REAAA Newsletter

REAAA Newsletter 2025-1
Published on 1 October 2025
For Members Only

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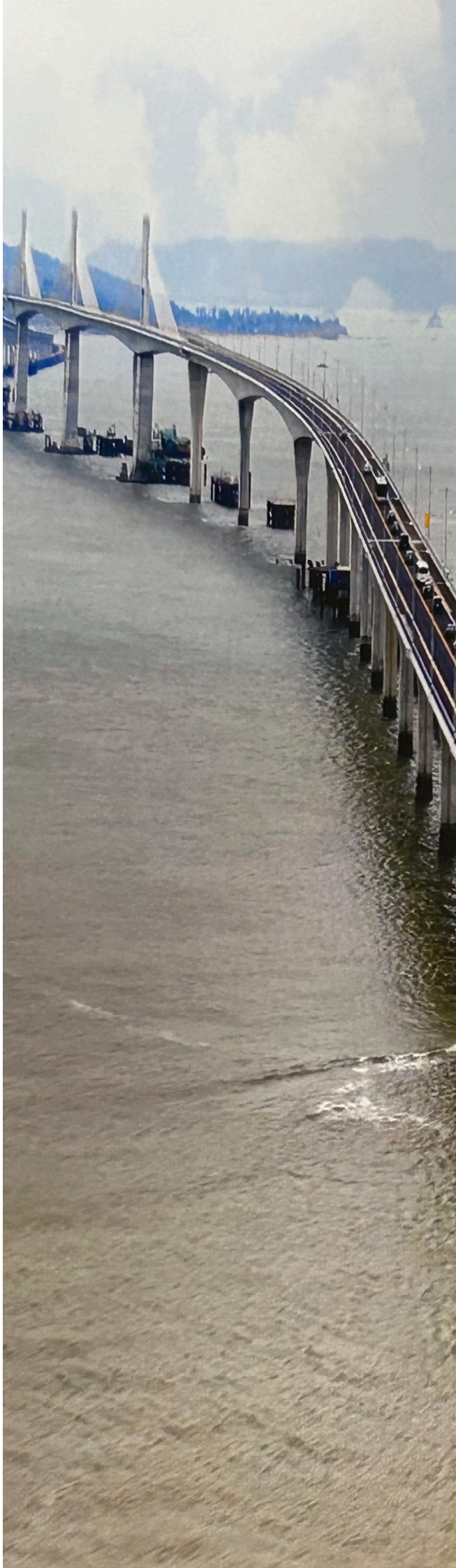
Publisher
The Road Engineering Association of Asia & Australia
46 B, Jalan Bola Tampar 13/14, Section 13, Shah Alam, Selangor, Malaysia



Message from the President

Dr. Sung-Hwan Kim
President of REAAA

Dear Members and Friends of REAAA:

As my four-year term as President draws to a close, I am filled with a deep sense of gratitude, mixed with inevitable reflections and some regret that time has passed so quickly. With this final message in the Newsletter, I wish to look back on our shared journey and express my sincere thanks to all of you.

First and foremost, I offer my heartfelt condolences and respect to the late Dr. Hermanto Dardak, Tan Sri Dato' Ir Dr. Wan Abdul Rahman bin Wan Yaacob , and Mr. Jaime Pacanan, who served our Association with great dedication under difficult circumstances.

I would also like to express special appreciation to Secretary General Ir Mohd Shahrom Ahmad Saman for his responsible leadership, and to Ms Zalilahwati Latif for her tireless commitment under challenging conditions. To all the members of the Executive Council and our wider membership, thank you for your unwavering support throughout my term.

When I assumed the presidency in 2021, the world was still reeling from the effects of the COVID-19 pandemic (2020.1–2024.4). Even the handover was conducted online – a telling sign of the challenges we faced. Despite such a constrained beginning, I committed to focusing on three core goals:

1. enhancing REAAA's international standing
2. expanding membership
3. strengthening technical activities across our committees.

To raise the visibility of REAAA, we continued to enhance efforts with global partners such as PIARC and the IRF . While these organizations operate in different regions, they share a common mission centered on road infrastructure. In 2022, the presidents of all three associations convened in Dubai for the first time, and I hope the 17th REAAA Conference will mark the continuation of fruitful outcomes from our ongoing dialogue.

We also encouraged member countries to co-host regional events under the REAAA banner. A notable success was the seminar held in Bajo, Indonesia. In all such events, I have delivered keynote speeches as President, including:

- the 2nd International Seminar on Climate Change, Resilience and Disaster Management for Roads (Bajo, Indonesia)
- the 5th International Conference on Highway Engineering (iCHE) 2024 (Bangkok, Thailand)
- the IRF Road Safety and Sustainability Conference 2024 (Riyadh, Saudi Arabia) – where I presented on 'AI-based road safety in Korea
- the National Transport Research Organisation (NTRO) International Technical Conference 2025 (Melbourne, Australia) – where I presented on 'REAAA striving for a transport revolution'.

Through these engagements, we sought to elevate REAAA's visibility and lay the groundwork for broader international exchange. Efforts were also made to expand our membership, with active outreach encouraging each country to recruit at least one new member. As a result, new countries such as Kazakhstan, Cambodia, and Vietnam are expected to join.

I have also worked to energize Young Engineers and Professionals (YEP) and Business Forum (BF) initiatives, encouraging practical, case-based presentations and promoting private sector involvement. Our Technical Committees (TCs) became more active, building collaborative platforms among members.

One of the most meaningful milestones during my tenure was the documentation of REAAA's 50-year history. Portions of this were unveiled at the Bajo seminar, and extracts are presented in this edition of the Newsletter. I hope this history serves as a guide for the Association's future.

I am also grateful to the Council of Road Federation (CRF) for establishing the Smart Highway Award during my term—another meaningful step for REAAA.

Looking ahead, REAAA must evolve into a platform that responds to emerging topics such as AI-driven smart infrastructure, and digital road policies. Strengthening our global network and expanding our membership strategically will be essential to enhancing REAAA's stature.

Despite our efforts, I acknowledge that some goals remain unfulfilled. Membership growth has been modest, and engagement across the Association could have been more dynamic. I am deeply sorry to pass on these unresolved challenges to my successor and the incoming leadership.

Finally, I extend my sincere thanks to all Executive Council members who stood by me over the past four years, and to every member who has shown steady support and affection for REAAA. In addition, I would also like to extend my sincere appreciation to the editorial team of this Newsletter for their dedication and support in making this publication possible. I remain proud to be part of this Association and will continue to support it wholeheartedly. Serving as your President has been one of the greatest honours and joys of my professional life.

Thank you.

Dr. Sung-Hwan Kim
REAAA President
October 2025

122nd REAAA Council Meeting, Bangkok, Thailand, 2024

Invitation – Join Us at the REAAA Conference Goyang 2025!

Korea has consistently participated in every REAAA Conference, sharing its road-related technologies and striving to contribute to the advancement of road engineering throughout the Asia and Australasia region.

Under the theme **"Future Roads; Hyper-connection,"** which reflects the ultra-connected society enabled by cutting-edge technologies—such as data, artificial intelligence, and urban air mobility (UAM)—the **REAAA Conference Goyang 2025** will be held from **October 26 to 31 at KINTEX in Goyang, Republic of Korea**.

This historic event will mark the **first-ever joint gathering** of the **three major international organizations in the road sector: REAAA (Road Engineering Association of Asia and Australasia), PIARC (World Road Association), and IRF (International Road Federation)**. It will be a meaningful opportunity for road and transport experts not only from Asia and Australasia but from around the world to engage in in-depth discussions on the future of roads.

