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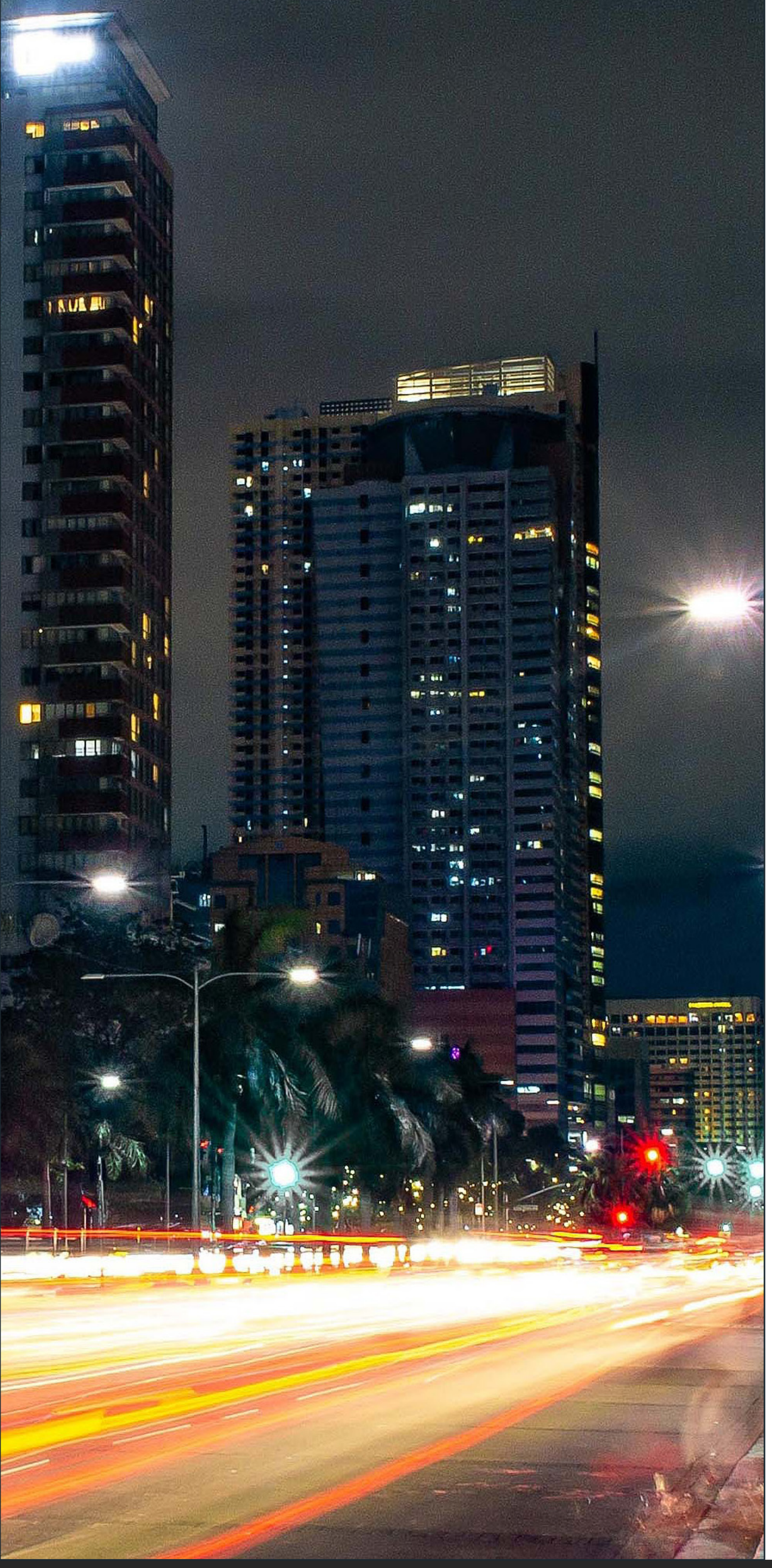
Road Engineering Association of Asia and Australasia



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For Members Only

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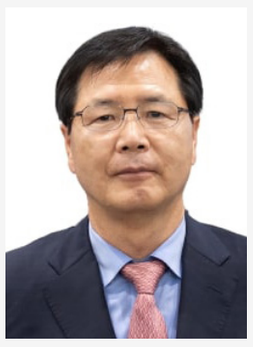
113th and 114th REAAA Governing Council Meetings and 16th REAAA Conference



Sung-Hwan Kim
Chair, REAAA Korean Chapter

The 113th and 114th REAAA Governing Council meetings were successfully held on-line on 27th November 2020 and 24th March 2021 respectively.

An important agenda item discussed at the two Council meetings was the 16th REAAA Conference and whether it would be held face-to-face (off-line), hybrid (on-line for international participants and off-line for national participants) or virtually (on-line). In consideration of the health and travel restrictions in the region, and following a request from the Philippines Chapter, the Governing Council decided that the Conference would be conducted virtually.

The 16th REAAA Conference will take place virtually on 10th to 15th September 2021. The YP meeting will be held on 10th September and the Business Forum will be held on 13th September 2021, and 115th and 116th Governing Council meetings and the 16th General Meeting will be held on 15th September 2021.

Full details of the Conference program, including registration details, are on: (https://16threaaaconference.com/).

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Message from the President

Hon. Romeo S. Momo
16th President of REAAA

It has been more than four years since Bali, where I was elected the President of Road Engineering Association of Asia Australasia (REAAA) for the 16th term. Over this period, the Association has seen progress on many fronts while at the same time successfully overcome critical challenges in its endeavour to meet its vision and mission.

The 16th term faced a unique challenge that has never been encountered before. Since early 2020, the world has succumbed to the Covid-19 pandemic. However, I am thrilled to observe that our Association is very well adaptive to the pandemic situation. Since early 2020, the Association was conducting its activities online due to border and travel restrictions. Despite the new norms, the Association managed to organise ten (10) Council meetings (twice yearly), four (4) business forums, and seven (7) Young Engineers Professionals meetings. The Association had also organised two very successful webinars, one in November 2020 and another in January 2021. The theme for both webinars is “Scaling the Covid-19 Pandemic: Impacts on and initiatives by road and transport sector in your country”.

The highlight of the 16th term will be the 16th REAAA Conference, organised by the Philippines on 13th-15th September 2021. This virtual conference is the epitome and proof of the Association’s resilience and inventiveness.

Our collaboration with the World Road Association (PIARC) has also gained better mutual recognition. In October 2019, PIARC hosted the 111th council meeting in Abu Dhabi in conjunction with the 26th World Road Congress. PIARC General Secretary also participated in our webinar as a speaker.

On the financial side, besides the existing Mino (best projects) and Katahira (best papers) funds, the Association receives yet another fund for its activities i.e. the Hwang Fund. The Hwang fund rewards REAAA professionals that have made significant contributions to the strengthening of regional and international network in the road sector.To all donors, we appreciate and value your continued support to the Association.

Lastly, I would like to extend my heartfelt thanks to all council members who have made my tenure as the President of REAAA an enjoyable and memorable moment. The support that I received from the Honorary Secretary-General and the Secretariat office has also made it possible for the smooth running of the day-to-day operations of the Association.

I wish all the best to the incoming President and council members for the 17th term. I hope the new team will propel the Association to greater heights and make REAAA the preferred platform for our professionals to exchange knowledge and fortify regional networking.

Thank you

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[Special Interview] New YP Members from Japan

Hamzah Hashim
REAAA YP Committee

IO Song
REAAA Korean Chapter

Profiles

Name	Position/organization	Work/research area	How did you come to join REAAA YP
 Go Hirochi	East Nippon Expressway Company Limited	International Department, Technology & International Division	I took over the role from a senior colleague.
 Toshiki Sakakibara	Central Nippon Expressway Company Limited	International Business Division	I took over the role from a colleague.
 Keijiro Tsurukawa	West Nippon Expressway Company Limited	Hiroshima Expressway Office Second Reconstruction Section	Recommendation of Overseas Business Division
 Ryuhei Kondo	Metropolitan Expressway Company Limited	Renovation and Construction Bureau, Planning and Environment Division	I took over the role from my senior colleagues.
 Yuichi Suwa	Hanshin Expressway Company Limited	International Business and Cooperation Office, Engineering Department	I took over the role from my senior colleague.
 Hiromasa Kobayashi	Honshu-Shikoku Bridge Expressway Company Limited	Naruto Operation Center, Planning Section	I took over the role from my senior colleagues.

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[Special Interview] New YP Members from Japan

Q Do you have any previous experience with REAAA or its members?

A We have not had any previous experience with REAAA, so we are looking forward to gaining valuable experience working with all of you.

Q How did you like your first YP meeting (19th meeting on 21st March)?

A We all enjoyed the first meeting. The atmosphere was very friendly and comfortable. Thank you so much for welcoming us as new members of REAAA YP. We also found the technical presentation from Indonesia on road construction in coastal areas very interesting.

Q What are your expectations from the REAAA YP program?

A As an international community, we expect to be able to share information on regional problems, enhance our knowledge of road engineering technology, and, especially, establish a global network. We also expect to visit construction sites during study tours.

Q What can you do for YP in Japan? Do you have any plan? (Include a brief summary of current YP activities in Japan, if any)

A Activity has just started with these new members. We would like to communicate with each other by holding regular technical or non-technical online meetings to share information about our international projects and advanced technologies, etc. We hope to be able to visit each other once the COVID-19 pandemic is under control.

Q During the pandemic, have you observed any new trends, news, or ideas regarding road engineering in your country or the region which you would like to share with REAAA members?

A The pandemic has resulted in restrictions in movement, including road use. On a positive note, the number of traffic accidents has decreased by 19.0% YOY, and the number of traffic fatalities has decreased by 11.7% compared to the previous year. One trend associated with the reduction in human contact is that tolls will only be collected electronically at toll gates, especially in urban areas.

Q Any words to add?

A Looking forward to meeting you all soon and working with you.

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Road Engineering Association of Asia and Australasia

Special Articles 1

Field Monitoring of Road Pavement Responses and Pavement Performance in Thailand

Dr Auckpath Sawangsuriya
Roads Association of Thailand

Recently, the impact of increasing, and overweight, truck traffic due to economic growth and climate change over the last decade on road and highway networks has been becoming a growing concern around the globe. A number of road pavements in Thailand have been deteriorating earlier than expected because of the continuing increase in traffic volume and traffic loads. The Department of Highways (DOH), Thailand, has adopted an empirical approach for the design of and rehabilitation of pavements based on the outcomes of the AASHO Road Test for decades. There was a need for a specific research initiative to assess the equivalent axle load factors of heavy vehicles used in Thailand and also the performance of DOH's typical road pavements.

From late-2017 to mid-2018, the Bureau of Road Research and Development of the DOH, in collaboration with the Faculty of Engineering, Kasetsart University, initiated the monitoring of three instrumented National highway pavement sections in order to better understand the load-carrying behavior and characteristics under typical operating conditions in Thailand. The sections included a rigid pavement in Nakorn Chaisri District, Nakorn Phathom Province, and two flexible pavements in Potaram District, Rachaburi Province, and Sapphaya District, Chainat Province. Each section was adjacent to permanent weigh stations and weigh-in-motion (WIM) systems.

- the installation of embedded instrumentation and data processing system for stress, strain, temperature, and moisture monitoring in the field was viable
- pavement responses from theoretical analysis, measured data, and numerical models could be compared
- field testing of pavement layers using the Falling Weight Deflectometer (FWD) and the response under permitted axle loads – including single axle-single tyre, single axle-dual tyre, tandem axle-dual tyre, and tridem axle-dual tyre – could be conducted
- equivalent axle load factors (EALFs) for Thai trucks could be determined
- pavement deterioration and performance prediction models could be developed.

