

Roadmarker 2019

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Edition 2



Featured Article

Scorpion II - Truck mounted Attenuators

pg 5 - 8



Roadmarking Industry Association of Australia and the NZ Roadmarkers Federation



**Roadmarking Industry
Association of Australia
and the NZ Roadmarkers Federation**

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2 - 3

**Between the
lines**



5 - 8

**Scorpion II
Truck mounted
Attenuators**



14 - 15

**Shaping the
Future of
Transport**



16 - 18

**Trial aimed at
Country Road
Deaths**



20

**Grip Max
Safety &
Durability**



21 - 22

**Freedom of
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On Reflection

ON REFLECTION...

Perspective is always something that's fascinated me.

It's like that old saying, " clichés have stood the test of time". They've stood the test of time because there's more than a grain of truth to a lot of them.

In the context of clichés and perspective, is the glass half full, half empty, or both? In reality, it's just the perspective from which you choose to view it.

I've been with the RIAA for just on one year now, and in moments of reflection I consider how my perspective of the RIAA and our industry has changed over that time.

And the start of May is one of those times for reflection, with National Road Safety Week 2019 launching in Brisbane.

This is a really confusing time to be alive. The so-called "information age" has in fact created a "mis-information age", with the plethora of social media, on-line information, and trash TV blurring the lines between fact and fiction, truth and lies. As the parent of a teenager, I feel for the youth of today, navigating this confusion as they come to grips with life itself.

In this confusing landscape, the launch of National Road Safety Week in May and the cause it represents stands out like a beacon as something we can all get behind.

National Road Safety Week is a "SARAH" (The Safer Australian

Roads and Highways) Group initiative, established by Peter Frazer after his 23-year-old daughter, Sarah was killed in a road crash on the Hume Highway in February 2012. National Road Safety Week reminds us to "drive so others survive".

So back to the matters of perspective and clichés, and how we choose to view things. The ancient Greek philosopher Epictetus said (paraphrased): "It's not what happens that determines the quality of your life, but how you choose to react".

In 1962, ambitious young President John F Kennedy visited the NASA Space Center (as our American friends spell it) and noticed a cleaner carrying a broom. He interrupted his tour, approached the man and introduced himself, asking what the cleaner was doing.

"Well Mr. President," the cleaner responded, "I'm part of the team that will put a person on the Moon".

And that perspective well and truly applies to all of us in this industry. Our jobs involve hard work, long days, successes, failures, rivalries, agreements, and disagreements. But it's all worth it, because we are part of the effort that will get more people home safely. And nothing is more important than that.

Paul Robinson

GENERAL MANAGER
ROADMARKING INDUSTRY ASSOCIATION OF AUSTRALIA

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**Scorpion II[®] TMA (Truck Mounted Attenuator)
ASSESSED, APPROVED & RECOMMENDED for
ACCEPTANCE throughout Australia by ASBAP**

Following its successful assessment by ASBAP (Austroads Safety Barrier Assessment Panel) as part of its 'Transition to MASH' process – which was established following the recommended move to MASH (Manual for Assessing Safety Hardware) testing in place of NCHRP350 testing outlined in AS/NZS 3845.2:2017 'Road safety barrier systems and devices' - the Scorpion® II TMA (Truck Mounted Attenuator) has been approved and officially RECOMMENDED FOR ACCEPTANCE on Australian Roads. The ASBAP Approval ensures that everything is in place for the Scorpion® II TMA prior to the planned December 2020 transition date.

Since their introduction to the market over 18 years ago, Scorpion® TMA's have not only gained an enviable reputation for saving lives and significantly reducing the risk of serious injuries in roadside work zones, but also for reducing 'whole-of-life' costs. Introduced to the market in 2018, the Scorpion® II TMA was developed in response to the updated MASH (Manual for Assessing Safety Hardware) testing and assessment guidelines.

In fact, the Scorpion II TMA was the world's first Truck Mounted Attenuator tested, passed and eligible for MASH TL-3 (tested at 100kph). Visit the US Federal Highway Administration website: www.safety.fhwa.dot.gov and search 'Letter CC-132' for details.