We hope this conference becomes a pivotal platform where global professionals convene to exchange insights on pressing issues—such as transportation systems, road infrastructure and construction, environment and sustainability, and project financing and management—and to share diverse topics facing future roads. It is our aim that this network of knowledge and experience will significantly contribute to the development of the global road sector.

Your active interest and participation will be instrumental to the success of the conference and to the future of the road industry.

The Organizing Committee of the **REAAA Conference Goyang 2025** is preparing the event with utmost dedication. We sincerely look forward to welcoming you to Korea and sharing a valuable time of exchange and collaboration.

Chul-Bae Park

Secretary General

Organizing Committee

REAAA Conference Goyang 2025

A Message from the President: On the Eve of a Landmark Event

Event at a Glance

Date	October 26 (Sunday) – October 31 (Friday), 2025
Venue	Exhibition 2, KINTEX
Theme	Future Roads; Hyper-connection
Hosted by	Korea Expressway Corporation, Goyang
Organized by	Korea Road Association

Join the Conference
Registration Closes
September 30, 2025

General Registration Is Now Open

This is your premier opportunity to engage with the latest breakthroughs in road technology and connect with a global network of pre-eminent experts!

Become a part of the legacy of
the REAAA Conference Goyang 2025

01

Technical Visits

Explore programs offering
a firsthand look at road technology sites.

Register Now

02

Cultural Tours

Discover programs designed to immerse you
in the beauty and culture of Korea.

Register Now

In October 2025, the REAAA Conference Comes to Goyang

We are excited to announce a momentous event destined to steer the future of road technology across the Asia-Oceania region, taking place right here in Goyang, Republic of Korea! It's none other than the REAAA Conference Goyang 2025.

Under the theme "Future Roads; Hyper-connection," this six-day event will unfold from October 26th to the 31st at Exhibition 2, KINTEX.

This year's gathering is poised to be exceptionally informative and meaningful, as it synergizes three major events: the 17th REAAA Conference, the PIARC 2025 Annual Meetings, IRF Global Workshop, and the International Road & Traffic Expo 2025 (ROTREX)

The theme, "Future Roads; Hyper-connection," illuminates the path forward for the roadways of our future. It envisions an intelligent road ecosystem where cutting-edge technology and data are ceaselessly interconnected and exchanged.

At this conference, global road experts will gather for active knowledge sharing, focusing on the future of roads and the smooth integration of high connectivity. Detailed discussions will explore how advanced technologies can be applied to road systems to improve efficiency, strengthen stability, and promote sustainability.


A Preview of Key Programs
Official Events
Opening Ceremony / Welcome Reception / Gala Dinner
/ Closing Ceremony
International Meetings
REAAA General Meeting and Council Meeting
/ PIARC National Committee Meeting
and Council Meeting
/ IRF Global Workshop
Goyang 2025
REAAA
Conference
Academic Events
Plenary Sessions / Special Sessions
/ Technical Sessions
Concurrent Events
Technical Visits / Cultural Tours
Other Events
HORA / Business Forum
/ Bilateral Meeting (Germany, Indonesia)

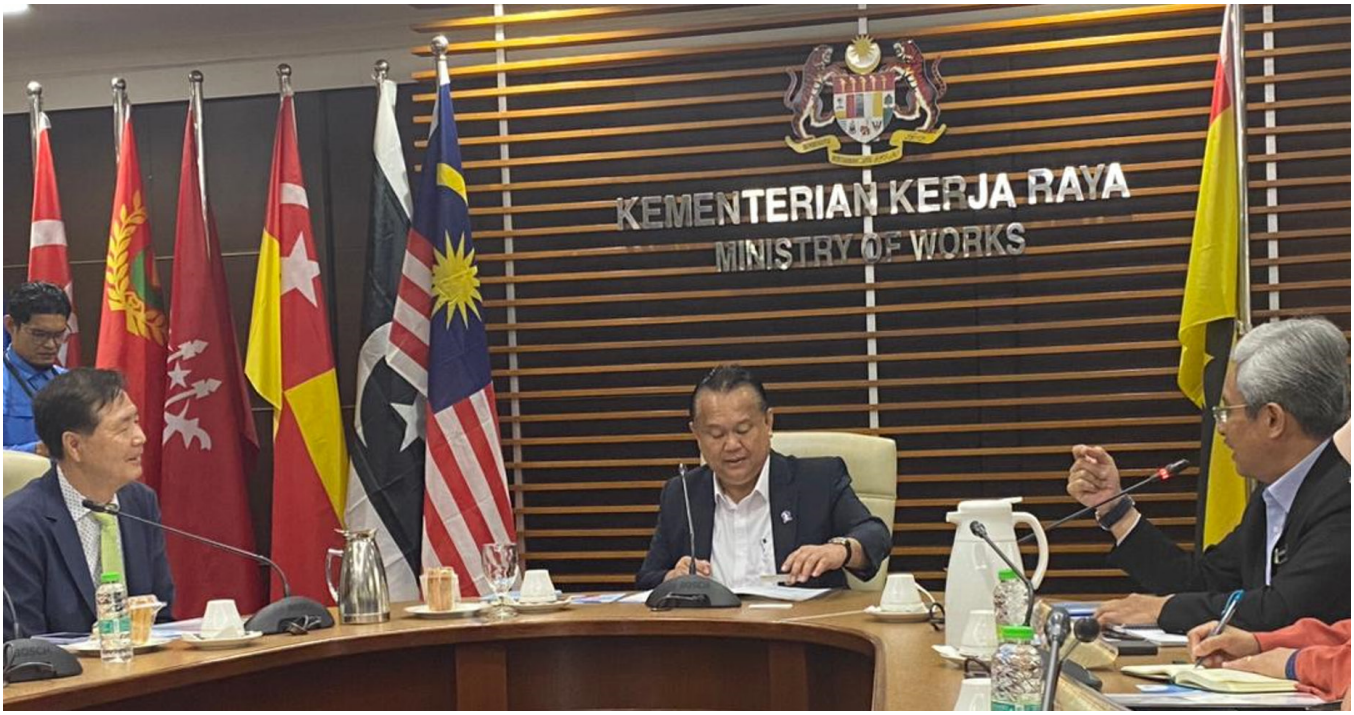
REAAA Conference Goyang 2025
Official Promotional Video

The REAAA Conference Goyang 2025 is a great chance
to see the full range of road technology
–from where it is now to what's coming in the future–all in one place.
We invite your passion and active participation in this conference,
as we work together to shape the future of road technology.

We're really excited to share the vision of "Future Roads: Hyper-connection"
with all of you in Goyang and create a meaningful experience together.

Strengthening Regional Ties: Dr. Sung Hwan Kim invites Minister of Works Malaysia to attend Ministerial Session at REAAA Conference, Goyang, 2025

On 22nd July 2025, Dr. Sung Hwan Kim, the President of REAAA, paid a courtesy visit to YB Dato' Sri Alexander Nanta Linggi, Minister of Works Malaysia, at the Ministry's headquarters in Kuala Lumpur. The main purpose of the visit was to formally invite the Honorable Minister to attend the upcoming 17th REAAA Conference, scheduled to take place from 26th – 31st October 2025 at KINTEX, Goyang City, Korea. Themed 'Future Roads: Hyper Connection', the conference will serve as a premier platform for regional dialogue on infrastructure innovation, sustainable mobility, and cross-border cooperation. Council members from Malaysia and the REAAA Secretariat. including the Honorary Secretary-General of REAAA, Ir Mohd Shahrom bin Ahmad Saman, were also involved in the visit.