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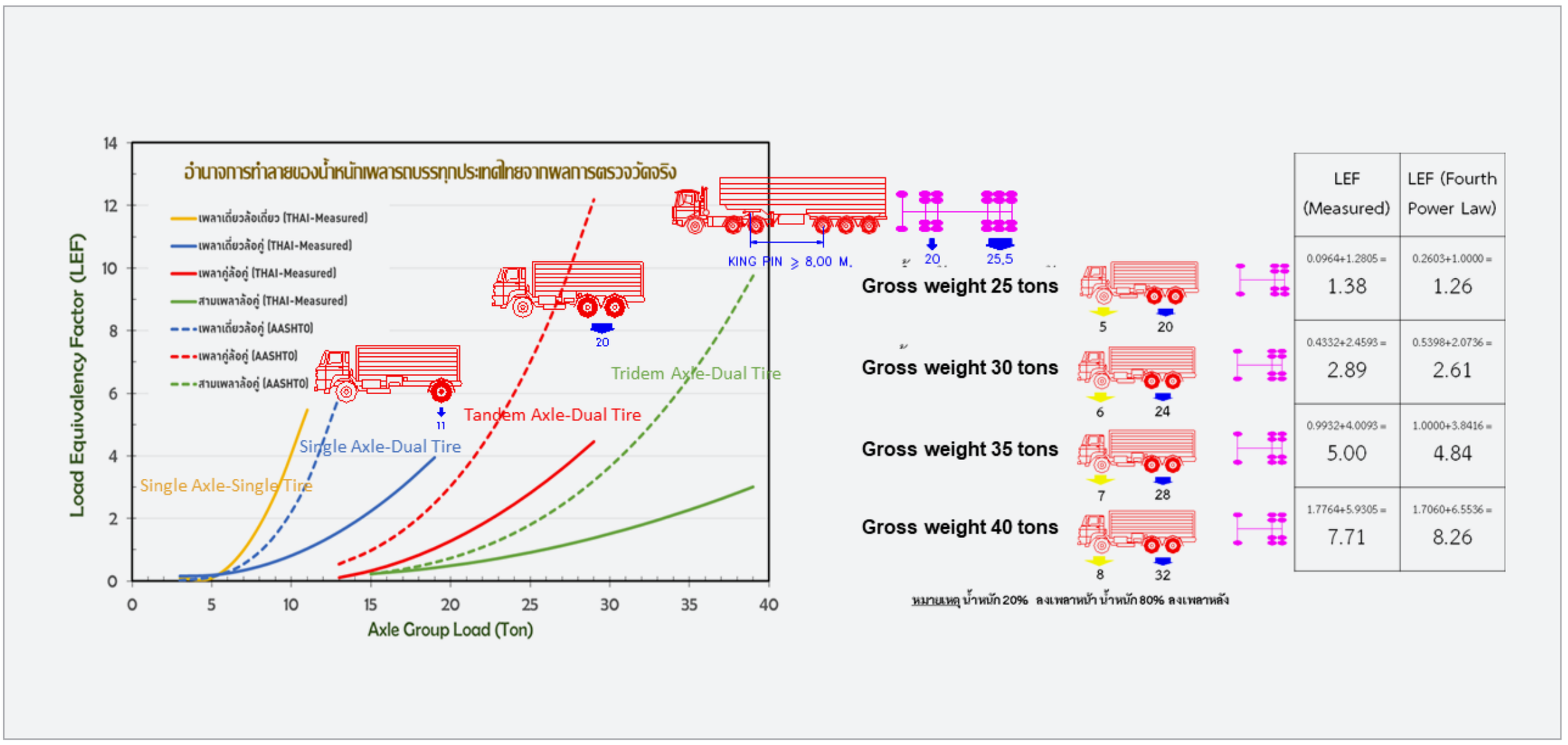
The project generated extensive data regarding the design and analysis of road pavements in Thailand, as well as their long-term performance under local trafficking, material, construction, and seasonal variations due to moisture and temperature. It also served as an efficiency tool to measure and validate damage effects due to overloaded trucks. Most importantly, a mechanistic approach to accurately convert truck load configurations into Equivalent Standard Axle loads in term of EALFs – i.e. the ratio of the number of Standard Axle load repetitions according to the permitted axle loads to the non-standard axle loads – was developed. As opposed to an empirical approach, this mechanistic approach was developed based on the measured tensile strain at the bottom of the asphalt layer. The EALFs developed during this project enabled the influence of tyre type (single and dual) and axle type (single, tandem, and tridem) on pavement response to be determined. The results suggested that the EALFs for single tyres are approximately 4-10 times greater than those for a dual tyre. Finally, average values for the EALFs, based on Thailand's permitted axle loads, were also developed.



	LEF (Measured)	LEF (Fourth Power Law)
Gross weight 25 tons	0.0964+1.2805 = 1.38	0.2603+1.0000 = 1.26
Gross weight 30 tons	0.4332+2.4593 = 2.89	0.5398+2.0736 = 2.61
Gross weight 35 tons	0.9932+4.0093 = 5.00	1.0000+3.8416 = 4.84
Gross weight 40 tons	1.7764+5.9305 = 7.71	1.7060+6.5536 = 8.26

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Special Articles 2

Zhongxiao East Road Pedestrian Environment Improvement Project:

Another Step Towards a More People-oriented, Resilient and Smart Taipei City

New Construction Office, Public Works Department, Taipei City Government

Background: Taipei

Taipei City, located in Taiwan's north and with a history spanning nearly 300 years, is the nation's political, commercial and cultural center. Its population is currently over 2.6 million people and it is world-renowned as a top international tourist destination, and beloved for its convenience and attractions, such as one of the world's tallest buildings, Taipei 101. Taipei is actively striving to become a "resilient city" focused on the goals of sustainability – not only in areas of disaster reduction and prevention, but also, and more importantly, in developing the ability to flexibly and efficiently respond to various types of natural hazards.

Background: Zhongxiao E/W Road

Throughout its turbulent history, the city's planning has gone through a number of important changes. During the period of Japanese occupation, the Governor's office developed Taipei's first urban planning program, adopting a European-styled urban planning approach. The walls which once encircled the city were demolished to allow for the development of transportation infrastructure, resulting, in 1913, in the creation of what became known as the main "three-lined boulevard" centered around the 228 Peace Memorial Park (then known as the Central Park). To achieve a European-style city streetscape, the Governor's office deliberately built numerous Western-style buildings along the "three-lined boulevard". This became the trendiest area of the city, even dubbed at the time "Oriental Little Paris".

In 1949, Taipei became a municipality and Zhongxiao West Road was extended eastward to Zhongxiao East Road, leading to the rise of the Eastern Business District in the 1970s. The road gradually extended to comprise seven sections, spanning four administrative districts and becoming a key arterial boulevard.

Today, Zhongxiao East Road is Taipei's critical east-west arterial road. It not only serves as a key transportation channel, but also houses numerous organizations with important cultural, educational, commercial, administrative, and recreational municipal and national functions. Among these are government offices, educational institutions (e.g. National Taipei University of Technology and Zhongxiao Elementary School), and popular shopping complexes, such as the Huashan 1914 Creative Park, the Guanghua Digital Commercial Zone, and the SOGO Department Store. In addition, the Taipei MRT Blue Line, which carries over 1.6 million passengers per day, is located underneath the road.

In recent years, the Taipei City Government has begun to actively promote the "East and West Gateway Projects". The aim is to create a more people-oriented environment and transportation system, with the Zhongxiao East Road being the connection between the East and the West Gateway.

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The Project

The Zhongxiao East Road Pedestrian Environment Improvement Project – completed at the end of 2020 – is part of Mayor Ko Wen-Je's urban development vision of making Taipei a "livable and sustainable city of tomorrow". The project, which extends from Section 1 to Section 3 of the road, has three main objectives: making the road and its pedestrian environment more people-oriented, creating a truly environmentally-friendly and resilient road, and equipping it with smart facilities. In the initial stage of the project, members of the City Council and the design team met with representatives of the surrounding communities, and held briefings to better understand the needs of the public.

In the past, the Taipei city's urban transportation system was markedly car-oriented, and only recently has it begun to transform into a more pedestrian-oriented system. This project can thus be viewed as a demonstration of this effort, utilizing three core design concepts.

First, the width of the pedestrian spaces along the road has been widened and ancillary structures and facilities – such as the MRT station entrances, electrical power boxes, parking spaces, bike sharing system equipment, and bus stations – have been all re-aligned into the so-called "facility belts" positioned along the sidewalks, to allow for unobstructed pedestrian movement. The roadway has been separated by an improved median strip with more accessible and safe pedestrian islands and crosswalks. At the same time, the motorcycle parking spaces, originally located on the sidewalk, were removed to provide pedestrians with increased space and convenience, as well as to improve overall safety. These improvements create a safer and more enjoyable walking environment and promote the use of low-carbon transportation modes, such as MRT, cycling and bike sharing.

Second, in response to a notable climate-change induced increase in short but heavy torrential rains in Taiwan, this project incorporates permeable pavement materials to ease the burden on the urban stormwater management system, allow road surfaces to dry faster, reduce water splashing on the roadway and its accumulation on the pedestrian spaces while, at the same time, allowing infiltration of the water back into the soil, thus reducing the air temperature as the water evaporates. All this reduces the "heat island effect" and moves Taipei closer to its vision of an environmentally sustainable and resilient "sponge city".

Third, the project integrates several modern innovations: various devices – such as CCTV surveillance cameras, smart traffic signals, 5G base stations, and sensors collecting air pollution, temperature and other data – are located on the same multi-functional poles. The information collected is further analyzed and combined with data from other smart city modules through Taipei's "Virtual City Governance System", to assist the government in making strategic decisions.

Photos showing some examples of the initiatives are shown in Figures 1, 2 and 3.

Zhongxiao East Road Pedestrian Environment Improvement Project

Figure 1: Multi-functional pole, pedestrian island and crosswalk

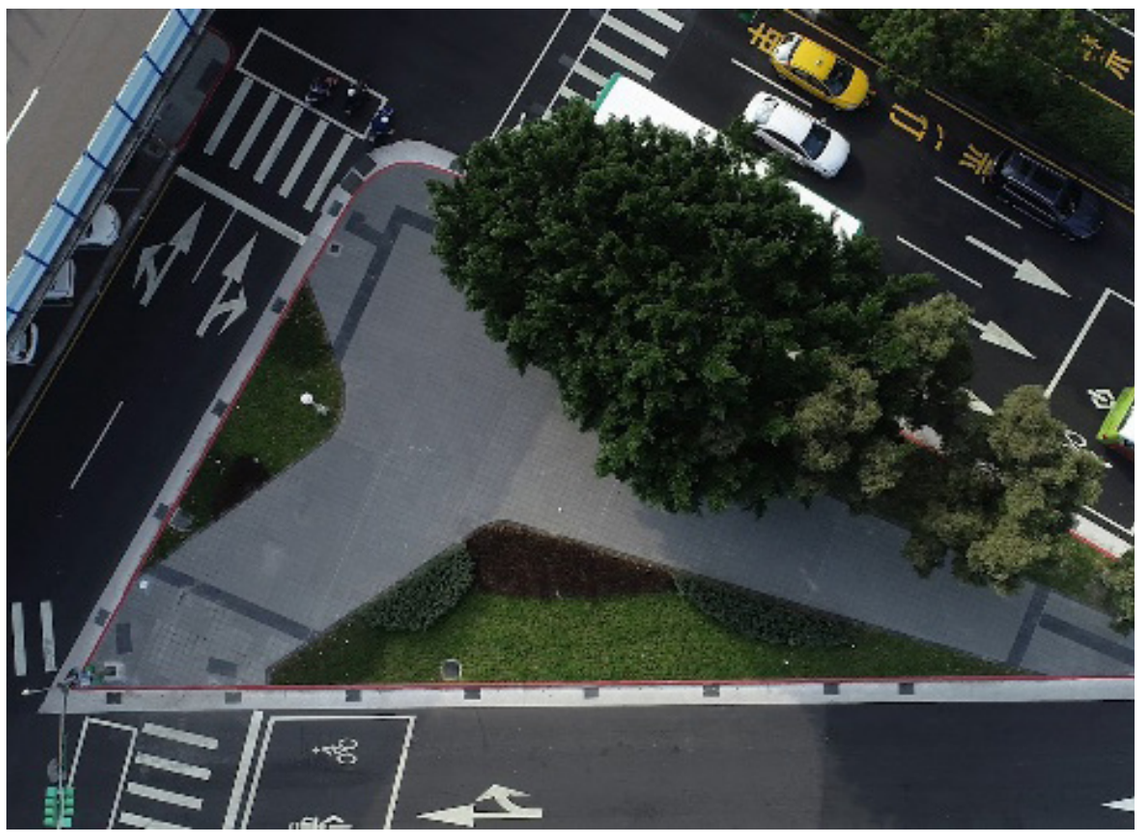

Figure 2: Permeable pavement materials allow water back into the soil

Figure 3: A safer and more enjoyable walking environment

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Conclusion

Apart from enabling people and goods to move faster and safer through the city, roads can also have great cultural and symbolic significance. This is particularly the case with a thoroughfare such as Zhongxiao East Road, which connects Taipei's east and west, as well as its past and future. As societal needs and global impacts change, the transport infrastructure must adapt to the new challenges. Through its road network improvements, Taipei has demonstrated its commitment to, and focus on, human-centricity, sustainability and smart applicability.

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Special Articles 3

Future Transport and Mobility Environment

Dr Charles Karl

National Discipline Leader – Future Transport Systems Australian Road Research Board)/Member of REAAA Australian Chapter

Dr Elnaz Irannezhad

Principal Professional - Future Transport Systems Australian Road Research Board)

Francis Cheong

Professional Engineer - Future Transport Systems Australian Road Research Board) (francis.cheong@arrb.com.au)

Transport and mobility management involves a combination of people, processes, systems, and technology. With significant changes occurring in technology and mobility services, there is an opportunity and need to capture the current paradigm and plan for the emerging future transport and mobility environment (FTME). In practice, new mobility refers to a range of existing and emerging transport modes, services and technologies that have potential to provide a compelling alternative to the motor vehicle. At its core, new mobility is about rebalancing the movement of both people and goods away from single occupancy, inefficient, fossil-fuel powered vehicles (Beard 2021).

Digitisation and advances in mobile communications have changed our lives significantly. The current silos in land transport associated with private vehicles, commercial vehicles, and public transport (road and rail) are now beginning to change, whereby service delivery is largely independent of the specific transport silo. A car can be a private vehicle, a service, commercial or freight vehicle and a public transport vehicle all in the same 24 hours. Journeys (or mobility) are enabled by applications and services provided by service providers and supported by layers of digital and physical infrastructures.