Available exclusively throughout Australia from A1 Roadlines Pty Ltd, Scorpion TMA's have proven their performance in the field in well over 2,000 documented impacts in the USA alone, as well as in numerous impacts across Australia and elsewhere around the world. Scorpion TMA's have been directly credited with saving the lives of motorists and site workers alike, while also reducing the severity of injuries suffered by vehicle occupants during an impact.

Speaking about the Austroads Recommendation for Acceptance, Janine Bartholomew, Manager with A1 Roadlines, commented:

"With the MASH testing and assessment standards now being referred to in the Australian / New Zealand Standard AS/NZS 3845.2:2017 in place of the previous NCHRP350 testing, it's extremely important that newly designed equipment is tested, passed and eligible under the MASH requirements."

"With the MASH testing and assessment standards now being referred to in the Australian / New Zealand Standard AS/NZS 3845.2:2017 in place of the previous NCHRP350 testing, it's extremely important that newly designed equipment is tested, passed and eligible under the MASH requirements."

"While there can be no doubting the Scorpion TMA's outstanding performance in MASH testing and, perhaps most importantly, during impacts both in Australia and internationally, obtaining the formal Austroads / ASBAP Recommendation for Acceptance is a critical factor in us being able to supply units for use on Australian roads beyond the proposed December 2020 Transition to MASH deadline," she said.

"The transition to MASH is a complex task involving not only Austroads, but also each of the individual jurisdictions. It's also a task that has been made significantly more confusing for many due to some inaccurate and often spurious claims being made in relation how the transition to MASH will affect the use of older units that were tested to NCHRP350 rather than MASH."

"With that in mind, we're extremely pleased to have been able to complete the ASBAP assessment process and have the Scorpion II TMA Recommended for Acceptance well in advance of the proposed changeover date," Janine added.



NO CUT-OFF DATE FOR OLDER UNITS

While the Austroads approval ensures that the Scorpion II meets the MASH testing criteria specified in AS/NZS 3845.2:2017 and allows it to be supplied beyond the planned December 2020 deadline, it **DOES NOT** by any definition mean that the older non-MASH tested equipment is suddenly obsolete or can no longer be used.

"Despite some of the misinformation that has been put out since the 'Transition to MASH' was first announced, the fact that the Scorpion II TMA has been recommended for Acceptance by Austroads **DOES NOT** render the original Scorpion TMA's (which were previously approved as tested under NCHRP350 guidelines) obsolete or unusable. To suggest otherwise is simply **NOT TRUE**," Janine said.

"While there is a formal agreement to transition to MASH testing from NCHRP350 testing for new equipment by December 2020, there is **NO CUT-OFF DATE** for using equipment that has been certified under the NCHRP350 testing while it is operational. That would be akin to telling everyone that they'd have to get rid of their cars or stop using them because the Standards and testing methods have been updated," she added.





QUICK & EASY TO DEPLOY

The Scorpion II TMA is extremely easy to use and fast to deploy in the field.

Available to suit a wide variety of vehicle types and models, the Scorpion II TMA's compact design and balanced weight distribution minimises the impact on vehicle handling, while its 'fold-over' design helps to minimise the total vehicle height while in transit to and from the work zone, without having to compromise on performance in the field.



PERFORMANCE BY DESIGN

The Scorpion II TMA consists of strut and cartridge sections that are linked together on a support frame. This open cartridge design reduces wind resistance and increases fuel efficiency when deployed on the job site and when traveling at highway speeds.

Each energy absorbing cushion has an aluminium honeycomb core which is enclosed by an aluminium powder-coated box module that provides maximum durability and longevity. The Scorpion II is equipped with LED brake, directional, signal and running lights to further enhance advanced warnings to drivers.

When impacted, the Scorpion's modular design crushes in progressive stages, which reduces the impact forces on the vehicles occupants and results in lower repair costs and easy parts replacement. The curved side rails are made from corrosion resistant aluminium tubes and offer full width impact protection along the entire length of the Scorpion II by safely redirecting the impacting vehicle away from the deadly "coffin corners" at the rear of the truck.



AVAILABLE FOR A WIDE RANGE OF HOST VEHICLES

A1 Roadlines are able to supply the Scorpion II TMA on a wide range of cab-chassis models from leading manufacturers including ISUZU, UD, FUSO and HINO to name a few. Trucks are also available in a range of body and wheelbase configurations to suit any application.