Ministerial Session: A Key Highlight

A proposed major feature of the conference will be the Ministerial Session, scheduled for 28th October 2025, where transport and infrastructure ministers from Asia and Australasia will convene to share national strategies and foster regional alignment. Dr. Kim extended a special invitation to YB Dato' Sri Alexander Nanta Linggi to deliver a keynote address, highlighting Malaysia's leadership in road development and policy innovation. In REAAA, Malaysia holds a prominent position within the association, with representation on the Governing Council and active contributions to all the association's activities. In supporting the conference, the Public Works Department (JKR), submitted a total of 17 technical papers for acceptance as oral presentations covering topics including innovations in asphalt technology, geotechnics, road safety, and sustainability. Malaysia was also nominated for the Mino Best Project Award for the Bagan Datuk Bridge project, an achievement that reflects the country's engineering excellence and regional impact.

A Call for Support and a Gracious Response

Dr. Kim emphasized the importance of Malaysia's full participation, not only in the Ministerial Session but across the full conference program. In response, YB Dato' Sri Alexander Nanta Linggi expressed that he was honored to be invited and looks forward to attending the event. He affirmed that the conference holds great significance, not only to him personally, but also to the Ministry of Works and the Public Works Department (JKR). He noted that Malaysia's recognition through technical paper contributions and the prestigious Mino project award, reflects the country's growing stature in international road engineering. Given REAAA's global standing, he described this as a noteworthy achievement for Malaysia and pledged his support for the delegation's participation.

Appreciation

A thankful appreciation to the REAAA Council members from Malaysia who provided assistance to host Dr. Kim's visit to Minister of Works Malaysia. On behalf of the Malaysia road engineering fraternity, we are truly appreciative of Dr. Kim's Ministerial visit and look forward to participating in the REAAA Conference in October.

REAAA 17th Conference Organizing Committee: Visit to REAAA Member Countries

In anticipation of the 17th REAAA Conference, to be held in Goyang, Republic of Korea, on 26th–31st October 2025, the REAAA Conference Organizing Committee carried out a regional visit to REAAA member countries from 25th–29th August 2025. The aim of the visits was to encourage participation in the upcoming conference and strengthen collaboration in the road transport sector.

The Korean delegation included Joong Hwan Kim, Conference Operation Director; Kyung Hwa Kim, Conference Operation Team Manager; and Bona Hong, International Cooperation Team Manager. They held official meetings with representatives from the China Road Federation in Taiwan, the Ministry of Public Works in Indonesia, and the Ministry of Public Works in Malaysia. The visits served to reaffirm regional partnerships and highlight shared goals in promoting sustainable and innovative practices in road infrastructure across the Asia-Pacific region.

The upcoming 2025 Goyang REAAA Conference, under the theme 'Future Roads; Hyper-connection', will be held from 26th–31st October 2025 in the Republic of Korea. We warmly welcome the interest and active participation of REAAA members in this important event. (https://reaaakorea2025.org/)

Meeting with the China Road Federation in Taipei, Taiwan

Meeting with the Indonesian Ministry of Public Works in Jakarta, Indonesia

Meeting with the Malaysia Ministry of Public Works in Kuala Lumpur, Malaysia

The Birth of REAAA

Regional cooperation and technical harmony are the underlying principles of the Road Engineering Association of Asia and Australasia (REAAA). After the Second World War, developing and emerging countries in Asia recognised the importance of technology and expertise to national progress. The transfer of technology from advanced countries outside the region did not always work under local conditions compared with technical exchange between regional countries where the environmental conditions were similar. Road engineering was no exception.

In the early 1960s, a few individuals started organising road engineering courses in the region. Among the early visionaries was Dr. Za-Chieh Moh, then a faculty member at the Asian Institute of Technology (AIT) in Thailand, who, through dialogues with road and public works officials from countries such as Thailand, Malaysia, and Singapore, began advocating for a platform for regional technical exchange in road engineering. These courses were well received by the developing countries and, recognising the value of these pioneering efforts, many senior members of the profession responded by giving their energy and time to the organisation of subsequent regional activities. By the end of the decade, it was realised that the coordination of such a major undertaking should be entrusted to a permanent regional body charged with the promotion and advancement of the science and practice of road engineering in the region.

At the Road Construction Seminar, held in Bangkok in 1970, participants from nine countries confirmed the need to form an association to cater for the region's road engineers. Some of the views expressed by the participants included the following:

- Current activities in road engineering in member countries lacked coordination on a regional basis. Drawbacks included the following:
  - Any research conducted in the member countries was undertaken independently and the findings were seldom, if ever, exchanged. Duplication of effort was inevitable, resulting in a drain on resources and expertise: wastage which developing countries could ill afford.
  - In the absence of a well-coordinated feedback channel, universities and research bodies lacked guidance from planners, designers, construction engineers, and technologists regarding application requirements and problems occurring in the field. As a result, the emphasis of research projects tended to be predominantly academic at the expense of immediate practicality.
  - In this situation, member countries sometimes resorted to borrowing expertise from more-developed countries outside the region, a type of 'transplant' that did not always work under local conditions. In regional countries, however, where the environmental conditions were similar, there was a stronger case for closer liaison and mutual exchange without the risks of transplant rejection.
  - The opportunities for the sharing of expertise were limited if the regions were isolated.
- The advantages associated with having a regional road engineering association were suggested as follows:
  - Such a body could well prove a catalyst for future development and activities.
  - Regional engineers associated with road planning, design, construction and maintenance would have a focal point, which they currently lacked. This would offset the issues associated with the localised approach, which had too narrow a focus. An association within a regional body could stimulate cross-fertilisation of ideas, open up mental horizons, and create better understanding amongst member countries at both the national level and the level of the individual practitioner.

- Better functional links could be established through the parent body bringing together road planners, designers, construction engineers, technologists, machinery manufacturers and all the other services and traders associated with road engineering.
- A regional information service centre on road engineering would also promote closer cooperation.

As a result, it was proposed at the seminar that a regional road engineering association should be formed. It was felt appropriate that the launching of the association coincided with a regional road engineering conference. As a result, Mr. Nibon Rananand of the Department of Highways, Thailand, and Mr. YC Yuen of Malaysia were charged with investigating and initiating steps to bring this about.
Subsequent discussions took place in both Bangkok and Kuala Lumpur, and on 22nd March 1971, the then Minister of Works, Post and Telecommunications of Malaysia, Mr. Tun VT Sambanthan, declared the Malaysian Government's support for the formation of a regional road association at the opening ceremony of the Road Planning, Design, Construction and Maintenance Course held in Kuala Lumpur, Malaysia. An extract from his speech is quoted below:

> *" In this respect, we must applaud the initiative of Thailand who last year proposed the formation of a Regional Road Engineering Association as a permanent feature of our professional life. This present course, opened up as it is to the whole of Southeast Asia, may be regarded as a pilot project, which may, we hope, provide the genesis of this more permanent body. Here, I would like to assure delegates present, and through them their governments, that Malaysia fully supports this idea, and my government is willing to place before you the facilities available here in Kuala Lumpur and the resources which we can command, if these can, in any way, assist in the setting up of such an Association…."*

Meanwhile, the Public Works Department, West Malaysia, had been working on this project, more lately in conjunction with the Institute of Engineers, Malaysia. These two organisations jointly sponsored a Conference on Road Engineering in Asia and Australasia in June 1973. One of the main objectives of the conference was to explore the formation of the Road Engineering Association of Asia and Australasia (REAAA).