In 2020, the Australian Road Research Board (ARRB) and the Queensland Department of Transport and Main Roads collaborated with an Australian Government Cooperative Research Centre (iMOVE CRC, www.iMOVEAustralia.com) in a research project to create a common understanding of this environment (Karl et.al. 2021). A conceptual and logical architecture for the FTME was defined, showing the key components and the interacting elements, understanding where current state technology sits, and drawing out the priority actions to enable the future vision.

In essence, digital infrastructure has been rolled out across the physical infrastructure of the land transport network. The change in thinking from a silo-based view to a layer-based view of the future transport and mobility ecosystem, as shown in Figure 1, requires alignment of technology and innovation with the other key elements of a system; policy and legislation, infrastructure and humans.

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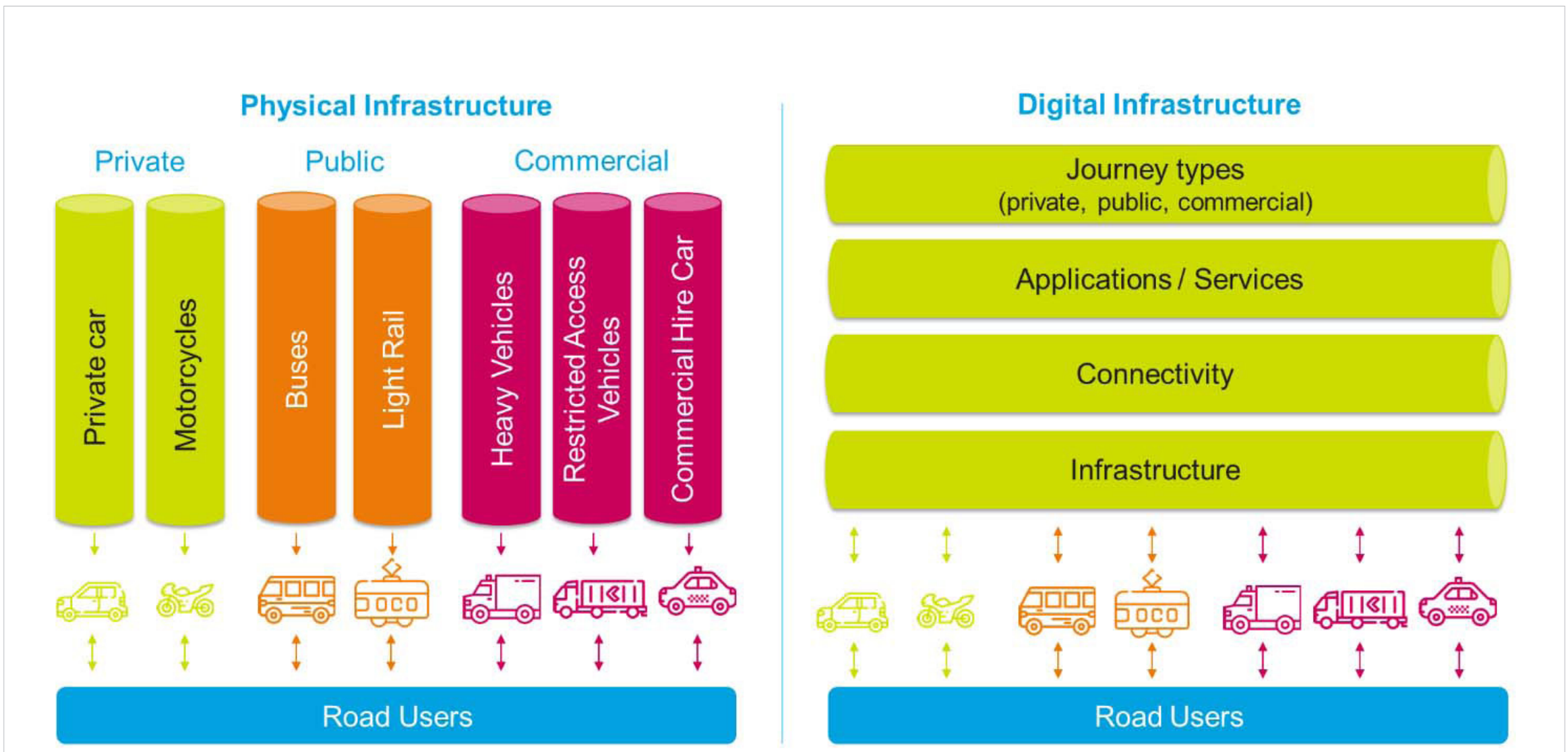

Figure 1: Convergence in networks and service layers

Recent studies by ARRB on a future transport and mobility environment developed a listing of the core functional elements in FTME to gain an appreciation of the depth and breadth of what we already have in Australia, depicted in Figure 2.

In this first version of the Australian 'pantry', the functional elements have been split into six layers:

1. Services – the range of mobility services available from specific service providers and transport and mobility operators.

2. Processing – the integration and transformation of data and logical elements into business-specific requirements for actors in the transport and mobility space.

3. Logical elements – the regulatory, operational and safety frameworks that enable safe and efficient operations of the transport and mobility ecosystem.

4. Data – the data required for users, service providers and regulators who operate in the ecosystem.

5. Digital infrastructure and connectivity - the infrastructure that provides the connectivity layer between the customers, vehicles, infrastructure and the back offices of the ecosystem.

6. Physical infrastructure/roads and devices – the infrastructure and technology that comprise the roads, rail and supporting assets including ITS on which the land transport network is based.

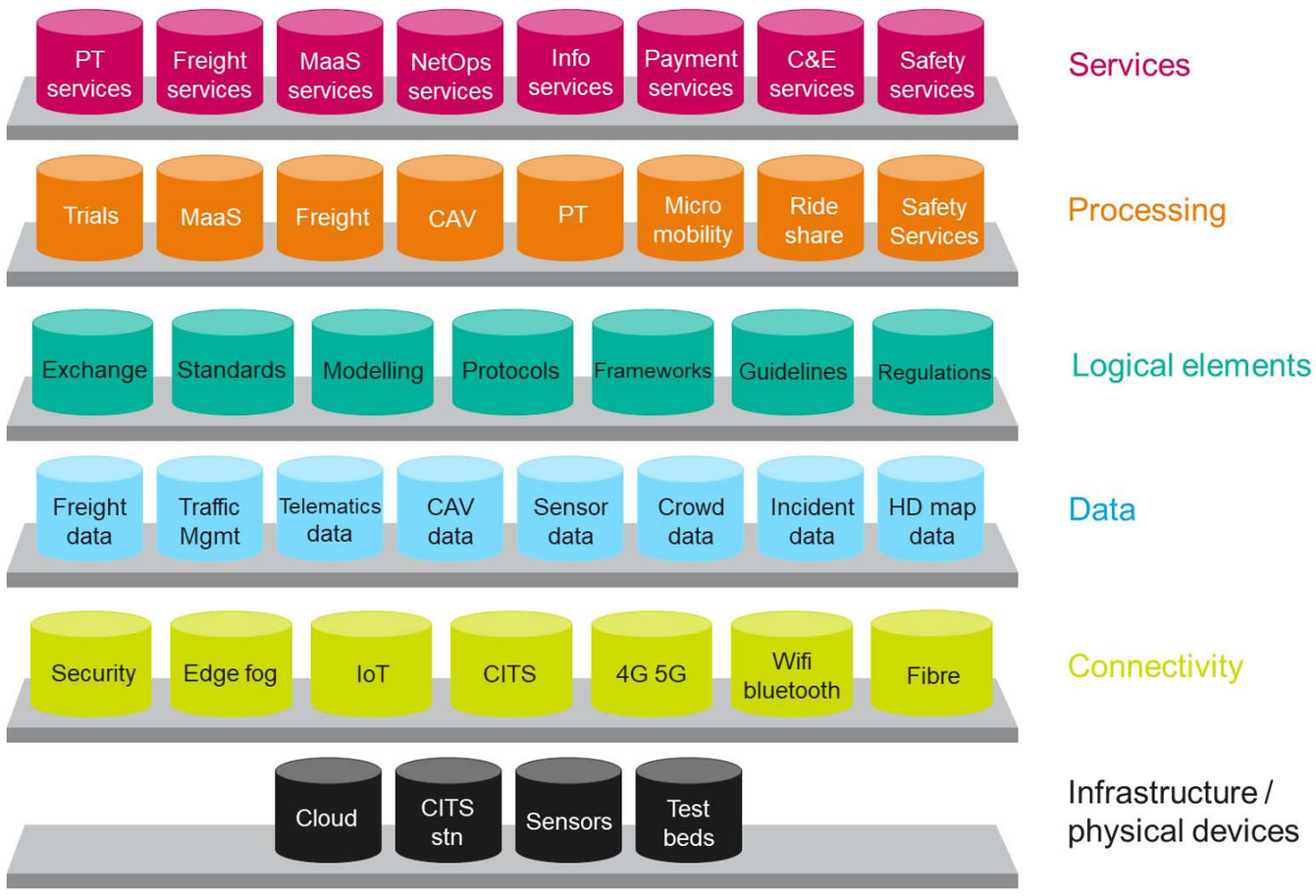

Figure 2: Australian pantry, core functional elements

Future mobility will require integration of different services as shown in Figure 3. Each of the services will critically rely on cloud-connected data for their proper functioning and thereby achieve the outcome of an integrated mobility service for all road users. Such an appreciation by practitioners provides the context from which to address the options and guidance necessary to work with all services and industry to deliver safe and efficient journey outcomes for road users who are cloud-connected.

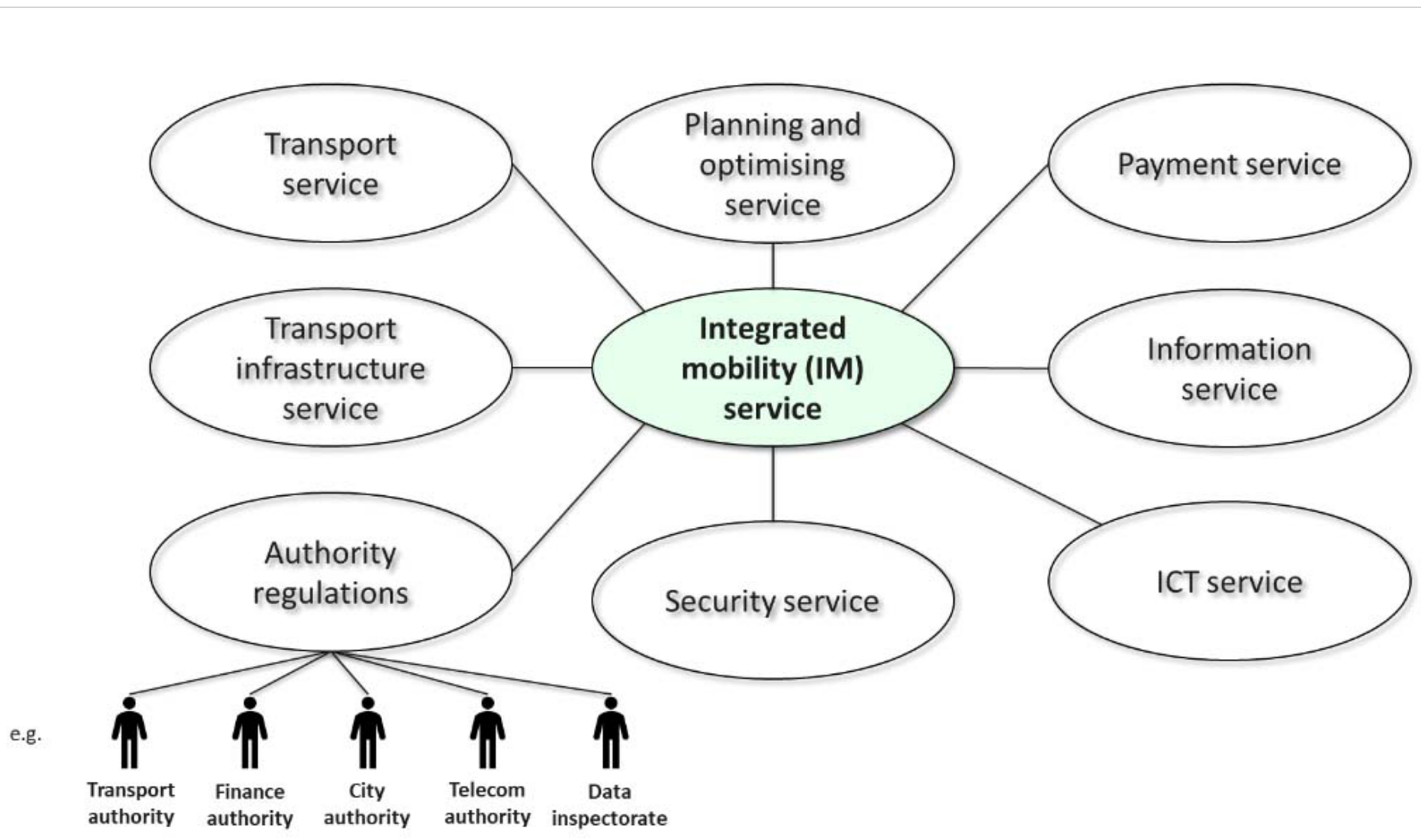

Figure 3: Integrated mobility services (ISO DTR 4447, Integrated Mobility Concept, April 2020)

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Conclusion

The project undertook an investigation to explore and challenge traditional approaches to transport operations and mobility in the face of new technologies and communications, enabling greater integration of systems in the transport and mobility ecosystem.