When fully deployed, the Scorpion II TMA is only 4 m in length, thus giving the Scorpion II the shortest overall length of any MASH Eligible Truck Mounted Attenuator on the market. This shorter length reduces incidental impacts and repair costs while still providing the highest level of safety and reliability.

Additionally, the Scorpion II TMA is compatible with the Doctor Air Brake® automatic braking system that instantly locks the brakes of the host vehicle upon impact, further protecting the driver of the TMA truck, occupants of the impacting vehicle, and any bystanders or workers near the crash.

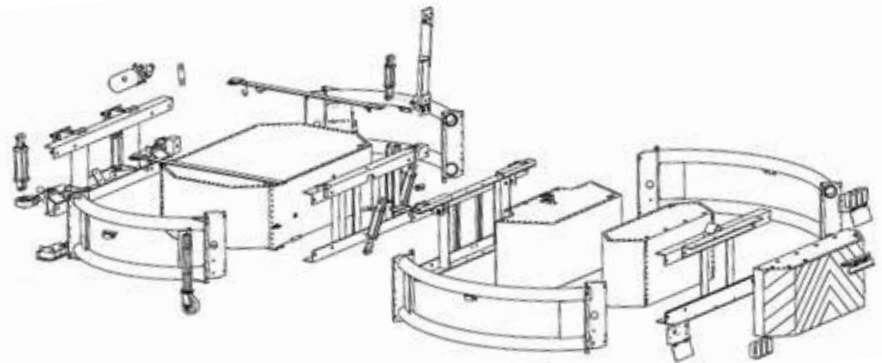


AN IMPORTANT NOTE ON MINIMUM TARE & GVM WEIGHTS

It's important to note, that despite the fact that the Scorpion II is MASH Tested and Eligible with a minimum host truck tare weight of only 6,804 kg with absolutely no upper weight limit, **THE CURRENT MINIMUM PERMITTED HOST VEHICLE TARE WEIGHT** stipulated by VicRoads, NSW RMS, QMR, and published in the *National Guidelines for the Use of Truck and Trailer Attenuators* (developed by the TMA Working Party) is **9,000kg with a minimum GVM of 15,000kg**. Furthermore, according to the *National Guidelines for the Use of Truck and Trailer Attenuators*, **the current minimum permitted host vehicle weight for a host vehicle towing a trailer-mounted attenuator is 4,536kg**.

MODULAR DESIGN DELIVERS PERFORMANCE & SAVINGS

As well as playing a significant role in its performance during an impact, the Scorpion II TMA's 'modular' design also plays a major role in helping to reduce the cost of repairs (particularly after moderate impacts and/or in the event of accidental damage) with only the damaged components requiring replacement.



Pictured below (from left):

The damaged components being removed following an impact. With the damaged components removed, the remaining sections are checked prior to the new components being fitted.

Fitting the new components. The majority of TMA repairs can generally be completed within a one-day turnaround.

With most non-modular units, even minor damage caused by a driver inadvertently reversing into an object or colliding with a stationary object while positioning the vehicle, can have extremely costly consequences. In fact, with some units, even minor impacts can result in having to replace the majority of the TMA unit.

Needless to say, with very low speed and minor impacts accounting for around 80% of the total impacts into TMA's, the cost and inconvenience of having to replace an entire unit or the majority of a unit any time minor damage occurs can be considerable.

Importantly, even after most 'medium severity impacts', the Scorpion II TMA only generally requires replacement of one or two of the 'cartridge' sections and, depending on the angle of impact, a set of aluminium side deflection bars.

The Scorpion II TMA units are extremely quick and easy to repair, and with the greater majority of repairs coming in at only a fraction of the cost of a replacement unit, they deliver outstanding 'whole of life' value.

For further information, contact:

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www.a1roadlines.com.au



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! 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! 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! 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! 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! 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

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.

CHECK THE FACTS

Scorpion II® TMA

Truck Mounted Attenuator



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Industry in focus - traffic management

Traffic Management Association of Australia (TMAA) President Stephen O'Dwyer is determined his industry will be front and centre for any discussions regarding infrastructure, road and civil projects, and industry changes across the next few years.