Mr. Thean Lip Thong, who was then the Director-General of Public Works, West Malaysia, and also the Chairman of the conference, was invited to write a Foreword to a Manual of the Formation of the Road Engineering Association of Asia and Australasia. An extract of the Foreword follows:

> *" As you are aware, member countries of the region are moving towards closer cooperation and (a) regional-type association on many fronts. Malaysia in particular, within the context of ASEAN [Association of Southeast Asian Nations] and other similar bodies, has shown its commitment to the ideal of regional cooperation. Nowhere is this type of collaboration more necessary than in the field of technical exchange. Many of the countries in this region are caught up in the process of development and are correspondingly hungry for modern expertise of all kinds. Any scheme which promotes the sharing of scarce resources can only be welcome here. This is particularly true when we are trying to keep pace with the most modern advances in science and technology.*
>
> *Road engineering is no exception. In ancient times, roads were built as man first developed basic skills for mastering their physical facilities which would withstand, to the extent possible, the forces of nature. Human beings then adjusted their pattern of life to the roads that had come into being.*
>
> *Later, roads were designed, from the outset, in terms of human use. Today, the planning, design and construction of roads has reached new levels of sophistication and scientific capability, and the roads are adapted to the community of people. Nor are our physical and mental horizons bounded. Roads today physically cross over national boundaries and intersect whole continents. They provide an essential link between countries, bring people into contact and harmony with each other, and thus provide an even more vital link between the minds of men.*

The proposed Road Engineering Association of Asia and Australasia will serve to pool and maximise the specialist knowledge which resides within our profession and its allied fields. But it will also bring professional engineers into working relationships and fellowship, (and) make a valuable contribution to the ideals upon which we hope to build the future in this region.

It is in this sense, above all else, that I would like to pledge full support to the formation of the Road Engineering Association of Asia and Australasia...

On Friday 15th June 1973, some 300 participants from 19 countries who were attending the Conference on Road Engineering in Asia and Australasia in Kuala Lumpur unanimously resolved that the Road Engineering Association of Asia and Australasia be formed, with a permanent Secretariat in Kuala Lumpur. A Governing Council consisting of 15 persons was elected and the association began to function.

1st REAAA Conference, Bangkok, Thailand, 1973

The objectives of the Association as stated in the Constitution (1973) were as follows:

- To promote and advance the science and practice of road engineering and related professions.
- To encourage communication between persons charged with the technical responsibility for the planning, design, construction and maintenance of roads and allied structures.
- To obtain and diffuse among the members, information on road engineering and related matters affecting the profession, and to print, sell, publish, issue and circulate the records of transactions of the association or any papers, periodicals, books, circulars and other literary undertakings or any extracts therefrom as may seem conducive to any of these objects.
- To educate and seek to improve, extend and elevate the technical and general knowledge of members and persons concerned with road engineering.

- To serve as a focal point for the exchange of ideas related to road engineering.
- To conduct, encourage and collate research in road engineering.
- To establish, form and maintain an index of available or existing literature and articles of interest in connection with road engineering.
- To cooperate, as may seem conducive to any of these objects, with national and international organisations and to support and supplement their work.

1st REAAA Conference, Bangkok, Thailand, 1973
(Photos courtesy of Mr. Richard Moh)

First Council Term

Mr. Harry YC Huen

Mr. YC (Harry) Huen had commenced organising regional road engineering courses in the early 1960s when he was already convinced of the need for a regional body to promote and advance the science and practice of road engineering. He travelled extensively to promote and seek support of the concept. Overwhelming responses were received, and, as a result, he was appointed the Chairman of the Association Formation Committee at the Conference on Road Engineering in Asia and Australasia in Kuala Lumpur in 1973. He and his committee were entrusted with the tasks of initiating and establishing the association.

Mr. Huen was elected the first Honorary Secretary-General at the inaugural meeting held on 15th June 1973. He served for four consecutive Council terms over 10 years (1973-1983). During this time, he also served on most of the major committees of the association, including the Organising Committee for the First, Second, Third and Fourth REAAA Conferences as Vice-Chairman. He gave his total commitment to REAAA. He was elected an Honorary Member of REAAA in 1983.

Association Formation Committee

Chairman: YC Huen

Secretary: Mrs. MC Schubert

Members: Chang Chong Ping, Chong Sim Chin, D Inderjit Singh, Mohd Desa bin Pachi, E Sivapathasunddrab

Chairman of Inaugural Meeting: Mahfoz bin Khalid

Members of Governing Council (1st term 1973-1976) [1]

Seated from left: Harry Huen (Honorary Secretary-General), Chaleo Vajrabukka (Vice-President), Then Lip Thong (President), JJW (John) Laurie (Honorary Treasurer-General)

Standing from left: KR (Ken) McKenzie, Nibon Rananand, Chai Muktabhant

Members not in picture: Mahfaz bin Khalid, Kiew Him Wai, Yoshio Ueda, Major-Gen. KC Soni, Suryatin Sastromijoyo, FHP Williams, GM Yoganandan, TA Atkinson

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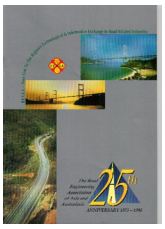

Much of the information contained in this article was sourced from the document "The Road Engineering Association of Asia and Australasia: 25th Anniversary, 1973-1988", published by REAAA.

[1] One of the members in the front row is not named. It is known that Mr. YC Huen is on the left of the row and Mr. John Laurie is on the right of the row.

Early REAAA Conferences

This article presents details of the first eight REAAA Conferences held between 1978 and 1995. It is noted that many of the predictions made by guest speakers have been confirmed over time.

1st REAAA Conference

The 1st REAAA Conference was held in Bangkok, Thailand, from 16th-20th February 1976. The conference attracted more than 700 delegates from 24 countries. Fifty-three papers were presented by authors from Asia, Australasia and other countries. Much lively discussion ensued. An exhibition of construction equipment attracted general interest and was a major feature of the conference.

The underlying theme of the conference was, 'Adaptation of existing technology to the particular conditions in the region'. The keynote speaker, Mr. HT Loxton from Australia, addressed the best use of available resources and the need for engineers to recognise that their role was not only the careful use of physical resources, men, plant and materials, but also extended to financial and national policy considerations, where the engineer must provide advice to government, treasury and policy decision makers.

Mr. Sadamu Mino

An example of the need for road engineering input at the policy level was provided by the guest speaker, Mr. Sadamu Mino from Japan, who spoke of land transportation issues following the recent oil crisis. He pointed out that passenger and freight transport were two markedly different tasks, with different characteristics and criteria required for their efficient operation. He emphasised the overwhelming importance of motor transportation for short-haul (less than 300 km) freight movements, recognising that the motor car will be in use for passenger transport for many years to come.

2nd REAAA Conference

The 2nd REAAA Conference was held in Manila, Philippines, from 16th-20th October 1978. It was opened by Ferdinand E Marcos, the past President of the Republic of the Philippines. Over 900 delegates from 24 countries attended the conference. Most of the distinguished guests were from the Philippines' Public Highways Department.

The theme of the conference was, 'Better roads as instruments of progress'. Seventy technical papers were presented on themes including:

- planning, finance and administration
- design techniques
- construction and maintenance techniques
- new horizons in road engineering
- low cost roads.

The Association bestowed on his Excellency Baltazar Aquino, the first Honorary Member of the Association, for his meritorious service to the profession of highway engineering and REAAA.

3rd REAAA Conference

The 3rd REAAA Conference was held in Taipei, Taiwan, from 20th-24th April 1981. A total of 667 delegates from 18 countries attended the conference. The members of the Organizing Committee – particularly the Chairman, Lt General Jefferson Chang and the Honorary Treasurer-General, Dr. Za-Chieh Moh – were thanked for their efforts in organising a very well-received event culminating in an exceptionally well-received conference.

The Premier, His Excellency YS Sun at the opening ceremony

The theme of the conference, 'Road engineering and energy conservation' represented another step in the technical considerations needed to be addressed to ensure sound road engineering practice.