The findings of this project can be summarised in Figure 4 which shows the roles and responsibilities in the FTME ecosystem. While the roles and responsibilities today and in the future look similar, the increasingly integrated nature of transport and mobility calls for a fresh definition of roles and responsibilities of actors such as the System Manager and Regulator, which are currently the responsibility of several actors in road and rail networks, commercial and heavy vehicles, public transport, and freight.

The physical infrastructure of transport and mobility has been complemented by digital infrastructure and better connectivity between people, vehicles, infrastructure, and back offices. The Australian 'pantry' of core functional elements continues to expand and mature, and these functional elements are utilised by the actors in the future transport and mobility environment in their roles, such as service providers, transport services, transport infrastructure operators, customers and users as well as Governments as regulators and system managers.

The development of a clear understanding around the conceptual and functional areas of a future transport and mobility ecosystem also provides the opportunity to disseminate this knowledge to other areas outside of transport, for example, to areas such as aviation, defence, freight, Big Data, safety, research, and standards development.

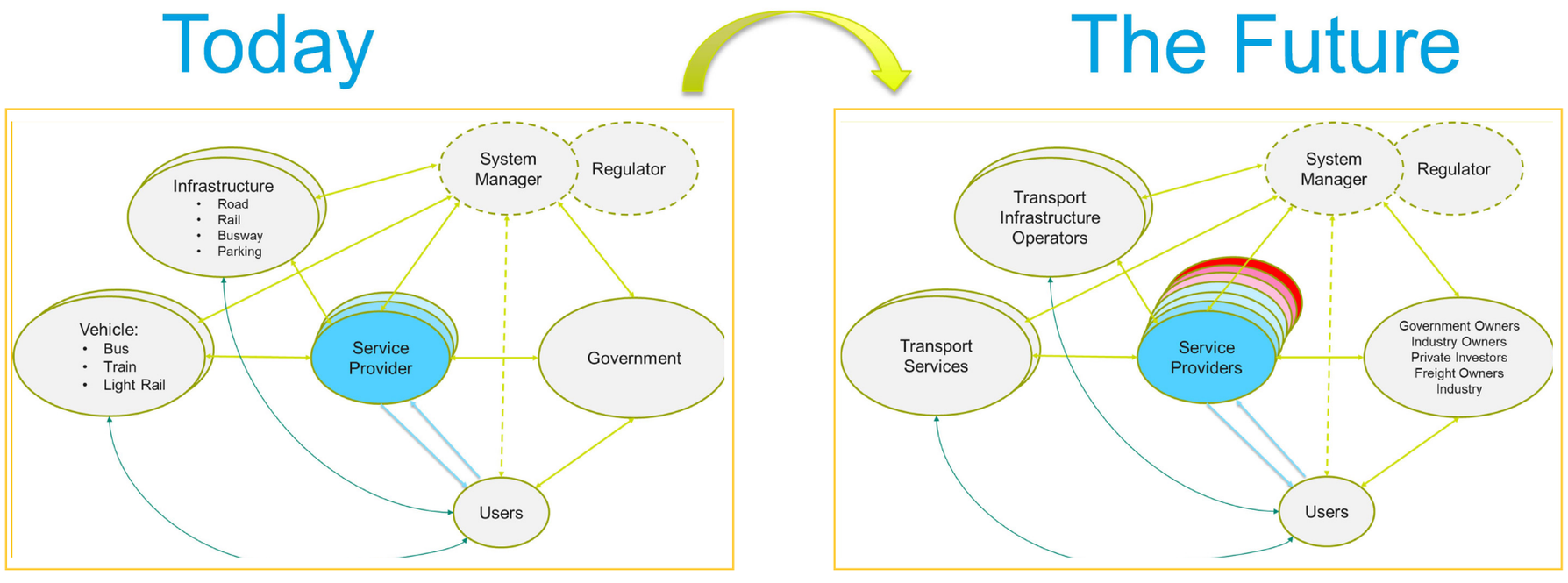

Figure 3: Integrated mobility services (ISO DTR 4447, Integrated Mobility Concept, April 2020)

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Special Article 4

Why Investigating and Gathering Information at the Scene of Road Crashes is Invaluable to Road Agencies – Why We Should be Doing More, Not Less!

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Transport Safety
Australian Road Research Board
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Tia Gaffney
Principal Professional Leader,
Transport Safety
Australian Road Research Board

Introduction

While there is no mandatory requirement to investigate road crashes in Australia and many other countries, the authors believe that all severities of crashes deserve to be investigated. Only in this way can the enormous potential for learning and continual improvement in strategy, policy, designs, standards, guidelines, and practices be accrued across all of the elements of the Safe System. This leads to more positive outcomes than the more traditional focus on the conduct of investigations as part of criminal and/or civil proceedings (litigation), which tend to be solely to establish which party/ties was at fault.

Learning is reliant upon establishing fact – the root cause/s

Learning from crashes requires a focus on the facts of the incident and the facts only! In simple terms, what happened – what each party did. With respect to the pertinent road agency this requires a detailed examination of the road infrastructure – its provision and its condition, and decisions reached in managing and maintaining that road. It is not about casting blame – it is all about making sure that similar incidents cannot recur at the incident location and other similar locations. In that way, a fatality or serious injury is not in vain – some comfort to the involved families.

Physical evidence is the key

Identifying, collecting, securing, and analysing pertinent physical evidence and associated information is essential, and as soon as practicable following an incident. However, it is recognised that there are three highly significant dimensions here – time, scope and resources!

The evidence gathered is then used to unravel the facts, and solely the facts, a process often referred to as a ‘root cause analysis’ or ‘blameless/no-blame investigation’. Gaps in evidence can readily be identified and addressed; this can also negate the need for assumptions, and ultimately prevent uncertainty.

While the authors have already stressed that learning is paramount, and litigation is a secondary consideration, it is worthy of note that securing information at the time of an incident can also safeguard against situations where

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civil legal proceedings may be brought several years later and a number of key items are no longer available. Such situations can drastically increase a road agency's vulnerability.

In simple terms, the more detailed and thorough the collection of information after an incident, the more thorough the subsequent investigation and reconstruction of that incident can be……

However, it is not about 'collecting everything' – the skill is in recognising and capturing the pertinent information….

Similarly, time is of the essence – some items (e.g. tyre marks, surface contamination) are transient (they exist for a short time) or ceases to be available in time!

Don't the Police investigate incidents?

The authors have encountered a worrying misperception that many working within road agencies do not believe that their organisations should have any compelling need or interest in investigating incidents, as this is done by the Police and/or insurance companies.

The reality is that the scope of most national or state transport investigative bodies only covers rail, aviation, and maritime incidents. Specialist Police Crash Units are typically stretched and can only cover fatal, some serious and some publicly-sensitive incidents in sufficient detail to gather enough evidence to enable a formal forensic reconstruction to take place. And even then, as previously identified, Police investigations have a very different objective – establishing fault and linked to that, the prospect of prosecution of one or more of the parties involved. These objectives are quite different to the learning/continual improvement objective of road agencies.

This misperception has unfortunately led to many road agencies deciding not to undertake their own investigations, which the authors believe is misguided and a real opportunity lost.

What information is typically collected?

The information collected is often termed 'physical evidence' and is made up of what can be defined in simple terms as 'items which prove or disprove a fact in an incident'. By the nature of this definition, the scope can be wide; as determined on an incident-by-incident basis. While a general manta of 'if in doubt, collect it' is wise, and can inform on-site aides such as checklists, over time practitioners will develop a good practical understanding of core and other items that will ultimately be required.

As a basic categorisation, the information gathered can either be 'physical' (e.g. type and dimensions of skid marks, the position of a road sign, or the type and condition of line markings), 'observational' (e.g. witness accounts/ statements), both of which are gathered at the scene, or 'documentary' (e.g. works records, traffic management plans, standard operating procedures) which is collated back in the office.

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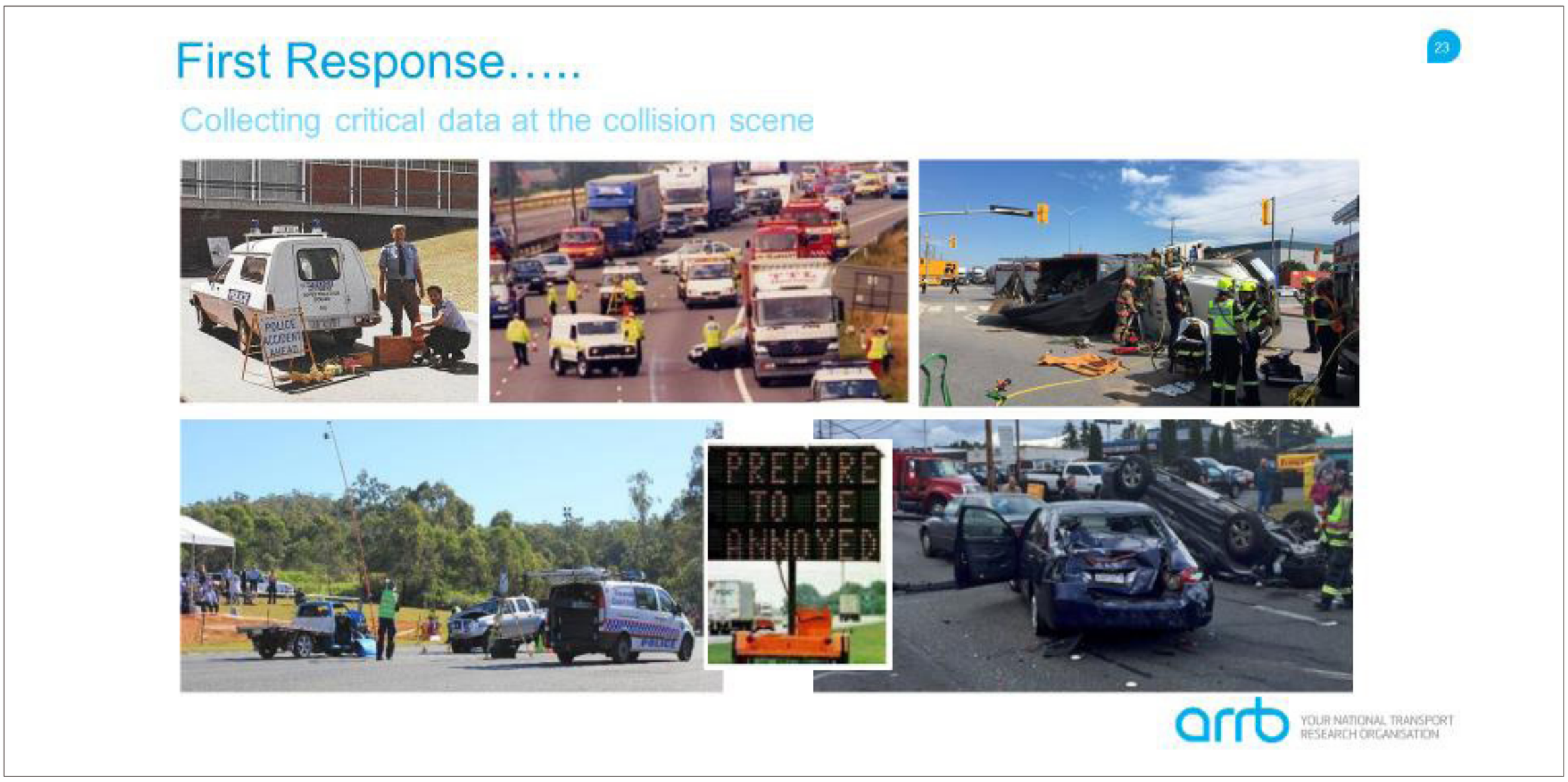
Why Investigating and Gathering Information at the Scene of Road Crashes is Invaluable to Road Agencies – Why We Should be Doing More, Not Less!



(Photograph shows a member of a Police Serious Crash Unit collecting measurements and overhead photographs at the scene of a head-on collision between two vehicles)

Good practice for investigating incidents

ARRB can provide a range of support to road agencies and private sector clients on establishing an incident investigation strategy and increasing their capacity and capability in these fields or conduct independent blameless investigations of road-related incidents on their behalf. Notwithstanding, it is vital that organisations establish policy and structured practices, which are consistently and reliably enacted by a pool of investigators with requisite competency (in terms of skills, experience, knowledge, and attitude). ARRB's Knowledge Transfer/training activities provide good practice tips to assist individuals in conducting investigations, importantly securing and collating information from an incident scene, and importantly, ensuring that the lessons to be learnt are identified and continual improvement effected.

