous and can blow onto a road or through the air, endangering motorists and any workers further afield."

"Let us all be vigilant in getting it right and making sure the signs have meaning and reason to protect those using and working on our roads."

To report dangerous signage, contact your local road authority. For more information on the initiative, contact TMAA on tmaa@tmaa.asn.au or phone 1300 798 772.

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PRECAST MAST DELIVERS THANKS TO MANUFACTURER'S ATTENTION TO DETAIL

Connecting St Georges Terrace in the Perth CBD with Kings Park, the 73.5-metre long Mount Street Footbridge traverses the busy Mitchell Freeway.

Project: Mount St Footbridge - Mast Replacement
Precaster: Reinforced Earth
Location: Mount Street, Perth
Client: Main Roads WA
Engineer: GHD Group
Builder: FORTEC Australia

Mount Street Footbridge is located in the heart of Perth's CBD. Connecting St Georges Terrace with Kings Park, the 73.5-metre long footbridge runs over the Mitchell Freeway below. It has seen a recent upgrade this year, delivering improved safety and accessibility for pedestrians and cyclists.

The new and improved structure comprises the installation of a precast concrete mast weighing 31.7 tonnes and measuring 14.3 metres.

In addition, the Footbridge has been fitted with new LED lighting and upgraded balustrades. The LED lighting installed on the bridge coincides with the lighting at Optus Stadium and the Matagarup Bridge nearby.

Installed in 1972, the original mast held an integral part in the structural capability of the footbridge. After nearly 50 of the previous mast holding up the footbridge, it had developed cracks, leading to the necessary replacement.

CLASS 2 CURVED PRECAST ELEMENTS SPECIFIED WITH INTRICATE STEEL FIXINGS AND THERMAL PROBES

National Precast Member Reinforced Earth was awarded the contract to manufacture a replacement precast concrete mast for the Footbridge in early 2019. The scope included manufacture of three concrete elements with intricate steel fixings and thermal control probes.

When manufacturing the precast mast for the footbridge, a Class 2 finish was required finish for the curved radiused sections of the mast and capping sections. Steel moulds were custom manufactured and used to cast the elements and achieved the desired result.

MAXIMUM CURING TEMPERATURE SPECIFIED

Also set out in the specification was a requirement around curing temperatures, calling for a maximum concrete temperature differential of 20°C. Reinforced Earth worked

Top: Steel moulds were custom manufactured to cast the elements.

Above: Due to the poor insulation properties of the steel moulding, a timber plywood housing had to be built around the mould to keep it insulated throughout the curing phase.

closely with their concrete suppliers and a durability consultant to conduct a thermal control analysis on the elements, based on the selection of moulds, the concrete mix design and the specification requirements.

A low heat concrete mix was used to eliminate the risk of exceeding the maximum temperature. Additionally, 20kgs of ice per m^3 of concrete was added and poured early in the day to ensure the concrete delivery temperature was as low as possible. Due to the poor insulation properties of the steel moulding, a timber plywood housing had to be built around the mould to keep it insulated throughout the curing phase.

Four temperature probes were installed in each mast section to record the maximum temperature and the temperature differential whilst curing. The four probes recorded the ambient temperature, the concrete temperature 50mm from the edge of the mould face, the concrete temperature at the centre of the products and the concrete temperature 50mm from the edge of the product at the trowel face.

These probes were monitored regularly so that the timber plywood housing could be removed for periods of time to control the concrete temperatures.

PRECAST DELIVERS IN ONE THIRD OF IN-SITU TIME… PLUS OTHER BENEFITS

Precast concrete was chosen for this project as it took only a third of the amount of time of in-situ concrete, had it been used. With the total construction period being from 6th May to late September 2019, the Mount Street Footbridge is officially open to the public.

Ease of control and installation on-site were two additional benefits from choosing precast.

The Reinforced Earth team prides itself on its problem-solving skills and determination to work through challenges efficiently and professionally, to supply high-quality precast to their clients.

The company is happy with the result. The steel mould performed at a high level, resulting in compliance with the client's expectations and specifications.

Importantly, due to the manufacturer's measures and precautions, the temperature of the concrete did not exceed either the maximum nor the differential figures. The maximum concrete temperature recorded was 54°C and the maximum temperature differential recorded was 7°C.

A Class 2 finish was required finish for the curved radiused sections of the mast and capping sections

Highlighting the latest advances and knowledge in corrosion mitigation, Corrosion and Prevention 2019 attracted over 500 Australian and international delegates from a broad range of industries

CORROSION AND PREVENTION 2019 A RESOUNDING SUCCESS

The latest advances and knowledge in corrosion mitigation was the topic of conversation at the ACA's *Corrosion and Prevention 2019* conference and exhibition, recently held in Melbourne. More than 500 delegates attended the conference from a broad range of industries including coatings, water, mining, building and construction, power, cathodic protection, defence and more.

This year's event included more than 90 papers from a diverse range of topics; six plenary lectures and six technical forums. The program also provided an extensive social program, where attendees could network with industry colleagues and reunite with old friends.