It was agreed that energy conservation was likely to be the factor most crucial to world economic development in the future. As such, measures should be taken to address this issue, especially in a growing economy. The conservation of energy is a difficult task that, to be successful, requires agreement between the public (the consumers) and government.

Fifty-three papers were presented on topics including:

- planning and financing
- road vehicles using non-conventional fuel
- design criteria and techniques
- urban transportation issues
- material utilisation and construction
- road maintenance procedures and road technology.

The following four invited guest speakers addressed the conference on the application of the most appropriate technology to address problems and their role in wider applications:

- Louis Berger – New techniques for pavement evaluation and design
- Yap Neng Chew – Urban transportation techniques used in Singapore
- TY Lin – Modern highway bridge design
- Suryatin Sastromijoyo – Highway planning derived from regional development structure.

Mr. Thean Lip Thong and His Excellency Mr. Chang Ching Wang were awarded Honorary Membership of REAAA for their outstanding contributions.

The 3rd REAAA Conference, Taipei, Taiwan, 1981
(Photo courtesy of Mr. Richard Moh)

The 3rd REAAA Conference, Taipei, Taiwan, 1981
(Photo courtesy of Mr. Richard Moh)

Dr. Za-Chieh Moh & D. Louis Berger at 3rd REAAA Conference
(Photo courtesy of Mr. Richard Moh)

4th REAAA Conference

The 4th REAAA Conference was held in Jakarta, Indonesia, on 22nd-26th August 1983. Over 800 delegates from 22 countries attended the conference. Engineers from developing countries have always faced constraints in achieving their objectives and the papers presented at the conference addressed this issue. The topics addressed included: planning, engineering, construction/maintenance, and materials/equipment.

The papers highlighted the experiences gained from the various countries in their attempts to overcome limited financial resources. Some of the papers which addressed this issue included:

- Development and design construction practices for rural freeways
- Introduction of pavement recycling as a rehabilitation alternative
- The potential use of concrete segmental pavements in developing countries
- The use of computer software to model terrain features for freeway location design.

Delegates were fortunate to have the opportunity to hear three invited speakers: Mr. KC Pearson, Mr. S Watanabe and Dr. JB Metcalf, who spoke on the future of toll roads, the design and financing of national expressways, and research information and training activities in the South-East Asian region, respectively.

An interesting feature of the conference was the technical tour of the new Jakarta Airport, where a novel construction approach, 'Cakar Ayam' was adopted. The construction of the concrete slab, involving an ingenious combination of machinery and manual labour, demonstrated how effectively, and at optimum cost, this type of construction can be adopted in developing countries.

One highlight of the conference was a group photograph with the President of Indonesia, Mr. and Mrs. RI Soeharto.

President Soeharto at 4th REAAA Conference in Jakarta

5th REAAA Conference

The 5th REAAA Conference was held in conjunction with the 13th Australian Road Research Board Conference in Adelaide, Australia, on 25th-29th August 1986. The event coincided with the official opening of the Adelaide Festival Centre. Over 900 delegates attended the conference.

This was the first joint conference involving REAAA and a partner. The conference enabled delegates to promote and advance the science and practice of road engineering and also to network and gain a better appreciation of each other's needs, and also recent achievements.

A total of 170 papers were presented at both conferences in 65 technical sessions. There were also 14 workshops and six technical tours, which provided a practical way for delegates to obtain a better understanding of road engineering in South Australia. The invited speakers, and the topics of their presentations, were:

- Road safety – successes and failures (Professor Masaki Koshi, Japan)
- We'll put your weights up – but who pays? (Ken Dobinson, Australia)
- French practice in the stabilisation of road pavements with hydraulic binders and surface dressing (Michel Ray, France)
- Development in road roughness measurements and calibration procedures (Tom Gillespie, USA)
- Road funding and vehicle taxation in New Zealand (Ron Fisher, New Zealand).

A major part of the conference was the technical discussions held outside the official sessions. Various social events also provided an opportunity for delegates to make new friends and revisit old friendships.

6th REAAA Conference

The 6th REAAA Conference was held in Kuala Lumpur, Malaysia, from 4th-10th March 1990. It was a milestone for the association as it recorded an attendance of 1,112 delegates from 38 countries, the first time over 1,000 delegates had attended an REAAA conference.

A total of 130 papers were presented in over 20 technical sessions. The papers covered a wide range of topics, including:

- traffic planning, traffic control and traffic safety
- environmental issues
- construction and research
- bridges, tunnels and geotechnical issues
- road management systems
- road amenity
- finance

The technical content could not be faulted, with the papers generally of a good standard. However, there

was some criticism regarding the uneven distribution of papers, with more than two dozen papers on road maintenance and less than half a dozen on environmental issues.

The delegates were treated to a wide range of Malaysian cuisine and Malay, Chinese, Indian, Sikh, and Portuguese dancers. For the first time, a newsletter was produced each day which reported the day's events.

The success of the conference was attributed to the strong support provided by the Australian and Malaysian members. The Australian delegation was led by Mr. Ian Stoney, the Chair of the Australian Chapter, which had the second largest number of delegates after Malaysia. Mr. Sunaryo Sumadji also led a large delegation from Indonesia.

7th REAAA Conference

The 7th REAAA Conference was held in Singapore from 22nd-26th June 1992. A total of 822 delegates attended the conference. The conference was held in conjunction with the Road Asia '92 Exhibition, which attracted 37 exhibitors. The conference and exhibition was opened by the Minister for National Development, Mr. S Dhanabalan. The keynote address was delivered by Mr. Masao Sibata and Professor Kumares C Sinha, who spoke on 'road maintenance' and 'the future of traffic management' respectively.

The conference was significant in that, for the first time, Katahira Awards were presented for the best technical papers presented at the conference. The Katahira Awards were made possible through the generous donation of the late Mr. Nobutaka Katahira, REAAA's President from 1983-1986. He bequeathed the sum of 3 million Yen to the association to fund the establishment of the awards.

Dr. Shigeru presenting the first Katahira Award donation to Dr. Tan Swan Beng

The initial Katahira Awards were awarded to the authors of the following papers:

- Study on factors causing rutting of pavements and the design of surface courses
- Queue management and monitoring in urban traffic control systems
- Highway maintenance planning and budgeting at the network level using a generic algorithm.

The closing lunch concluded with a rendition of 'Auld Lang Syne' and a promise to meet again at the next conference in Taipei.

8th REAAA Conference

The 8th REAAA Conference was held in Taipei, Taiwan, on 17th-21st April 1995. This was the second time the conference had been held in Taiwan.

The theme of the conference was 'Roads for future development'. The conference attracted more than 600 local and overseas road engineering experts and scholars from 22 countries. Premier Lien Chan welcomed delegates on behalf of the Government of the Republic of China. In his speech, Premier Chan reported that the government had adopted ambitious transportation construction programs in recent years as part of the efforts to develop Taiwan into a regional operations centre for multinational corporations in the Asia-Pacific region.

The theme of the conference underscored the growing emphasis on road development in Taiwan and other countries in the region. The President of REAAA, Mr. Arthur Y Chen, hoped that the conference would encourage the development of road construction technology.

Premier Lien Chan opening the Exhibition held in conjunction with the 8th REAAA Conference

During the conference, 120 papers were presented on topics including road development and construction, pavement management and pavement condition monitoring, transport and traffic management, road safety, and advanced highway and transport technology. The papers provided new insights into how to achieve higher productivity and improve decision-making in the development and management of roads. Five half-day technical workshops were also organised to provide delegates with an opportunity to gain an insight into transportation projects in and around Taipei.