Competency, thoroughness, and attention to detail in gathering information at an incident scene lay the foundation for a quality investigation

Ask the key questions – would someone else be able to investigate & reconstruct the incident using your notes, measurements & photographs, etc. obtained on site? Are the items logically and clearly collated and labelled/displayed

Stay safe – do not put yourself or anyone else at risk. Do not become a secondary incident!

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What if the site has changed since an incident?

If notification of a road crash is delayed or the investigation cannot be resourced immediately, it is not out of the realms of possibility that changes to the site and its infrastructure provision may have occurred (e.g. a changed traffic management layout of a roadworks site). So, what then?

A site investigation can still provide value by confirming long-standing items or features that may not have changed or helping to establish why changes have been made. Additionally, it is better to know what gaps in information are present and how a site has changed, such that any assumptions that do need to be made are reasonable and can be substantiated.

Future proofing

Establishing good practices in terms of learning from all incidents will ensure readiness in understanding the next generation of incidents, i.e. enabling road designers, network managers, road safety engineers, and maintenance practitioners to collect and analyse information as crash mechanisms and outcomes involving vulnerable road users, motorcycles and heavy vehicles evolve, and in future paradigms, e.g. where connected and autonomous vehicles (driverless vehicles) are involved.

Closing remarks

The graphic below promotes the need to move from establishing fault to establishing the facts and what happened – this releases the true learning potential of road crashes.

Road crashes deserve to be investigated!

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Special Article 5

Concrete Pavements: Challenging some Myths

Justin Moss
National Technical Director (Pavements)
Arcadis Australia
President of Australian Society for Concrete Pavements
(justin.moss@arcadis.com)

Australia's only engineering society for concrete pavements, the Australian Society for Concrete Pavements (ASCP), has released a number of key documents that challenge some long-standing myths about the value, performance, ride and sustainability of concrete pavements in heavy duty scenarios (e.g. highways and motorways). These ASCP Pavement Notes present findings which are each fully supported by extensive reference information.

Pavement Note 001, Concrete pavement value: economic, operational and community benefits presents findings related to the value of concrete pavements in comparison to comparable asphalt pavements in terms of both initial construction costs, whole-of-life costs, and maintenance costs. It presents data which determines that:

- compared to full depth asphalt pavements, concrete pavements are typically 25% lower in construction cost – an outcome which is influenced largely by the high relative cost of bituminous binder (compared with the stable producer price index of cement)
- concrete pavements can reduce maintenance costs by between 50% and 60% over a 40-year life and, as a result, an additional benefit of a 50% reduction in lifetime closures (due to very low slab replacement levels).

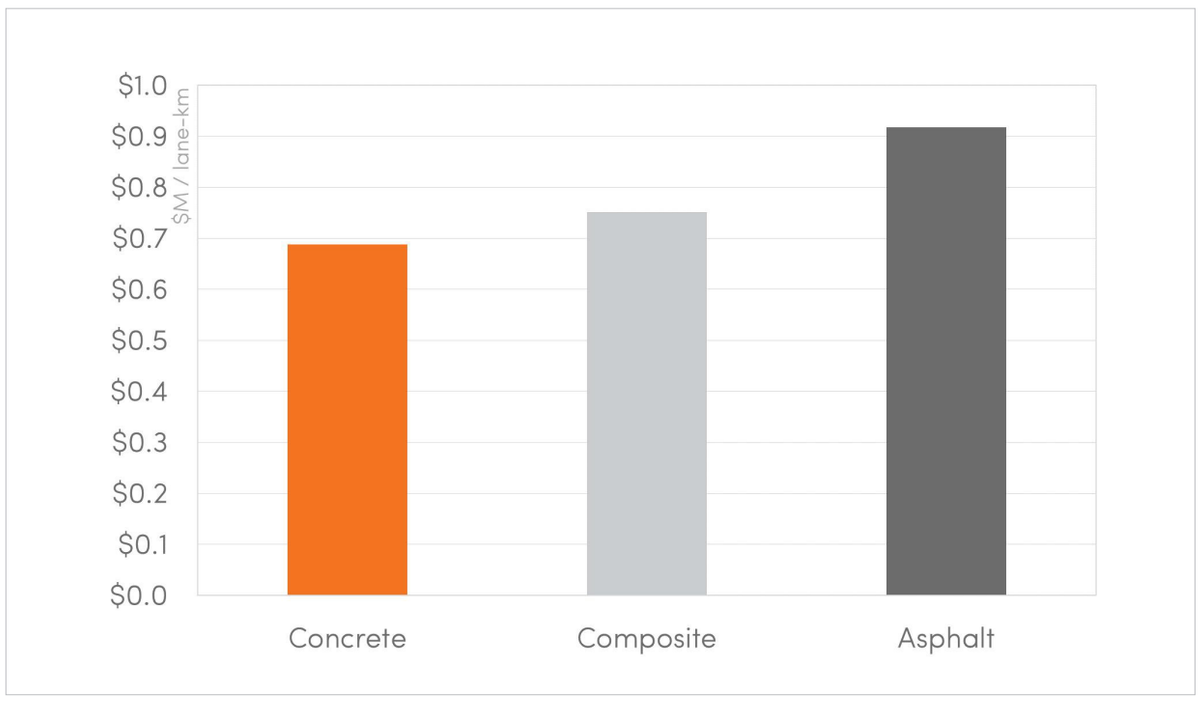

Figure 1: Concrete vs composite vs asphalt cost

It further highlights that improved surfacing techniques deliver a ride quality which meets or exceeds any other type of road pavement. Further commentary is made about the high production rates possible with this form of construction and lower labour intensity. Dispelling some of the myths around the apparent 'high' cost of concrete pavem ents, it concludes that concrete pavements are significantly lower in construction cost, maintenance cost and, consequently, whole-of-life cost than asphalt pavements, with the additional or enhanced benefits of ride quality, skid resistance, construction efficiency, labour reduction, durability, and more available in-service than asphalt pavements.

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Pavement Note 002, Sustainable concrete pavements: reduced environmental impact of concrete pavements discusses a number of sustainability advantages of concrete pavements compared to their flexible equivalents for motorway-class road pavements. It highlights the high use of recycled materials (up to 20% by weight), the lower environmental footprint (12-30% lower than asphalt by ISCA's EnviroPoints), reduced heat island (albedo), higher CO_2 absorption via carbonation (up to 50% of original production levels), reduced lighting costs (30% lower in tunnels due to lightly-coloured surfaces), high resilience to extreme weather events, fuel savings by reduced rolling resistance (3-17%) and lower noise emission with new grooving treatments. Whilst the key component of concrete (cement) is highly carbon intensive, the proportion used is relatively low in concrete road pavements – a point which is made clearer by this wholistic view of the broader factors to be considered in the evaluation of the sustainability of one pavement type compared with another.

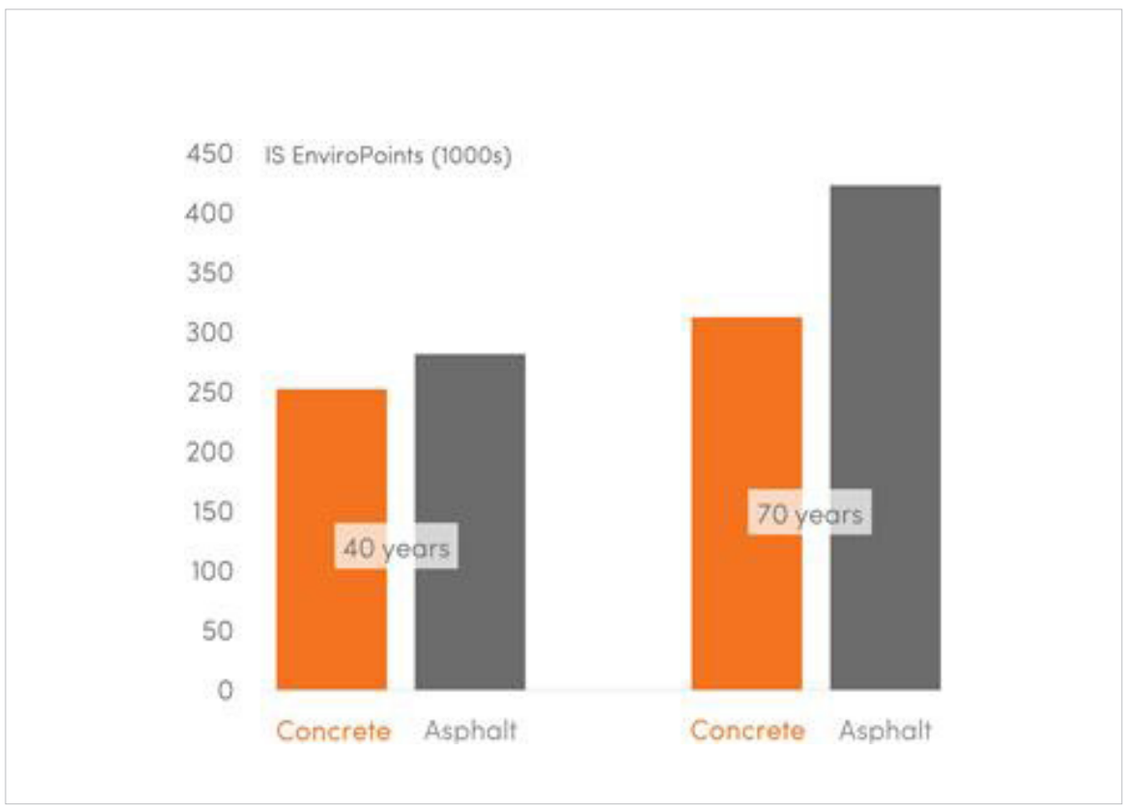

Figure 2: Environmental impact 40 and 70 years

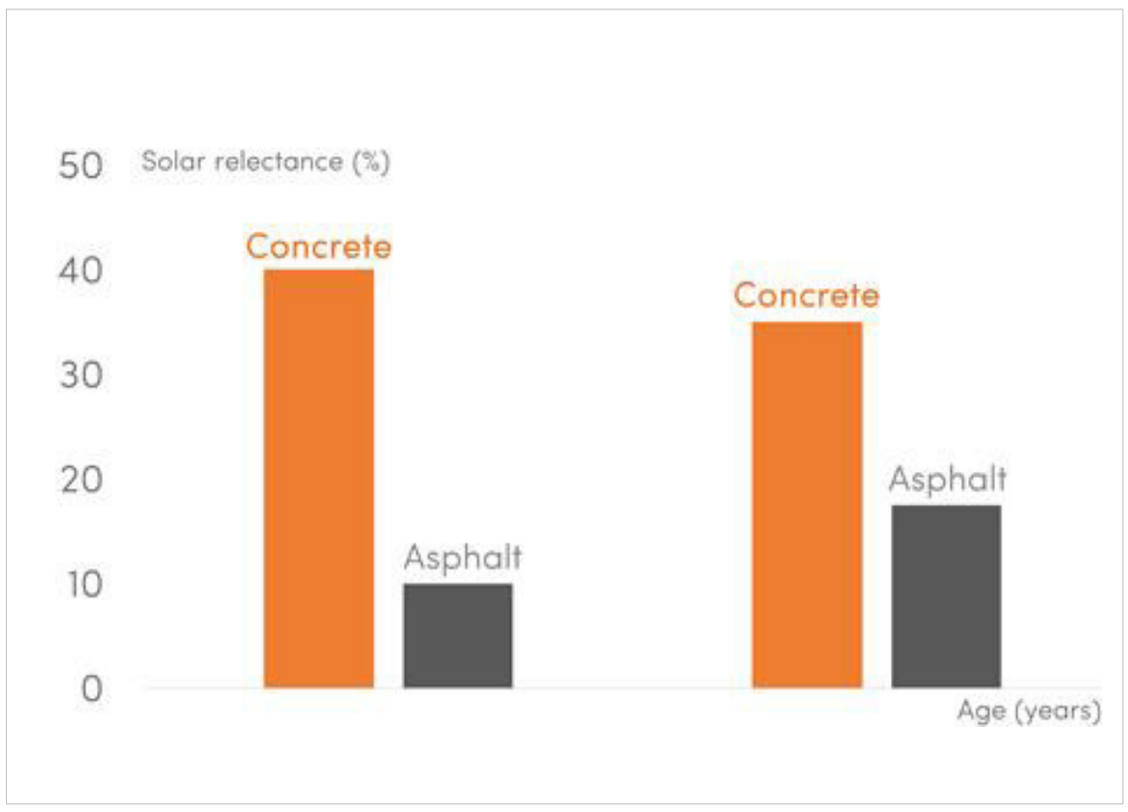

Figure 3: Solar reflectance compared (0 & 5 years)

Pavement Note 003, Low noise concrete pavements: smooth, safe, durable and cost-effective texturing reviews the low noise benefits of a new surfacing treatment for concrete pavement: Low Noise Diamond Grooving (LNDG, also referred as NGCS in the USA where it has been used for more than 20 years). In contrast to conventional diamond grind (CDG, which features a positive surface texture), the new LNDG surfacing technique provides a negative texture characterised by deep grooves which may be achieved in a single pass (on a newly-constructed pavement), or three-pass method for the rehabilitation of ride and skid resistance on aged pavements. The document reviews extensive trials on the Hunter Expressway (2010) and Pacific Highway (2018) where exceptionally low noise performance and ride quality was achieved – such as an average IRI of 0.61 (equivalent to NAASRA roughness of 15) for three passes and an IRI of 0.79 (equivalent to NAASRA roughness of 20) for two passes. The document details changes made to Transport for NSW's Noise Modelling Guidelines, in which LNDG concrete pavement improves the low-noise performance of SMA14 by 1.0 dBA and of sprayed seals by 4.0 dBA. It further discusses 10-15% skid resistance improvements compared to asphalt pavements with SCRIM values between 60 and 79. In addition to these benefits, the document argues that costs savings (arising from the low cost of the process and the elimination of subsequent resurfacing) is in the order of AUD0.7M (about MYR2.2M) per kilometre. It concludes that concrete pavements incorporating the LNDG surfacing treatment provide a quiet, smooth, safe, cost-effective and durable pavement texture which meets (or surpasses) the noise performance of asphalt, with lower life cycle costs.