Mr O'Dwyer said his Association was represented on a large number of key working groups across the country including Austroads, Australian Standards, Training and Safety.

"TMAA is dedicated to improving the industry and placing it squarely on the map of integrated road and civil services which will stem from the Federal budget and election. We are working with our Members and Associates to ensure that at Federal, State and local levels, we are sharpening our pencils and ready to be written into any activity that involves traffic management," he said.

Mr O'Dwyer said the TMAA has placed the traffic management industry in the spotlight with the latest offering for a national advertising campaign to be launched in National Road Safety Week, and two National Awards for Traffic Controller of the Year and Traffic Management Industry Innovation.

"These awards and projects make TMAA part of the hierarchy of the road industry with keen interest from Ministers and key stakeholder road authorities and groups, such as Roads Australia, CCF, AAPA and RIAA."

"We work closely with all levels of government to ensure the essential services we provide are understood by clients and planned for by government," he said.

"Internally, our Association provides Members and Associates with industry updates and news, in the

form of newsletters, magazines, meetings and events around the country," he said.

Mr O'Dwyer said that recently TMAA had extended its services to include TMAA Classifieds, where industry members can advertise a wide range of traffic management gear to buy and sell. He said this was another initiative to assist the industry with a wide choice of compliant products for the upcoming road and civil projects.

"It is paramount that our Members and Associates are across the many products and surrounding legislation required for this industry on all projects. It is for this reason our Association lobbies for safety and compliance on all our worksites for all industries working on our roads. No longer are we an afterthought on a site; we are an integral part of what happens on roadways, utilities and emergency events across this country."

For more information on TMAA, visits www.tmaa.asn.au



TRAFFIC MANAGEMENT
ASSOCIATION OF AUSTRALIA

TMAA Classifieds



Welcome to a new initiative from the Traffic Management Association of Australia. TMAA Classifieds.

Who can advertise?

Advertising on this site is open to any person or company wishing to advertise. Advertising is free for TMAA Members and Associates until 1 October 2019.

What can you advertise?

This space will be focused on industry related items with the following categories.

- Utes
- Signage
- Cone Truck
- VMS Ute
- Trucks
- TMA
- VMS – Trailer Mount

- Arrow Board – Trailer Mount
- VMS – Ute Mount
- Arrow Board – Ute Mount
- PTD – Portable Traffic Device (i.e. Portaboom, E-Stop etc)
- Other (PPE etc),

TMAA special offer

As an introductory offer, the first six months will be free, commencing 1 April 2019. After 1 October 2019 fees will apply.

Regular Price (+ GST)

- ① x advertisement = \$150
- ② x advertisements = \$300
- ③ x advertisements = \$400
- ④ x advertisements = \$500

Supplying files

Make sure you include the following:

- Product image - up to 4 photos
- Price
- State or city where item is available
- Contact details of seller

To post an advertisement, first register at tmaa.asn.au/register. Advertisements will appear on the website tmaa.asn.au/classifieds

Approval process

All advertisements are held for approval before going live. Once the advertisement is placed anyone that visits the website can view it.

For more information contact TMAA: email tmaa@tmaa.asn.au, or phone 1300 798 772

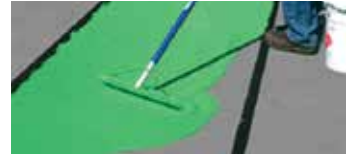
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HPS C1 Roll On

A specialised MMA broad area coloured surface treatment. A heavy wearing multi coat system used with various aggregates for maximum durability.



HPS SP2 Spray

A multi-component, 1:1 ratio, sprayable MMA product designed for long-line and transverse-line pavement marking applications, requiring extreme durability.



Top coats, repairs + preparations

HPS C5 Premium Topcoat

Provides a long-life, waterproof, tough finish, allowing easier cleaning and resistance to a wide range of chemical spills.

HPS C2 Topcoat

HPS P2 Concrete Primer

Used for HPS & EF Series of MMA Coatings, provides a UV-stable, hard wearing coating for structural concrete or concrete floors.