The keynote speaker, Tan Sri Dato' Wan A Rahman Yaacob, addressed issues related to road development in Malaysia, with an emphasis on the country's privatisation policy. Professor Nakamura from Japan spoke on, 'Historical development and future trends of roads'. He suggested three approaches to resolve the road traffic problem: (1) build more roads to meet the growing traffic demand; (2) governments should effectively utilise existing roads; and (3) adopt tough measures regarding traffic control. He believed that these three approaches would greatly alleviate the deteriorating traffic conditions in major cities in the world. Finally, Professor Yang H Huang spoke on 'recent advances in highway engineering'.

The following young professional were recipients of the Katahira Award:

- 'An assessment of the effects of contra flow bus lanes on ridership', Professor Chang Shyue-Koong and Chen Hsin-Hsiung
- 'Simultaneous measurement of thermal conductivity and thermal diffusion of pavement materials', by Low Boon-Hwee, Professor Gwa Tien-Fan and Tan Siew-Kwai
- 'Electronic toll collection in Hong Kong', by Dr. Lam Wa-Kwai.

Embracing Hyper Connection: Building the Foundation for a New Era

Dr. Inbae Kim
Principal Researcher, Korea Expressway Corporation

One of the most defining characteristics of modern society is 'informationization'. Since the 1990s, with the advent of the internet and the emergence of the World Wide Web, we have been able to access more information, faster and more easily than ever before. As a result, we can now learn about other countries' cultures, customs, and languages without physically visiting them. As long as we are connected to a communications network, we can interact with anyone around the world regardless of distance.

The mobility industry, which has thrived for more than a century since Ford's mass production of automobiles commenced in 1913, is now undergoing a major transformation. We are witnessing a rapid transition to eco-friendly vehicles powered by electricity and hydrogen, as well as the imminent commercialization of urban air mobility (UAM) and air taxis. These innovations are diversifying mobility forms and fundamentally reshaping how we move.

As we enter the 21st century, the explosive advancement of informationization has opened the door to a new world often described as a 'hyper-connected society'. This term can be defined as a society in which people, objects, and spaces – all things– are interconnected through information and communications networks, enabling the creation, collection, sharing, utilization, and continuous evolution of data across every domain.

To fully realize the potential of hyper-connectivity as a service, we must first establish the necessary hardware infrastructure for roads, the backbone of our society. From underground tunnels and surface roads to air corridors, a paradigm shift is required – one that prioritizes user experience and service-centric perspectives over mere transportation. This transformation will be achieved when technologies such as advanced automotive components, battery and semiconductor systems, communications and mobile platforms, AI-powered autonomous driving, and data security converge organically under the framework of Mobility as a Service (MaaS).

Achieving this vision will require the close collaboration of multiple stakeholders, including government agencies, public institutions, transportation operators, and platform providers. At the same time, we must accelerate the transition toward autonomous mobility solutions, ensuring that the resulting services are accessible at reasonable cost and offer the highest levels of convenience. Only then can we activate large-scale usage, provide viable solutions to urban and environmental challenges, and build an advanced MaaS ecosystem that truly embodies the promise of a hyper-connected society.

Taiwan's Development and Achievements in Transportation Hyper-Connection

Dr. Jaw-Chang Laiw
Chief Technology Officer,
Moh and Associates, Inc., Taiwan

What is Transportation Hyper-Connection?

Transportation hyper-connection refers to the seamless digital integration of all modes of transport – rail, metro, bus, highway, cycling, walking, parking – into a smart, user-centric, and environmentally sustainable system. The goal is to deliver real-time, multimodal, inclusive, and efficient mobility services enabled by data, technology, and policy.

Background and Policy Foundations

Taiwan's path toward hyper-connected transportation commenced with the Smart City and Asia Silicon Valley plans (2016), integrating AI, IoT, and cloud data into public infrastructure. In 2017, the government initiated the Forward-Looking Infrastructure Development Program, prioritizing smart mobility through the deployment of ITS, digital fare systems, autonomous vehicles, and integrated travel platforms.

Efforts have also focused on social inclusion, open data, user empowerment, and technological innovation – resulting in the widespread development of ETC, TPASS, Senior Cards, smart parking, and integrated mobility apps for train and bus services.

Timeline and Milestones

Timelines and milestones are as follows.

Year	Milestone	Description
2006	ETC Pilot on National Highways	Start of electronic tolling with gantry systems
2014	Nationwide ETC system completed	Full booth-free eTag toll system nationwide
2016	Smart Mobility Policy launched	AI/IoT deployed in city planning and transportation

Year	Milestone	Description
2017	Forward-looking infrastructure plan	National investment in ITS, C-ITS, AVs, MaaS
2018	PTX open data platform	Real-time data hub for public transit APIs
2019	YouBike 2.0 Smart Sharing launched	Mobile unlock, dockless systems expanded
2020	Transport 'big data' system	Real-time traffic analysis and prediction system
2021	TPASS concept announced	Unified, cross-regional fare integration initiative
2022	Shalun C-ITS/AV testbed launched	V2X smart intersection and shuttle testing
2023	TPASS implemented in 4 Metro regions	Covers metro, bus, rail, light rail, YouBike
2024	Smart parking systems expanded	Citywide IoT parking with app-based navigation and payment
2025 (planned)	AV & V2X legal framework	Official rollout of autonomous and connected vehicles

Achievements and Impacts

- Seamless ticketing with TPASS:
  - Unifies metro, bus, rail, light rail, and YouBike.
  - Offers discounted monthly fares, reducing costs and transfer friction.
- Senior Card for inclusive access:
  - Citizens over 65 can use stored-value smartcards for free/subsidized travel.
  - Coverage includes metro, bus, ferry, rail, and some taxis.

- Nationwide ETC for highways:
  - Contactless tolling for private and commercial vehicles.
  - Reduces congestion, emissions, and maintenance costs.
- Real-time public data (PTX Platform)
  - More than 200 mobility apps developed using open APIs.
  - Data used in mapping, scheduling, demand prediction, and route planning.
- Smart parking integration:
  - Cities such as Taipei, Taichung, and Kaohsiung feature:
    - sensor-based space detection
    - real-time availability via apps
    - automatic billing via EasyCard or mobile payment
    - dynamic pricing and reservation features
- Rural smart mobility:
  - On-demand app-based shuttle systems introduced in Pingtung, Nantou, Hualien.
- Integrated train & bus mobile Apps
  - TRA eBooking App: Online ticket purchase, train schedules, seat selection, and real-time delay info.
  - Bus+ App: Real-time urban bus arrival times, routes, and crowding info.
  - Taiwan Tourist Shuttle App: Combines sightseeing bus services with train schedules and tourist info.
  - THSR T Express App: Offers ticketing, QR boarding, and high-speed rail service updates.
  - These apps collectively empower travelers to plan door-to-door multimodal journeys seamlessly.

Future Outlook

1. ETC 2.0 Expansion

   To include real-time traffic pricing, congestion management, and vehicle carbon tracking.

2. Mobility-as-a-Service (MaaS)

   Single account and app for metro, train, taxi, bus, bike, parking, and ride-hailing integration.

3. Smart legal infrastructure

   Preparing data privacy, safety, and liability laws for autonomous and V2X vehicles.

4. Equity-driven policies

   Expanding senior, youth, disability, and low-income transport access programs.

5. Green & Resilient Mobility

   Promoting electric public transport, walkability, and shared micro-mobility options.