Figure 4: CDG surface

Figure 5: LNDG surface

Figure 6: Flush grind

Transport for NSW (TfNSW) Noise Modelling Guidelines (extract)

Pavement type	Noise level
Concrete (LNDG)	0
Asphalt (SMA 14)	1
Asphalt (OGA 14)	–4.5 to +2.5
Sprayed seal	4

It further highlights that improved surfacing techniques deliver a ride quality which meets or exceeds any other type of road pavement. Further commentary is made about the high production rates possible with this form of construction and lower labour intensity. Dispelling some of the myths around the apparent 'high' cost of concrete pavem ents, it concludes that concrete pavements are significantly lower in construction cost, maintenance cost and, consequently, whole-of-life cost than asphalt pavements, with the additional or enhanced benefits of ride quality, skid resistance, construction efficiency, labour reduction, durability, and more available in-service than asphalt pavements.

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New Members of REAAA Technical Committees from Korea

The REAAA Korean Chapter has recently revised its membership of the REAAA Technical Committees. The members of the three committees are as follows:

Kieran Sharp
Chair REAAA Technical Committee

REAAA Pavement Technology Committee (Chair Dr Keizo Kamiya, Japan)	Dr Seung Hwan Han	Korea Expressway Corporation
	Dr Junyoung Park	Korea Expressway Corporation
	Mr Insoo Yeo	Korea Road Association
REAAA Climate Change, Sustainability & Emergency Management Committee (Chair: Mr Kieran Sharp & Ms Caroline Evans, Australia)	Dr Jongnam Brad Do	Korea Expressway Corporation
	Dr Jugoang Lee	Korea Expressway Corporation
REAAA Road Safety Committee (Chair: Dr Muhammad Marizwan bin Abdul Manan, Malaysia)	Dr Seongkwan Mark Lee	King Saud University
	Mr Min Soo Kim	Dasan Consultants Co. Ltd
	Dr Hyun Suk Lee	Korea Expressway Corporation
	Dr In Soo Kim	Korea Expressway Corporation

Mr Insoo Yeo was previously a member of the Pavement Technology Committee and will continue in that role.

REAAA welcomes the new members from the Korean Chapter!

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Progress Update:

REAAA Pavement Technology Committee

Keizo Kamiya
Chair REAAA Pavement Technology Committee
(k.kamiya.ab@c-nexco.co.jp)

There are clear connections between the Terms of Reference developed for the REAAA Pavement Technology Committee (PTC) and PIARC Technical Committee TC 4.1 (Pavements).

Currently, the main focus of the PTC is a questionnaire on the current procedures being used by REAAA member countries for the structural design and rehabilitation of pavements. The output will be a compendium presenting the results of the survey and associated analysis.

Responses have been received from all but one of the member countries. The responses have been compiled and a draft report is nearing completion. Following feedback, some additional questions have been sent to the member countries and their responses are awaited.

The intention is to present the final report at the REAAA Conference in September and also to seek endorsement for publication from the REAAA Governing Council.

Going forward, the plan is to continue collaboration work with PIARC TC 4.1. The tasks being addressed by the PIARC Committee are as follows:

- Recycling of road pavements.
- Innovative pavement maintenance and repair strategies.
- Road monitoring based on ‘big data’.
- Measures for improving the resilience of pavements.

The PTC will need to decide which of these topics it would like to address and what priority to place on these tasks. The plan is for the PTC to meet remotely in September during the REAAA Conference.

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Membership of REAAA Pavement Technology Committee

Including Cooperation with PIARC Committee: TC.4.1 – Pavements (New PIARC cycle commenced in October 2019 and will run until October 2022)

Chapter/Country	Member	Organisation
Chair	Dr Keizo Kamiya	NEXCO Central
Australia	Mr Kieran Sharp	Chair REAAA Technical Committee
	Dr Michael Moffatt	Australian Road Research Board
	Mr Andrew Beecroft	HDR
Brunei	Mr Rafitra Razak	Public Works Department
Indonesia	Mr Hedy Rahadian	Ministry of Public Works
Japan	Mr Kazunari Hirakawa	Japan Road Association
	Mr Masahiko Iwama	NIPPO Corporation
	Mr Atsushi Kawakami	Public Works Research Institute
	Mr Yasumasa Torii1	Japan Road Association
	Mr Toshiyuki Nakamura1	Japan Road Association
Korea	Mr Insoo Yeo	Korea Road Association
Malaysia	Mr Hamzah bin Hashim	Public Works Department
Philippines	Mr Abdulfatak A Pandapatan	Department of Public Works and Highways
Singapore	Ms Leong Yin Fong	Land Transport Authority
	Ms Nyunt Than Than	Land Transport Authority
Taiwan	Professor Yu-Min Su	National Kaohsiung Uni. of Science & Technology
	Mr Jiun-Lue Gau	China Road Federation
Thailand	Dr Montri Dechasakulsom	Department of Highways
REAAA Secretariat	Ms Zalilahwati bt Latif (Ila)	REAAA
PIARC	Mr Shigeki Takahashi2	NEXCO Research Institute

1. Advisor.

2. Member of PIARC Committee TC.4.1 (Pavements).

New Zealand is not represented on the committee

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Progress Update:

REAAA Climate Change, Resilience and Emergency Management Committee

Kieran Sharp
Chair REAAA CCREM Committee
(kierans@netspace.net.au)

Caroline Evans
Chair PIARC TC 1.4

Yukio Adachi
Chair PIARC TC 1.5

There are clear connections between the Terms of Reference developed for the REAAA Climate Change Resilience and Emergency Management (CCREM) Committee (2021-2025) and the following PIARC Technical Committees (2020-2023):

- TC 1.4: Climate change and resilience of road networks
- TC 1.5: Disaster management.

The following Work Program has been developed based on these Terms of Reference and the relevance of the proposed program to the REAAA region.

Strategy	Output
Provision of input into activities of PIARC TC 1.4 and 1.5	
1. Disseminate information regarding current adaptation strategies to increase the resiliency of the road infrastructure (link to PIARC TC.1.4). Disseminate information on climate change adaptation frameworks (link to PIARC TC.1.4).	Link to PIARC TC.1.4 and PIARC TC 1.5: • Disseminate information via the REAAA Chair and Co-Chair on case study examples (in particular from REAAA member countries that are currently not members of PIARC). Deadline: On-going, commencing March 2021.
2. Disseminate information related to road administration response strategies for natural disasters (link to PIARC TC.1.5).	
Implementation of climate change resilience measures in Asia and Australasia	
3. Investigate opportunities for implementing road and infrastructure climate change resilience concepts in Asia & Australasia (including recommendations arising from the FEHRL Scanning Tour Report on Infrastructure Resilience – published as an REAAA Technical Report TC-10).	• Report on best practices to address these challenges and opportunities for case studies. Deadline: December 2022.
4. Implement climate change resilience actions into asset management (e.g. pavement technologies) and strategic decision-making processes.	• Report based on case studies identifying how climate change resilience has been implemented into asset management processes. Deadline: December 2024.

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The key tasks of the REAAA Committee are:

- Assess and integrate the findings from FEHRL Scanning Tour on Infrastructure Resilience – REAAA Technical Report into the REAAA Technical Committee Work Plan.

- Disseminate information between the related PIARC Technical Committee's and this REAAA Committee relating to climate change adaptation strategies, adaptation frameworks, and road administration response for natural disasters.

- Identify ways of considering resilient asset management approaches and implementation into asset management and decision-making processes. This includes the investigation of resilient road and infrastructure materials, e.g. pavement technologies.

The target audience is:

- REAAA members involved in the management and operation of road networks in the region.

- Members of PIARC Committees 1.4 and 1.5 who are looking for information which they may not usually readily access, particularly information from countries in the south-east Asian region which are not members of PIARC.

- Road managers in the region who are not members of REAAA but who may be encouraged to become more involved in REAAA/PIARC activities.

The Committee will be meeting remotely shortly.

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Progress Update:

Road Safety Committee

Dr Muhammad Marizwan bin Abdul Manan

Chair REAAA Road Safety Committee

The area of 'road safety' has identified as being of great interest to both REAAA and PIARC for the following reasons:

- PIARC's Declaration of Support for the UN Decade of Action on Road Safety, signed in 2011, reflects its commitment to promoting improvements to road safety. The time and resources allocated to the production of a state-of-the-art Road Safety Manual is a tangible demonstration of the Association's focus on improving road safety.

- The topic of Road Safety is a major focus of the REAAA Technical Committee as well as the iRAP Global Technical Committee.

- There are clear connections between the Terms of Reference for the REAAA Road Safety Committee and PIARC Committees TC.3.1 Road Safety, which operates under PIARC Strategic Theme 3: Safety and Sustainability. This Committee has strong representation from some key REAAA member countries.

- PIARC Committee 3.1 notes that 90% of traffic deaths occur in low- and middle-income countries (LMICs). Its aim is to assess and identify best practice of road safety activities for LMICs. Technical Committee 3.1 is also exploring proven countermeasures that are effective in reducing the likelihood and severity of crashes at a given location. The PIARC Road Safety Manual and Road Safety Audit Guidelines are to be updated, and efforts made to disseminate and encourage the application of these manuals. The Technical Committee plays a fundamental role in providing access to well-chosen safety measures and its dissemination among LMICs.

- The Chair of PIARC Committee TC.3.1 is John Milton from the Washington State Department of Transportation. Dr Blair Turner played a key role in the development of the Road Safety Manual, which was managed by Committee TC.C.1 during the previous PIARC cycle.

In addition, the International Road Assessment Programme (iRAP), a charity registered in the United Kingdom, is an established partner of PIARC. The aim of iRAP is to undertake road assessment programs and provide objective measures of road safety levels as well as proven countermeasure programs. It is currently managing road assessment programs in more than 90 countries. The risk assessment models for vulnerable road users,

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developed by its technical committee (GTC), provide a sound understanding of the safety effects of road attributes and the need to provide well-researched input from all around the world. Significant contribution from REAAA member countries on motorcycle safety are required to improve the current model.

Goals of REAAA Road Safety Committee

The goals of the REAAA Road Safety Committee reflect issues of major concern in REAAA member countries. Some of the goals are also in line with the goals of PIARC Strategic Theme C (Safety) and the iRAP Vision for a world free of high-risk roads:

"To improve the safety and efficiency of road transport, including the movement of people and goods on the network, while effectively and widely promulgating knowledge of all aspects of road safety and encouraging implementation of positive practices". More specifically:

1. the provision of case studies/information for input into the PIARC TC 3.1.
2. the investigation of opportunities and challenges for implementing improved road safety measures into the region
3. the implementation of improved road safety measures into strategic decision-making processes.

The REAAA Committee is not a sub-committee of PIARC Committee TC 3.1 or the iRAP Global Technical Committee.

The objectives of the REAAA Committee are to consider the issues addressed by PIARC TC 3.1, including:

- receive updates on developments being undertaken by these Committees
- maintain a watching brief on these developments
- provide case studies/information, particularly from REAAA members who are not members of PIARC.

In addition to these tasks, the REAAA Committee will undertake separate projects of relevance to the region. The investigation of these topics could also form the preliminary assessment of topics potentially covered in the current PIARC cycle.

The Chair of the Committee is Ir Dr Muhammad Marizwan bin Abdul Manan, Director, Road Safety Engineering and Environment Research Centre, Malaysian Institute of Road Safety Research (MIROS).

Strategy and Outputs

A number of strategies and outputs are listed in the current PIARC Strategic Plan, including:

- National road safety policies and programs
- Design and operation of safer road infrastructure
- vulnerable road users
- human factors and design
- setting speed limits

- catalogue of design safety problems and potential countermeasures for LMIC
- road safety audit guidelines
- infrastructure security.

In addition to the iRAP Global Technical Committee, iRAP has a well-established Innovation Framework (https://www.irap.org/innovation/) where partners around the world can build on the shared investment of all partners around the world and create improved models and products for the mutual benefit of all countries worldwide. In particular the REAAA work is expected to make important contributions to the:

- motorcycle star rating model, fatality estimations and investment optimisation tools
- light star rating model for all road users
- iRAP urban enhanced models.

Recognising that there are too many strategies in the PIARC Strategic Plan for REAAA to be reasonably expected to address, but also the need to contribute to the iRAP goals, the following suggested tasks were identified.