HPS P5

Universal Primer

Provides an excellent bond to metal and timber.



of line delineation, area + regulatory markings

Regulatory markings



HPS Trowel Screed

An easily applied, trowel-on MMA for transverse markings, directional arrows, pedestrians crossings and more.



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'Structured' MMA markings create a solid-line effect when viewed from a drivers perspective. Systems like Dot MMAx and Splatter line enhance wet night retroreflectivity as water flows off the peaks and out the valleys of the pattern.



HPS Profile ATLM

A 98:2 ratio, heavy-wearing, MMA resin formulated to provide audible, tactile safety markings.



HPS SP2 Spray

A multi-component, 1:1 ratio, sprayable MMA product designed for long-line and transverse-line pavement marking applications, requiring extreme durability.



HPS 6 Spray 98:2

HPS6 Spray 98:2 is a multi component sprayable MMA product.



HPS Concrete Repair Compound

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HPS C3 Repair Compound

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Shaping the future of transport in Australia

By Daniel Antonello

In August last year, Australia's population officially topped the 25 million mark. As this growing cohort flocks to our metropolises, concerns about how Australian cities will actually function in the future are understandable.

How can we avoid congestion chaos, whilst also improving road safety? How do we merge pedestrians with bikes, cars and public transport, whilst simultaneously reducing CO2 emissions? And how do we prepare ourselves for the advent of autonomous cars, driving in a non-autonomous world?

Recently, HERE's Global Mobility Index revealed that major Australian cities, Melbourne and Sydney, rank highly compared to other leading global cities in terms of public transport density, but still have room for major improvement in areas such as traffic flow and congestion, ranking lower than cities such as New York and Rome.

So how do we best tackle these pressure points and prepare for cities of the future?

At the 2018 Intelligent Transport Systems (ITS) Summit in Sydney, HERE's SVP and General Manager APAC, Leon van de Pas, spoke on how location intelligence is at the heart of the solutions we need for the future, not just in Australia, but globally.

"In Australia alone, more than 1 million cars are sold every year," said van de Pas. "More and more vehicles are clogging the streets, especially as the demand for e-commerce and ride-hailing skyrockets. In fact, the average Australian spends 66 hours per year stuck in traffic."

"However, more of the physical world can now be mapped digitally because a greater number of things are connected. In fact, there's already a standardized interface for vehicles to cloud data transmissions called Sensoris. Using the data from vehicles, drivers, devices and infrastructure like traffic lights and traffic sensors,

we can already build a real-time digital representation of the world – approaching accuracy to within 20cm."

"Given this location intelligence exists, our role is to effectively harness the technology so we make smarter decisions, solve real problems, and create new collaborative services grounded in location context."

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“Given this location intelligence exists, our role is to effectively harness the technology so we make smarter decisions, solve real problems, and create new collaborative services grounded in location context.”

Another voice at ITS from HERE Technologies was Australian Senior Product Manager of Connected Vehicle Services, Ben Wilson. He spoke on another key change – autonomous vehicles – that will not only shake up Australian cities but possibly address its congestion challenges as if launched properly, would reduce accidents on the freeway – one of the main culprits of traffic jams.

He highlighted how HERE is using a new product – the HD Live Map – to help bring autonomous vehicles safely to market with a combination of traditional industrial data capture and real-time, crowdsourced information. The platform maps geometry and topology attributes as well as direction of travel, number of lanes, slope, curvature, physical linear structures and physical overhead structures.

“Traditional industrial data capture provides a high-quality foundation for map learning and is available today, however, it lacks scalability and the freshness needed for autonomous driving. Crowdsourced data, on the other hand, provides freshness but has limitations such as lower accuracy, no semantic information, and is limited in its availability today. Combining industrial capture with crowdsourced data (including non-automotive) is what we do, and this will support the operation of autonomous vehicles in a sophisticated and safe manner,” said Wilson.

“Importantly, HERE is working with standards bodies to ensure appropriate third parties have the opportunity to input data into the HD Live Map as required. This data sharing, enabled by the HERE Open Location Platform could include Australian road authorities updating road access, speed limits due to weather conditions, or enabling and disabling network access by vehicle type.”