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Pavement Rehabilitation Using In-place Recycling Base by Cement and Asphalt Emulsion (IRBCAE) in Indonesia Toll Road

Dhono Nugroho, PT Hutama Karya (Persero), Indonesia Road Development Association (IRDA)
Reyno Octafiansyah, PT Hutama Karya (Persero), Indonesia Road Development Association (IRDA)
Deva Fitri Aurelya, PT Hutama Karya (Persero), Indonesia Road Development Association (IRDA)
Halim Wiranata, PT Hutama Karya (Persero), Indonesia Road Development Association (IRDA)

Introduction

Indonesia's toll road network plays a significant role in supporting national connectivity and economic growth. With continuous expansion over recent years, particularly through strategic corridors such as Trans-Java and Trans-Sumatra, there is an increasing need to ensure the longevity and performance of these roads. Pavement deterioration, in the form of cracking, rutting, and aging, presents challenges for road operators aiming to balance maintenance needs with operational efficiency and minimal disruption to traffic.

As pavement aging is inevitable, road authorities must seek maintenance solutions that balance speed, cost, durability, and environmental responsibility. In this context, the application of Environmental, Social, and Governance (ESG) principles in road infrastructure has gained prominence globally. Governments and infrastructure stakeholders are increasingly expected to demonstrate how their methods contribute to environmental preservation, social benefit, and transparent governance.

Traditionally, pavement rehabilitation has been carried out using methods such as overlaying or reconstruction. This can be time-consuming and resource intensive. In response, several stakeholders in the Indonesian road sector have begun exploring alternative approaches, one of which is In-place Recycling Base by Cement and Asphalt Emulsion (IRBCAE) as a more sustainable and cost-effective solution. This method directly aligns with ESG objectives by reducing material consumption (environmental), shortening construction time and community impact (social), and following standardized guidelines (governance).

Though relatively new in Indonesia, IRBCAE shows promise in terms of reducing emissions, reducing construction times, and lowering rehabilitation costs. The method provides an efficient means of rehabilitating pavements by reusing existing materials on site, thus offering a more sustainable and cost-effective solution.

IRBCAE involves milling and reusing the top 100-150 mm of existing asphalt pavement by mixing it in-place with additives such as emulsified asphalt. By eliminating the need for transporting new aggregates and minimizing waste, IRBCAE contributes to a greener, faster, and more economical road rehabilitation strategy.

IRBCAE Process Overview

The IRBCAE process consists of several sequential steps that ensure the effective recycling of pavement materials. The key stages of IRBCAE include:

a. Milling: The existing asphalt surface is milled, typically to a depth of 10 to 15 mm , depending on the pavement's condition.

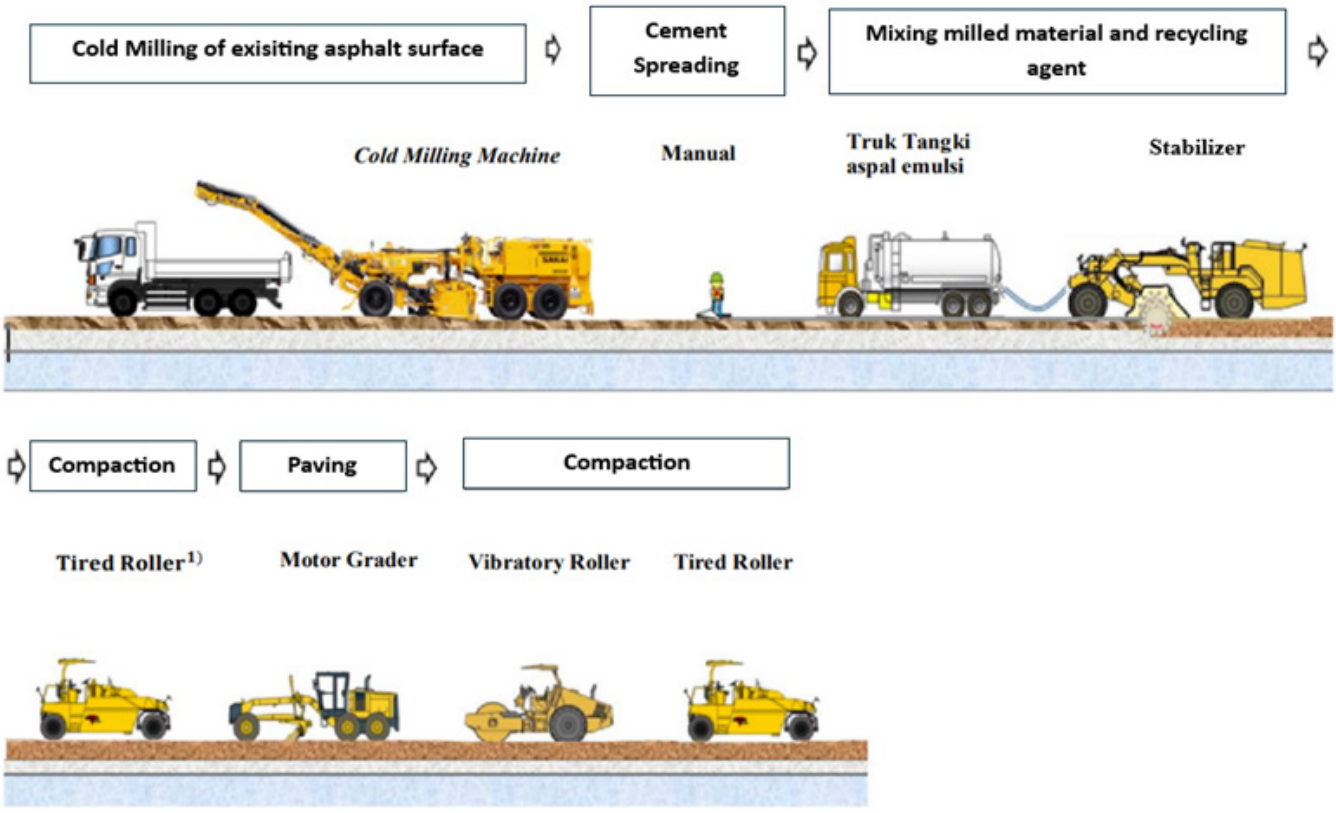
b. Processing: The milled asphalt is crushed, screened, and processed to meet required specifications.

c. Addition of recycling agents: A recycling agent, such as emulsified asphalt and cement, is added to rejuvenate the binder and restore its strength.

d. Mixing: The milled material, recycling agent, and any necessary additives are mixed thoroughly to create a high-quality material.

e. Paving: The mixture is then placed using a pneumatic-tyred roller and smooth-drum roller to create a fresh asphalt surface.

f. Compaction: The newly-paved material is compacted to ensure the desired density and smoothness in accordance with applicable standards.