As the global cost and impact of corrosion continues to grow, so too does the importance of research and sharing best practice to advance knowledge and techniques to help mitigate and repair corrosion damage. The cost of corrosion has been estimated at approximately three percent of GDP. On this basis, Australasian corrosion mitigation costs are predicted to be approximately 58 and 27 billion dollars in Australia and New Zealand respectively.

Corrosion and Prevention 2019 was opened by the Hon. Martin Pakula, Minister for Jobs, Innovation and Trade. The opening was followed by the starting of the Ed Potter Corrosion Clock. The conference featured diverse technical streams showcasing the latest developments in corrosion, ranging from fundamental corrosion science to hands-on application.

Attendees from Australia and around the world heard about the latest developments in concrete corrosion and repair, steel corrosion, water infrastructure, cathodic protection of pipelines, asset management, high-temperature corrosion, non-ferrous metal corrosion and microbiologically influenced corrosion.

WOMEN IN CORROSION

This year's conference also included the inaugural Women in Corrosion Breakfast which was attended by approximately 80 people and held at Eureka 89 at Southbank. The panel was chaired by Candice Blackney, ACA Vic Branch President from City West Water. It provided a global and also a local perspective with participants from Spain, USA, New Zealand and Australia representing infrastructure assets, academia and industry.

The 2019 PF Thompson Lecture was delivered by Willie Mandeno, Principal Engineer Materials, WSP Opus.

PICTURED LEFT: With over 80 attendees, the inaugural Women in Corrosion Breakfast was also a resounding success, with a discussion panel including *(From Left):* Candice Blackney, Senior Engineer, Corrosion Management at City West Water; Trish Shaw, Principal Scientist and Team Leader, Coating and Polymers Team, Callaghan Innovation; Carmen Andrade, Visiting Research Professor at the International Centre for Numerical Methods in Engineering (CIMNE); Tracey Grantham, Customer Relations Manager, Adelaide Galvanising Industries; Jessica Lyndon, ACA Council President; Sarah Furman, Associate Director-Advanced Materials, AECOM; and Pam Nicoletti, Director, Education at NACE International.

PF THOMPSON LECTURE

This year's PF Thompson Lecture, titled *Corrosion and Civil Engineering; What has changed?* was delivered by Willie Mandeno, Principal Engineer Materials, WSP Opus. Willie is an ACA life member and has specialised in the specification of engineering materials and protective coatings for more than 35 years. The ACA's premier dedicated lecture marks Percival Faraday Thompson's contribution by emulating the academic and technical qualities for which he was known and has been delivered every year at the ACA's annual conference since 1951.

Corrosion and Prevention 2019 provided the platform for corrosion stakeholders to meet and discuss a wide range of topics. The diverse technical streams showcased the latest developments in corrosion prevention, management and mitigation. The focus of the conference was the safe and effective

management of the continuing challenge posed by corrosion. It has been estimated that industries and governments spend billions of dollars every year on corrosion mitigation and repair, making it vital that the latest technologies and practices are applied to managing this insidious threat.

TRADE EXHIBITION

As in previous years, the trade exhibition was a popular meeting place with more than 60 exhibitors showcasing the latest products and services. The range of exhibitors included materials suppliers, equipment vendors, specialist contractors and consultants.

The exhibition provided a valuable opportunity for corrosion professionals, interested parties and the general public to meet with the exhibitors. The learning centre program provided the opportunity for exhibitors to showcases a product and give those interested the chance to ask questions – providing an interactive learning experience.

APPLICATOR'S DAY

This year's Applicator's Day was titled, *Keeping the Operator out of Harm's Way through Innovation* and was presented by the ACA Applicator Technical Group and sponsored by BlastOne. The ACA Applicators Technical Group represents the needs of specialist contractors in industries that serve the protection or restoration of corrosion effected structures throughout Australia and New Zealand.

The Applicator's Day began at the ACA Applicator's Forum at the conference prior to moving off site for a series of presentations and equipment demonstrations. With 150 attendees, the successful day concluded at the Crown Tonic Bar with a Wrap Party which included entertainment by comedian, Dave Callan.

The annual Corrosion and Prevention Conference is just one aspect of how the ACA collaborates with industry and academia to research all aspects of corrosion mitigation in order to provide an extensive knowledge base that supports best practice in corrosion management, thereby ensuring all aspects of corrosion are responsibly managed, the environment is protected, public safety enhanced and economies improved.

The ACA's Corrosion and Prevention conference has earned the enviable reputation as the premier corrosion event in the Asia Pacific region, attracting delegates from all over the world.

Save the date for next year's conference: Corrosion and Prevention 2020 will be held from 15-18 November in Perth, Western Australia.

ABOUT THE AUSTRALASIAN CORROSION ASSOCIATION

The Australasian Corrosion Association Incorporated (ACA) is a not-for-profit, membership association, that disseminates information on corrosion and its prevention through the provision of training courses, seminars, conferences, publications and other activities.

The vision of the ACA is that corrosion is managed sustainably and cost effectively to ensure the health and safety of the community and protection of the environment.

For further information, please visit the web site:
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