Strategy	Output
Vulnerable Road Users	
1. Investigate and develop current materials related to pedestrian, cyclist, and motorcycle safety as well as road safety issues relevant to the elderly.	• Technical Report addressing issues of concern to REAAA member countries (e.g. motorcycle safety). This is in line with iRAP GTC's work to develop assessment model for motorcycles in urban areas.
Human Factors & Design	
2. Complete development of case studies and successful strategies and practices related to consideration of human factors in road design and operations including driver distraction and fatigue.	• Data for input into updates of the PIARC Road Safety Manual and local Guidelines.
Catalogue of Design Safety Problems and Potential Countermeasures for Low and Middle-income Countries (LMIC)	
4. Catalogue of design safety problems and potential countermeasures for LMIC.	• Catalogue of design safety problems and potential countermeasures for use in REAAA member countries.
Road Safety Audit Guidelines	
4. Review Global Road Safety Audit (RSA) Guidelines – including consideration for low- and middle-income countries to be included in any future revisions of the PIARC Road Safety Manual.	• Amended or amplified RSA guidelines containing points appropriate for consideration in low- and middle-income countries.

The REAAA Road Safety Committee met virtually in March. As a result of that meeting, it was decided that initial emphasis would be placed on Topic 1 – but not to include road safety issues relevant to the elderly – and Topic 4, in particular the relationship between road safety audits and the iRAP start ratings.

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REAAA Updates

Special Interview with the New TC Members from Korea

IO Song
REAAA Korean Chapter

The REAAA Korean Chapter recently nominated eight new members of the three REAAA technical committees – Pavement Technology; Climate Change, Resilience & Emergency Management; and Road Safety. In order to gain a better understanding of TC activities, Mr Kieran Sharp, the TC Coordinator, and the Korean Chapter jointly organized an induction session with the chairs of the three committees on 28th April 2021. After their first experience with REAAA TC activities, the new members were asked to share their stories and expectations.

Mr Min Soo Kim
Road Safety

I am a road engineer, working for Dasan Consultants. I have been working in the sector for 19 years. During the first 10 years I worked on feasibility testing and the detailed design of road projects in Korea. In recent years, I have focused on road design in overseas projects and international business contracts.

I believe that a lot of effort should be made to share knowledge among members for the advancement of road technology in the region. We not only need to share the knowledge, but also we all need to try to apply this knowledge to our everyday work environment. Once we develop outputs such as manuals, it will also be necessary to establish a plan to ensure that the knowledge can be successfully transferred and applied into the member countries.

The English language is a challenge for me if I am to take part in REAAA TC activities: however, I will try my best to follow up with the support of the Korean Chapter. Thank you.

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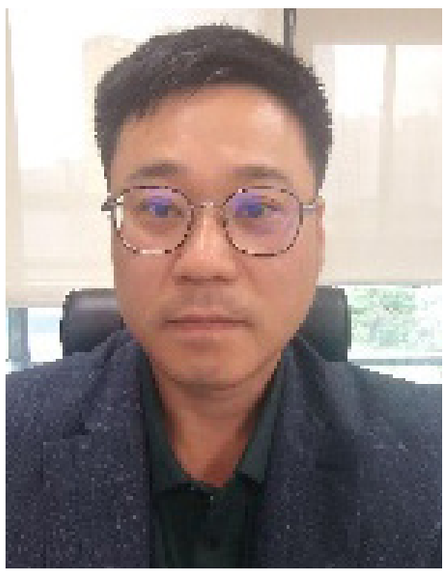
Dr Hyun Suk Lee Road Safety 	Since June 2002, I have been working in the Transportation Research Laboratory of the Korea Expressway Corporation, conducting various research projects and providing technical advice on highway traffic safety. As a transportation engineer, I have conducted 50 research projects in traffic safety over the last 17 years. I am responsible for conducting Road Safety Audits (RSA) before and after the opening of all routes managed by KEC. I also undertake more than 10 on-site visits each year, and offer technical advice related to traffic safety, such as how to improve accident-prone areas. I have participated in road projects in Myanmar and Ethiopia and provided technical advice related to traffic safety. I have also conducted road safety audits in many countries in Asia and Africa. I am currently a member of PIARC Technical Committee TC 3.1 'Road Safety'. PIARC is working on identifying and implementing proven safety countermeasures in low- and middle-income countries and updating the PIARC Road Safety Manual. PIARC and REAAA should work together to identify traffic safety issues in REAAA member countries and how these issues can be addressed.
ngkwan Mark Lee Road Safety 	My name is Seongkwan Mark Lee, and I work in the Civil Engineering Department of King Saud University, Saudi Arabia. I have been interested in REAAA from the old days when I was working at the Korea Expressway Corporation and I am really happy to take this opportunity as a life member as well as one of the TC members. I studied transportation engineering, and my field of research is mainly traffic flow management, and road/transportation safety. In 1999, I attended the REAAA International Conference in Tokyo, Japan, and gained a good impression about the Association. From the induction session, I was able to learn about REAAA and its TC activities, the cooperation with PIARC, etc. Also, it was very nice to meet other TC members. Recently, the pandemic has posed a lot of new challenges such as curfews and lockdowns in Saudi Arabia, where I live. Of course the road and transportation sector has also been confronted with new challenges. The pandemic's impact on the transportation system is one of the important topics for knowledge sharing through further in-depth studies. Through the REAAA TC activities, I would like to contribute to make safer roads in the region.
Dr Jugoang Lee Climate Change 	My name is Jugoang Lee, and I work in the Environmental Research Laboratory of the Korea Expressway Corporation. I joined the REAAA TC because I am in charge of climate change as a major research area. At the moment, when the world is becoming increasingly concerned about climate change, we need new measures to adapt to climate change in road planning/construction/maintenance. I expect there will be a lot of discussion on the safety measures for road infrastructure that can adapt to climate change.

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REAAA Updates

The Second Mino Best Project Award Winners are decided!

HASHIBA Katsuji

Chairman

Mino Best Project Award Committee

The REAAA Council endorsed winners of the 2nd Mino Best Project Award at its 114th meeting held on 24th March 2021 on Web.

The Award was established in 2016 to recognize outstanding road and/or bridge projects which are constructed in the Asian and Australasia region. The Mino Best Project Award Committee accepted nominations from January to December in 2020. In February 2021 the Committee Members evaluated 11 candidate projects (6 for Category I and 5 for Category II) based on the following criteria;

Category I: High Volume Road

a. Social effectiveness and impact at the international and/or national level

a-1: Economic benefit – economic growth, lifestyle, etc.

a-2: Impact on traffic flow – reduced congestion, delays, etc.

a-3: Impact on road safety – reduced road trauma

b. Technical excellence

c. Environmental friendliness/awareness

Category II: Community Road

a. Social effectiveness and impact on the local community

a-1: Economic development – economic growth, lifestyle, etc.

a-2: Impact on local traffic flow – reduced congestion, etc.

a-3: Impact on road safety – reduced road trauma

b. Technical excellence

c. Environmental friendliness/awareness

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As result the Committee decided to give the prizes to the following projects and the REAAA Council endorsed its decision.

Category I

- Provincial Highway No. 9 Improvement Project - Anshuo to Caopu Section, Taiwan

- A.P. Pettarani Elevated Toll Road Project Makassar, Indonesia

Category II

- Construction of Submersible Bridges in Rural Areas in Myanmar, Japan/Myanmar

- A National Highway No.2275: Huay Rai-Ban Klang Rehabilitation Project for Green and Sustainable Development of Thailand Rural Highway Network, Thailand

The prizes will be given to winners at the 16th REAAA Conference in September 2021 in Manila, Philippines.

CONGRATULATIONS!

Category I

Provincial Highway No. 9 Improvement Project, Taiwan

The Second Mino Best Project Award
Winners are decided!

Provincial Highway No. 9 Improvement Project, Taiwan

Category II

Provincial Highway No. 9 Improvement Project, Taiwan

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Road Engineering Association of Asia and Australasia

REAAA Updates

Hwang Fund Award Update:

IO Song

REAAA Korean Chapter

The Hwang Fund Award Committee met on 12th November 2020 to select the very first winners of the Hwang Award 2021. From the four nominees, the Committee selected two winners: Tan Sri Dato' Ir (Dr) Wan Abdul Rahman bin Wan Yaacob from Malaysia, and Mr Kieran Sharp from Australia. They are being recognised for their long and continuous service to the Association. The recommendation was endorsed at the 113th Governing Council meeting on 27th November 2020.

A trophy and prize money (US$ 5,000) will be given to the winners at the award ceremony, which will take place on 15th September 2021 during the closing ceremony of the 16th Conference.

REAAA HWANG AWARD

TAN SRI DATO' IR. DR.
WAN ABDUL RAHMAN
BIN WAN YAACOB

Chairperson
Minconsult. Sdn. Bhd., Malaysia

Dr Yaacob is the former Director-General of the Public Works Department (JKR, Malaysia. He has dedicated 32 years to public infrastructure development, particularly in roads and highways. He was an active member of the REAAA Governing Council for 19 years from 1994 to 2013). In 2018, he was awarded the Gold Medallion at the 10th Malaysian Road Conference & Exhibition and PIARC International Seminar.

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REAAA HWANG AWARD

KIERAN SHARP

Chair
REAAA Australian Chapter
Australia

Kieran Sharp has been a member of REAAA since 1983. He is a long-standing contributor to REAAA's technical activities, and has been the Chair of the Technical Committee since 1991 He has played a major role in the cooperation between REAAA and PIARC, especially the activities of relevant REAAA and PIARC committees. He was appointed an Honorary Member of REAAA in 2013. He was awarded the Austroads Achievement Award in 2003 and the Roads Australia Technical Excellence Award in 2013.

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Congratulations!

The International Road Federation has given Global Road Achievement Award 2020 in Road Safety category to Thailand's Department of Rural Roads

Auckpath Sawangsuriya, Ph.D.

Manager, Roads Association of Thailand

The International Road Federation has given Global Road Achievement Award 2020 in Road Safety category to Thailand's Department of Rural Roads

The International Road Federation (IRF) has given Global Road Achievement Award (GRAA) 2020 in Road Safety category to Thailand's Department of Rural Roads (DRR) for its consistent effort to enhance road safety. DRR initiated an exceptional project called the "Integrated Road Safety Management System Development Project" in collaboration with national research institutes and international consultants (VicRoads and Safe Systems Solution, Australia). In this regard, DRR has introduced a series of the Integrated Road Safety Management Development Project including:

1. Development of Road Safety Audit System (RSAS)
2. Development of Road Safety Audit standard
3. Implementation of road safety auditor training programs
4. Enchancement of road safety measure

As a result, the number of traffic accident fatalities has been significantly decreasing over 47,000-kilometer DRR's road network which accounts for 10 percents of road network across the nation. The DRR's road safety performance evidently reaches the target, the reduction of road accident fatalities, as shown in IRF Road Achievement Award, Integrated Road Safety Management Development Project. The first ever that Department of Rural Roads and Thailand received in GRAA. This success improves the morale of DRR to continuing the missions to make safer road.

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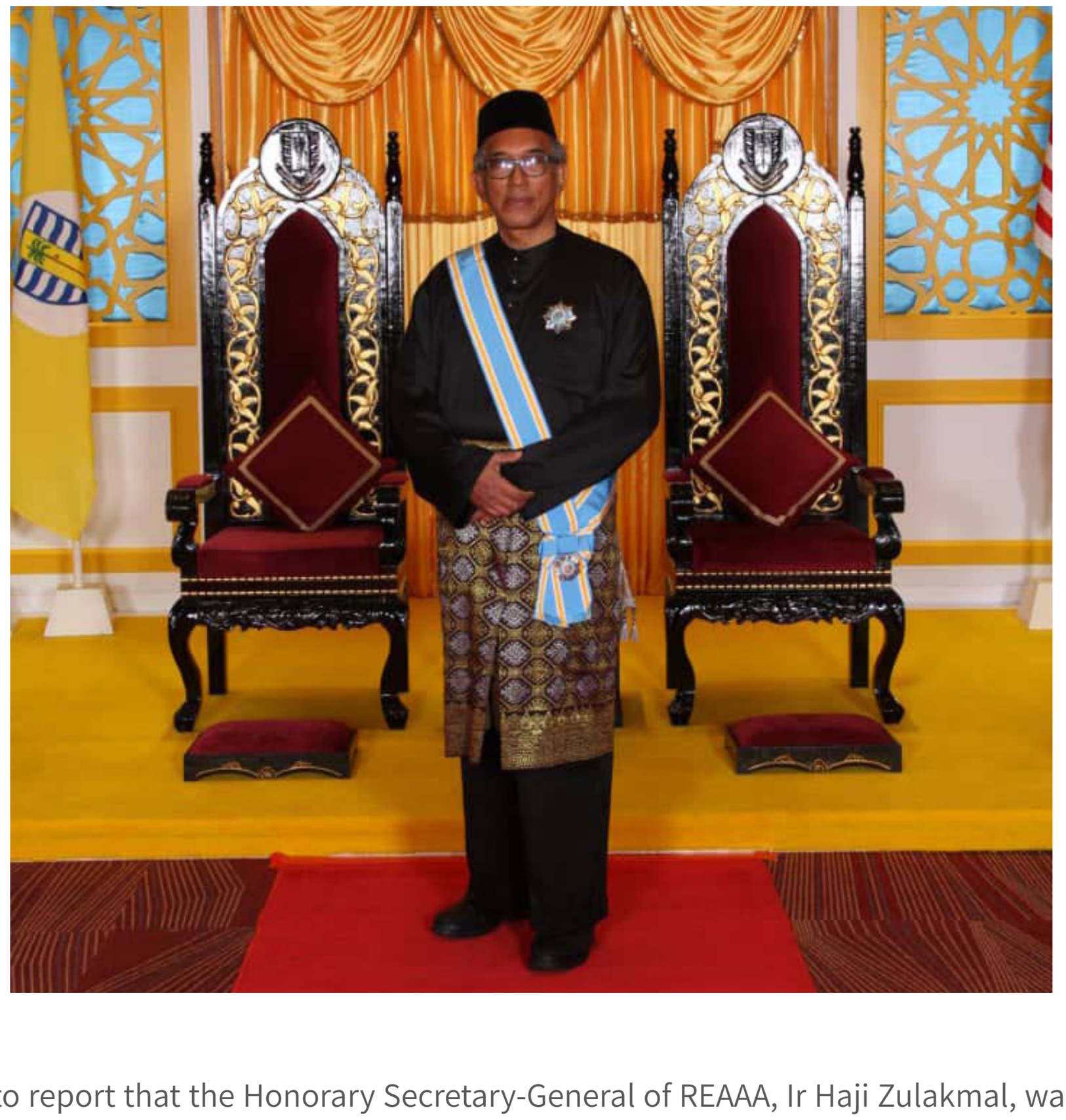
Congratulations!