The role of collaborative data sharing

No single OEM, city or tech company has enough data density alone to create a service like HD Live Map. At least, not on a global scale. It requires different data producers to come together.

Enriching external data sets with HERE data and keeping our blueprints open, means that we can together build services that solve solutions in the smart cities of our future.

Building captive, self-serving location assets without sharing data won’t help us address the infrastructure challenges faced by our cities. But collaboration must occur on the right terms too, such as privacy according to GDPR and transparent business models.

“Sharing data provides enormous freedom,” said van de Pas in his closing at ITS. “Freedom for cities to develop location-centric solutions. Freedom for the community, government, and industry to work together to address the challenges we are all facing. And freedom to – in the words of the ITS Australia body – “deliver safer, more efficient and environmentally sustainable mobility through the use of intelligent transport systems technology.”

By Daniel Antonello, Oceania Director at HERE Technologies, the Open Location Platform company, which enables people, businesses and cities to harness the power of location. By making sense of the world through the lens of location we empower our customers to achieve better outcomes – from helping a city manage its infrastructure or a business optimize its assets to guiding drivers to their destination safely.

Trial aimed at country road deaths.

By Neil Dowling

Bosch gets \$2.3m for ground-breaking autonomous on-road country road trials

AUSTRALIA is at the sharp end of global self-driving vehicle development, with Bosch Australia saying that autonomous systems are only about four years away from being incorporated into production, and the only thing that could hold them back is a shortage of engineers.

Bosch Australia is poised to start trials in Victoria to develop a production system for freeways and highways and stem the state's inflated country road fatalities.

The company was this month given \$2.3 million of funding from the Victorian government's Connected and Automated Vehicle (CAV) Trial Grants Program to be used to develop and road-test the state's first Automated Driving System (ADS) permit for on-road testing of highly-automated driving systems.

Last year, Victoria became the only Australian state to regulate and support the ADS permit scheme, which allows the on-road use of automated vehicles for testing and development.

It is not the first time Bosch has been funded to grow its autonomous program in Australia.

Bosch Australia regional president of vehicle safety and autonomous vehicles Chris Woods told GoAutoNews Premium that government funding originally allowed the building of the vehicle - a Tesla - for the Intelligent Transport Systems world congress held in Melbourne in 2016.

"This is the same vehicle but with improved technology," he said. "The car contains all Bosch equipment. We just use the Tesla for the stopping, starting and steering facilities.



CHRIS WOODS



"We originally set this vehicle up for the ITS in 2016 with government funding as part of Bosch's global development. We've also done trials with TAC and TransUrban and on the M1 in Melbourne.

"The latest program is another step to bring the vehicles to trial on country roads because, unfortunately, there is a ratio of five-to-one fatalities on rural roads in Victoria.

"The government sees this technology as a way to reduce that ratio."

Mr Woods said this technology is about four years away from being incorporated into vehicle production.

“This is an early stage development so we would look for an OEM partner to bring this to production,” he said.

“This system is a highway pilot vehicle that works in an automated fashion while driving on freeways and highways.

“For example, if you lived in the country and you wanted to commute to the city, you drive your vehicle from home until you get on the freeway.

“You then engage the highway pilot system that would then take over the driving journey until you get near the city and get off the freeway, where you would take over and drive the last distance to your destination.

“It uses many onboard sensors to do this and creates a picture of the environment around the car. So it operates by avoiding obstacles.”

Mr Woods said that in the global autonomous vehicle development sector, Australia rates very highly.

But more people are needed, as he said that Bosch has “a huge need for engineers with the skill set around the world”.

“We have hundreds and hundreds of positions globally, and we’re aiming to employ a lot of those here in Australia over the coming years,” he said.

“We need high-capability engineers to work on our projects, computer science degrees, machine learning, data analytics and so on, and we have already brought jobs to Australia in these areas.

“In Australia, we have about 70 people in our department of vehicle safety and autonomous vehicles. About half work on driver assistance programs and automation, and of those, eight have direct involvement in the trial.”



Mr Woods said the pilot system now under development for Australian roads was “an evolution, not a revolution”.

“There are five levels of automation,” he said. “State-of-the-art modern cars are Level 2, where the driver always maintains responsibility for the car.

“Level 3 is where our current pilot system is at. So the driver does not have to monitor the road and the car is basically driving itself.

“We will have a Level 4 product entering trials in this year with Mercedes-Benz as the partner. Road trials of this robo-taxi will start in the US this year.”



Bosch gets \$2.3m for groundbreaking autonomous on road country road trials

Mr Woods said there was no limit to how far the autonomous car development can go and it is constrained only by government legislation.

Bosch has a permit from the Victorian government to conduct the testing on the road. Victoria is the only state proactive in open-road testing.

“We understand from the National Transport Commission that it is looking for a purpose-built piece of legislation to allow driving on Australian roads, and we believe that this is expected to go through parliament by 2020,” Mr Woods said.

“That is supposed to be harmonious legislation that covers all states and territories. We are very supportive of this approach. At the moment,

Victoria is the only state involved in this project.”

Bosch’s research dispels the belief that autonomous cars would first be confined to urban and particularly city-based areas where the environment is contained and the vehicle speeds are low.

But Mr Woods said the best environment to start with was freeways.

“They are easier. They generally have separated traffic, are free of pedestrians and quite well maintained and signposted,” he said.

“Urban environment require us to manage traffic lights and pedestrian crossings and other complications.”



The current program started with onboard technology added to the Tesla during the end of last year. The car goes on the road later this year, and the trial is expected to end its current format by 2020.

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Safety and durability

GripMMAx by Ennis Flint

Safety, durability, reliability and performance are essential in any pavement marking. As part of our new MMA range of products, Ennis-Flint has released a one-coat, easily applied preferential lane and area marking treatment system: GripMMAx.

Specifically designed for high traffic volumes where anti-slip is paramount, GripMMAx is a cost effect solution for your suite of coloured surfacing products. This one-coat system comes with the aggregate premixed, allowing applicators to save significant time on site, along with reduced labour and lower traffic management expenses. Surpassing outmoded two-coat systems, it needs only a quick stir, the mixing in of EF Catalyst, and its ready for application.

“Our client was extremely happy with the result on such a high-profile job.” *Daniel Ticconi, Mattioli, Sydney Rainbow Road.*

As with all pavement markings, GripMMAx relies on good surface preparation but no more than you would for your normal EF MMA product. With the surface prepped, simply squeegee out the material and then finish off with a roller. The GripMMAx formulation all but guarantees you can't spread it too thin.

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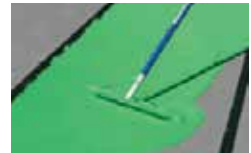
The 20kg GripMMAx pails come in standard colours: White, EF Green, EF Red, EF Yellow, EF Bus Lane Red, EF Blue, EF Black and EF Kiwi Green. Additionally, we can colour match almost any colour your architect or design requires.

“Considering we had not used a product like it, GripMMAx was easy to apply and gave us a better finish than we expected.” *Scott Clune, Retro Roads WA*

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Freedom of Choice

A1 ROADLINES EXPANDS ITS LINEMARKING EQUIPMENT RANGE WITH NEW HIGH - PERFORMANCE EQUIPMENT FROM TITAN

Established in 1972, A1 Roadlines has gained an enviable reputation as one of Australia's leading suppliers and manufacturers of linemarking, traffic control and worksite safety equipment. Together with its focus on customer service and after-sales support, another key factor in A1 Roadlines' continued success and growth is the emphasis it places on providing a comprehensive range of equipment and consumables to meet any linemarking needs.

Not ones to 'rest on their laurels, the team at A1 Roadlines are always looking to expand their product offering, and with that in mind, they have recently announced that in addition to their existing equipment range, they will now also be carrying the full range of Titan linemarking equipment.

Speaking about the new Titan range, Janine Bartholomew, Manager with A1 Roadlines commented:

"We're very proud to announce that we'll now also be selling and servicing Titan linemarking products. It's excellent quality equipment that has a great reputation for performance and reliability in the field and as such, we felt it would be an ideal addition to our product offering."

"For us, it's about providing our customers with the freedom of choice to select the specific brand or type of machine that they feel best suits their needs," Janine added. "And whether that choice comes down to specific features for a specific project, or something as simple as 'brand loyalty', we want to provide our customers with a true 'one-stop-shop' where they can choose from a comprehensive range of equipment."