Congratulations to Dato’ Ir Haji Zulakmal

Ms. Ila

REAAA Secretariat



We are pleased to report that the Honorary Secretary-General of REAAA, Ir Haji Zulakmal, was conferred with the Darjah Setia Pangkuan Negeri (DSPN), which carries the title Dato’, by Yang diPertua Negeri, His Excellency Tun Dato’ Seri Utama (Dr) Haji Abdul Rahman bin Haji Abbas on the occasion of the state Investiture Ceremony 2020 to mark the 82nd birthday of Yang diPertua Negeri Pulau Pinang. The ceremony was held on 16th March 2021 at the Setia SPICE Convention Centre, Penang, Pulau Pinang.

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What's New?

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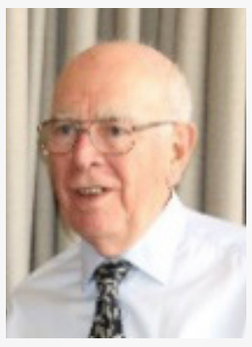
Paving our Ways – a History of the World's Roads and Pavements

Maxwell Lay, AM,
Past-President, Australian Automobile Association



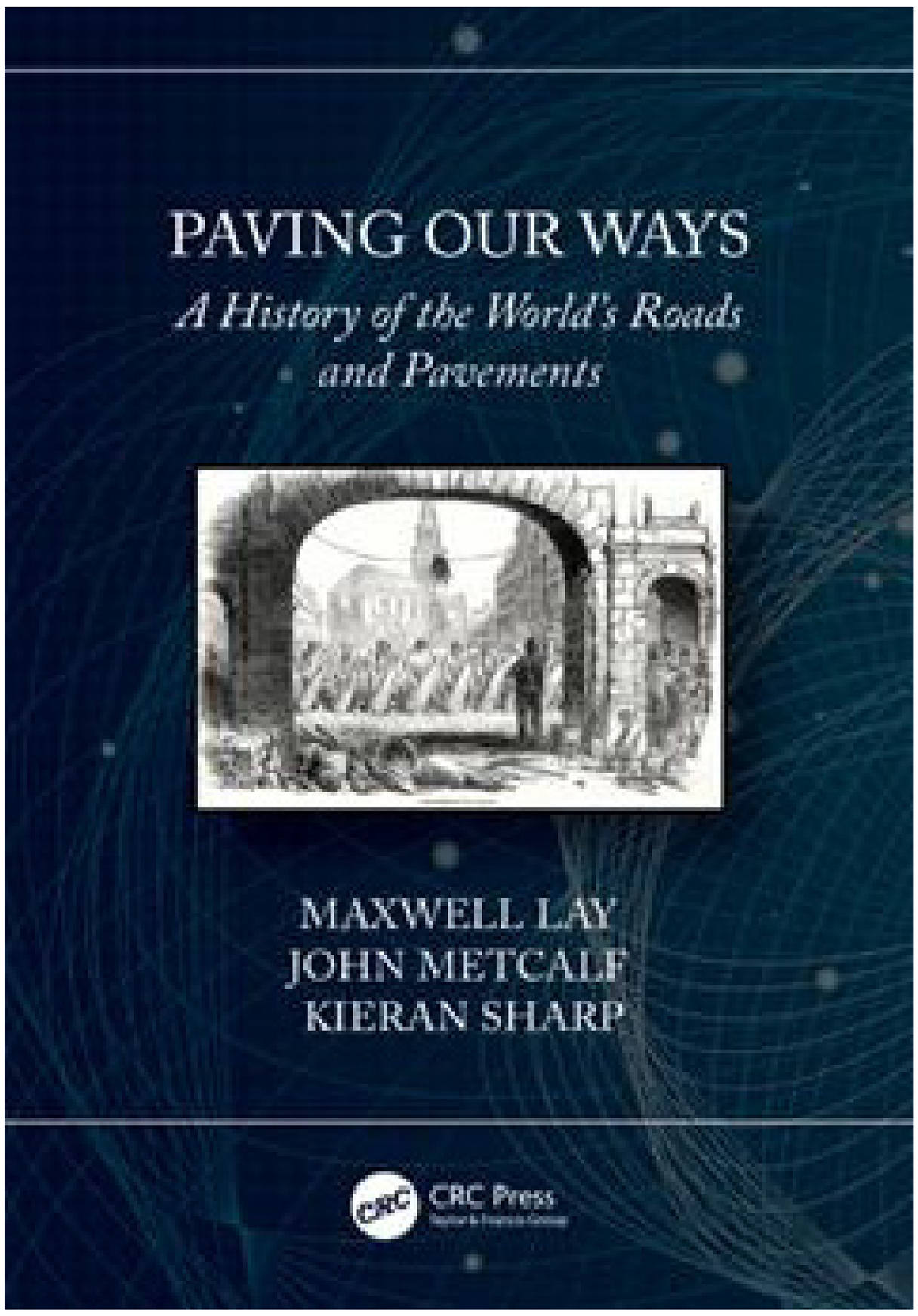
John Metcalf, Honorary Fellow,
Institution of Engineers, Australia

Kieran Sharp, Chair,
REAAA Technical Committee
(kierans@netspace.net.au)

Two Honorary Members of REAAA, Professor John Metcalf and Mr Kieran Sharp, have combined with Dr Maxwell Lay to write a book, "Paving our Ways - a History of the World's Roads and Pavements". It was published in England by CRC Press, the technical publishing arm of the international publishing house, Taylor and Francis, at the end of 2020. It provides a comprehensive international history of the world's pavements, from the earliest human settlements to the present day.

Written for both general and technically-oriented readers, it traces the human and social aspects of pavement development and use, including detailed technical background. It also caters to students of engineering and transport wishing to broaden their knowledge of their profession or those taking a course in the history and sociology of engineering. It is the only book at this level on this topic.

The book is comprehensively illustrated, referenced and indexed. To purchase the book, please visit: www.crcpress.com/9780367520786



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What's New?

REAAA Down Under

Dr Richard Yeo

Chair, REAAA Australian Chapter

The REAAA Australian Chapter commenced the year with the appointment of a new Chair taking over from the predecessor, Mr Kieran Sharp, who gave many years of valuable service chairing the Australian Chapter and looking after REAAA business.

The REAAA Australian Chapter going forward is looking to refocus its direction as there is a need for new ideas and approaches to attract membership and ramp up member activity. Its emphasis is also on collaboration and enhancing professional development and working out what members want.

The future of the Australian Chapter lies with the young engineers and professionals (YEP). REAAA has a very active YEP program and a meeting of the YEPs forms a part of every Governing Council meeting, though the advent of COVID-19 has meant that recent meetings have had to be held remotely, with the most recent meeting held on 22nd March 2021. The Centre for Pavement Engineering Education (CPEE) could offer support to REAAA by offering YEP members a scholarship in their Masters program in Pavement Technology to enable young professionals to undertake more specialised ongoing studies.

In order to advance technical expertise in road engineering, the Chapter is striving to extend the present member base by organising events, site visits and presentations to promote learning, technology interchange and networking opportunities on road engineering projects. This will be done in conjunction with our REAAA Perth and New Zealand counterparts. Other methods and strategies to attract new members include getting the message out via an Australian Chapter website and social media posts in Australia and New Zealand.

The Technical Committee has a robust program set up for Pavement Technology; Climate Change, Sustainability and Emergency Management; and Road Safety and is travelling well led by Kieran Sharp. The relationship of the Chapter with the REAAA Governing Council continues to be strong, especially through these committees; they are also closely liked with PIARC activities.

The Australian Chapter is keen to develop and support its members and to keep up with trends on the latest technology and skills to compete in this technology-enabled future; emerging technologies that will affect transport include driver assistance, electric vehicles, and innovative construction techniques.

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There are two key forthcoming events that we would like to share and promote and we would welcome international participation, either in person or online.

The ARRB Symposium on Integrated Mobility Impacts 2021 (https://www.arrbimpact.com/), to be held in November 2021, will cover a wide range of topics on the future of road safety and next generation infrastructure measurement. Speakers will be some of the foremost experts in the mobility field.

The Australian Driverless Vehicle Initiative (ADVI) Summit 2021 (https://www.advisummit.com/), to be held in October 2021, will focus on what is happening now, and the next steps to safely and successfully deploy driverless vehicles in Australia. The program includes a suite of speakers from Australia and overseas who will present on topics including clean energy vehicles, enabling digital technologies, and automation, to the mining and defence sectors.

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Announcement

50% Discount on Entrance Fees for All Membership Categories in 2021

Dear Members,

I am happy to announce that at the 114th REAAA Council meeting, held virtually on 24th March 2021, it was decided to reduce the burden on new members during this difficult COVID-19 time. As a means of encouraging new membership, there will a 50% discount on entrance fees for all categories for the year 2021 with immediated effect. The updated entrance fees for 2021 are as follows:

Entrance Fees:

Ordinary & Associate Members: RM25.00 or equivalent US$

Institutional Members: RM550.00 or equivalent US$

Annual Subscription:

Ordinary & Associate Members: RM 50.00 or equivalent US$

Institutional Members: RM 880.00 or equivalent US$

For more information, please contact the REAAA Secretariat: exec.sec@reaaa.net

Hon. Romeo S. Momo
President of REAAA

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Congratulations!

Calendar of seminars, conferences, workshops and meetings of the Association: (2021-2022)

The programme is to be updated according to the decisions taken.

Date	Event	Place	Type	Remarks
10th-15th September 2021	**16th REAAA Conference**	Manila, Philippines	Conference	Online
	115th & 116th REAAA Governing Council Meetings		Governing Council Meeting	
	8th REAAA Business Forum		Forum	
	20th YEP Meeting		Meeting	
4th quarter 2021	**REAAA Webinar Series #3**	Zoom/Online	Webinar	Online
March 2022	**117th REAAA Governing Council meeting**	Seoul, Korea (To be confirmed)	Governing Council Meeting	Physical Meeting
	21th YEP Meeting			
	9th REAAA Business Forum			
September 2022	**Low Volume Roads Workshop**	New Plymouth, New Zealand	Workshop	Physical Meeting Council members will be able to register at the REAAA member rate.
September 2021	**22th YEP Meeting**	Christchurch, New Zealand	Meeting	
	118th REAAA Governing Council meeting		Council Meeting	
	Technical Tour		Tour	

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Membership Report

REAAA WELCOMES NEW MEMBERS

The membership of REAAA as at 26 February was 1,253. The REAAA Council and Chapters have approved the following 12 new members for the period between from 01 November 2020 to 26 February 2021.

Ordinary	12
Total	**12**

The list of new members approved at 114th REAAA Council Meeting by zoom meeting on 24 March 2021 is as follow:

Ordinary Members

1.	Grant Holland	O.3810 New Zealand
2.	Peter Varrie	O.3811 New Zealand
3.	Ts. Mohd Khairul Azizat Johari	O.3812 Malaysia
4.	Michael Caltabiano	O.3813 Australia
5.	Dr. Mike Shackleton	O.3814 Australia
6.	Fitri Wiyanti	O.3815 Indonesia
7.	Atika Dara Prahita	O.3816 Indonesia
8.	Mohamad Agus Setiawan	O.3817 Indonesia
9.	Johannes Mancelly	O.3818 Indonesia
10.	Victor Nazarenko Mahandre	O.3819 Indonesia
11.	Dyah Ekawati Suryani	O.3820 Indonesia
12.	Yoga Tri Anggoro	O.3821 Indonesia

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Editorial Board

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