Quality engineered in the USA, Titan's range of linemarking equipment has been developed with a focus on innovation, productivity, performance and ease-of-use. Powered by quality Honda engines, the Titan range features larger units with long-stroke, slow-cycling hydraulic piston technology for heavy-duty use, as well as compact, lightweight systems tailored to entry-level projects - each with varied capabilities and degrees of innovation. From the innovative PwrLiner™ models and the self-propelled LazyLiner™ series, through

to the larger Promark™ 2K (for 2-component cold-spray plastics) and high-performance ThermoMark™ thermoplastic line strippers, there really is a Titan linemarking machine to suit every need.

TITAN PWRLINER™ SERIES

Incorporating a range of models - from entry-level units for small jobs through to the heavy-duty PwrLiner 8955, which is designed for large-scale, full time duty on everything from roads, to airports, to car parks - Titan's flagship PwrLiner™ range is renowned both in Australia and internationally, and has a well-earned reputation for robust reliability and high-quality results. Not surprisingly, the latest addition to the range, the PwrLiner 3500, looks set to build on this reputation for performance and reliability, thanks to a number of innovative features.

Specifically developed for continuous daily use on roads, car parks, sports line marking and grassed areas, the PwrLiner 3500 a medium-sized unit that uses Titan's innovative low-wear diaphragm pump spraying technology. As well as delivering an outstanding consistent quality result, the diaphragm pump means there is no piston, packing or clutch to wear out.

Most importantly, the diaphragm system means there is no clutch and instead uses continuous strokes, which eliminates deadband and delivers smooth, consistent lines. 'Deadband', which can be an issue when linemarking using conventional piston pumps with a clutch, refers to the drop in spraying pressure when the gun is actuated, before the clutch engages and starts the pump.

"With the diaphragm pump you get very smooth lines and there's no chance of sawtoothing or pulsating"



Maintenance tasks are also kept to a minimum with the PowrLiner 3500, thanks to a number of small, yet efficient design deviations from traditional line marking units.

The two pressure valves, which are the main wear items, are a cartridge design on the PowrLiner 3500. They're very easy to change. Indeed, they're called 'quick change valves' because all you need is an adjustable spanner – there's no skill involved.

On a conventional machine, changing out the pressure valves would typically be a maintenance task requiring a technician or a visit to a service centre. By enabling the operator to change the pressure valves in the field – easily and quickly and with only an adjustable spanner, this innovative feature helps to significantly improve productivity and reduce machine downtime.

“There’s not a lot of downtime with the PL3500 – if an operator has a spare valve set already on hand, they can just do it themselves”

Together with the 'quick change valves' on the PowrLiner 3500, the new Titan linemarkers include a number of smart features that prioritise ease of use and productivity for the operator: features such as the Titan Smart Arm – an innovative time-saving feature of the larger Titan units.

Spray guns are typically mounted on the spray rack on the side of the unit – all adjusted to the specific requirements (heights and widths) of the job. Normally, you need to remove the gun mounts/arms for transport which means upsetting the adjustments. However, with the Titan Smart Arm, you don't have to disturb the set-up or change anything – the arm just folds up on the sides and the unit remains complete and undisturbed. This is a real time saver.

Another ergonomic inclusion is the DeadLock Handlebars, which can be adjusted on three planes – in and out, up and down and backwards and forwards. It doesn't seem like much, but it is a major benefit for ergonomics and operator comfort. And when it comes to productivity and a quality result, operator comfort is critical.

Titan's focus on designing machines which are efficient, ergonomic and easy to use is also highlighted by their innovative PowrCenter design. Featured on the larger Titan machines (including the PowrLiner 3500, PowrLiner 4955 and PowrLiner 6955/8955, as well as the ProMark and ThermoMark models, the PowrCenter places all of the machine controls between the centre of the handlebars for easy operator access at all times. It even has a 12-volt phone charging port and cup holder.

All of these innovative upgrades improve operator comfort and usability. They're very self-sufficient as they keep maintenance to a minimum and have exceptional ease of use.

FEATURES & BENEFITS

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