IRBCAE Process

Advantages of IRBCAE

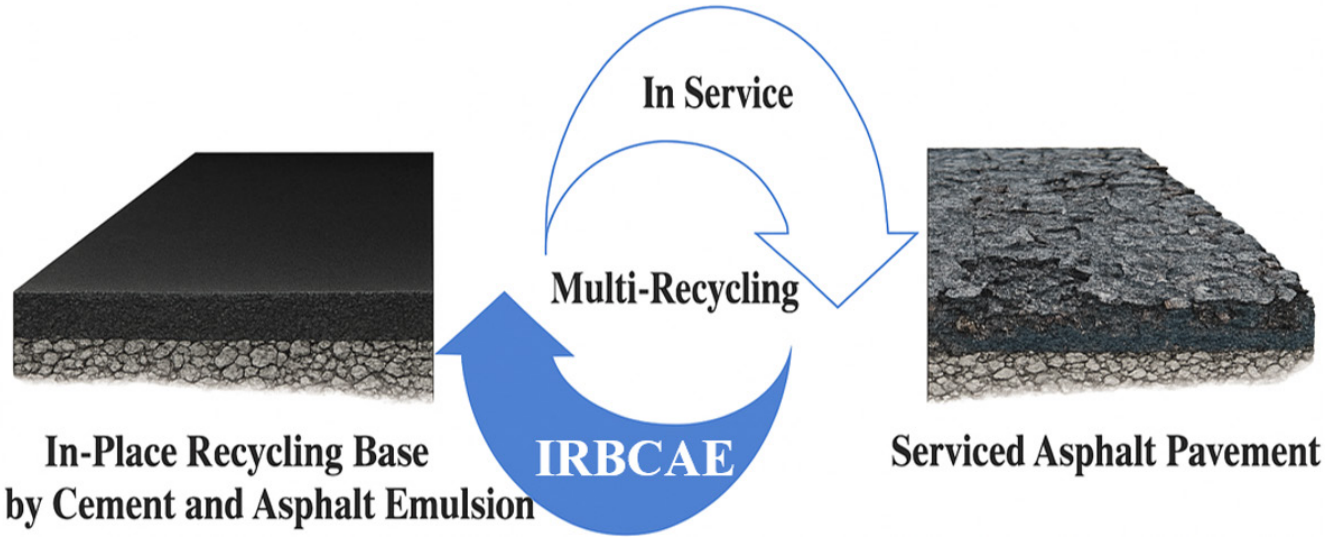
IRBCAE offers several advantages over traditional road reconstruction methods:

- **Cost-Effectiveness:** Reduces the need for new materials, lowering overall project costs.
- **Environmental sustainability:** Reuses existing materials, minimizes construction waste and the environmental impacts associated with producing new materials.
- **Efficiency:** As IRBCAE is a faster process than full reconstruction, it reduces traffic disruption and the time required to complete the project.
- **Improved pavement quality:** The recycling agent added to the material improves its strength and durability, resulting in longer-lasting pavement layers.

Applications of IRBCAE

IRBCAE is suitable for rehabilitating roads that have surface distress but retain structural integrity, including:

- **Highways and arterial roads:** IRBCAE is frequently applied to rehabilitate long stretches of highways and arterial roads, extending their service life at a fraction of the cost of full reconstruction.
- **Urban streets:** In urban areas where traffic disruption must be minimized, IRBCAE offers a quick and effective rehabilitation solution without the need for complete road closure.
- **Bridge decks:** Rehabilitates asphalt layers on bridges without full-depth reconstruction, reducing downtime and costs.



Challenges and Considerations

While IRBCAE offers many benefits, several challenges must be addressed for successful implementation:

- **Quality of existing pavement:** The success of IRBCAE depends on the condition of the existing pavement. If the road has extensive structural damage, then full reconstruction may be necessary.
- **Specialized equipment:** IRBCAE requires specialized milling and mixing equipment, which can represent a significant upfront investment.
- **Weather conditions:** The process is most effective in mild weather conditions, as extreme temperatures can affect the quality of the final product.
- **Skilled workforce:** Operators must be properly trained in equipment handling and quality control of the recycled mix.

Conclusion

In-place pavement recycling base layer using cement and emulsion asphalt (IRBCAE) represents a valuable tool in modern road rehabilitation. With its cost savings, environmental benefits, and ability to quickly restore road surfaces, IRBCAE is an ideal solution for many road maintenance projects. By reusing existing materials and reducing the need for new resources, IRBCAE directly supports environmental sustainability. The ability to reduce construction time and traffic disruption also contributes to social outcomes and provides a solid foundation for broader adoption. Furthermore, as implementation is guided by national technical standards, IRBCAE reflects strong elements of governance and accountability in infrastructure delivery.

While the 2025 guideline on the 'Design and implementation of in-place pavement recycling base layer using cement and emulsion asphalt' provides a solid foundation for broader adoption, further development and research remains possible to improve outcomes before wider implementation.

Nonetheless, as Indonesia continues to expand and maintain its strategic road corridors, IRBCAE offers a promising pathway to meet rehabilitation needs in a manner that is both technically robust and aligned with sustainability and ESG principles. With continued research, refinement, and institutional support, IRBCAE is well-positioned to become a key component of future-ready, green infrastructure solutions across the region.

North-South Corridor: Singapore's First Integrated Transport Corridor

Singapore North-South Corridor Team,
Land Transport Authority, Singapore

Introduction

The North-South Corridor (NSC) represents a pioneering advancement in urban transport infrastructure. It is Singapore's first integrated multi-modal transport corridor. It combines vehicular tunnels and viaducts, continuous cycling trunk routes and pedestrian paths. This corridor will be the eleventh expressway in Singapore.

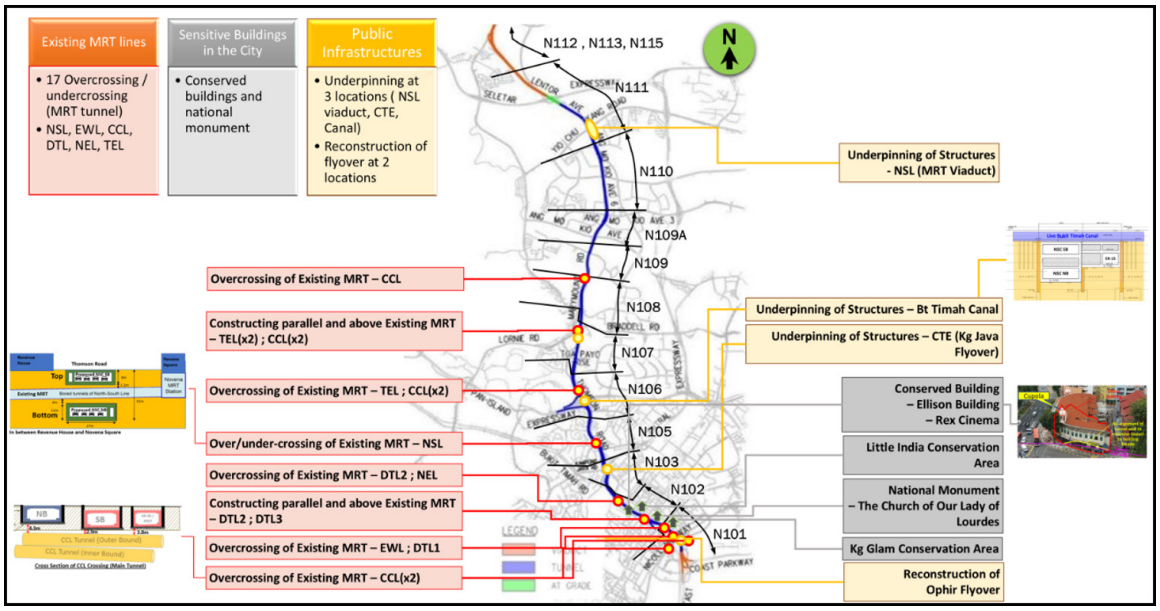
Alignment of North-South Corridor

This transformative project, which is 21.5 km long and costs approximately USD6 billion, is set to improve connectivity and address the growing traffic demands between Singapore's rapidly expanding northern region and the city centre.

Engineering Challenges and Innovative Solutions

The construction of the NSC faces unique engineering challenges along its route. Cut-and-cover and tunnelling methods are employed between skyscrapers and heritage buildings through the city centre. The central and northern segments require careful planning as they pass through residential areas, industrial zones, and sensitive locations such as hospitals, places of worship, and schools.

The most daunting challenge involves interfacing with six operational MRT lines[1] at 17 locations, with clearances as low as 1.2 metres from live rail systems. This requires precise construction staging and innovative engineering solutions to navigate both the existing underground service networks and the MRT infrastructure, while carefully managing stakeholder and resident concerns throughout the construction corridor.



NSC Alignment Interface with critical structures

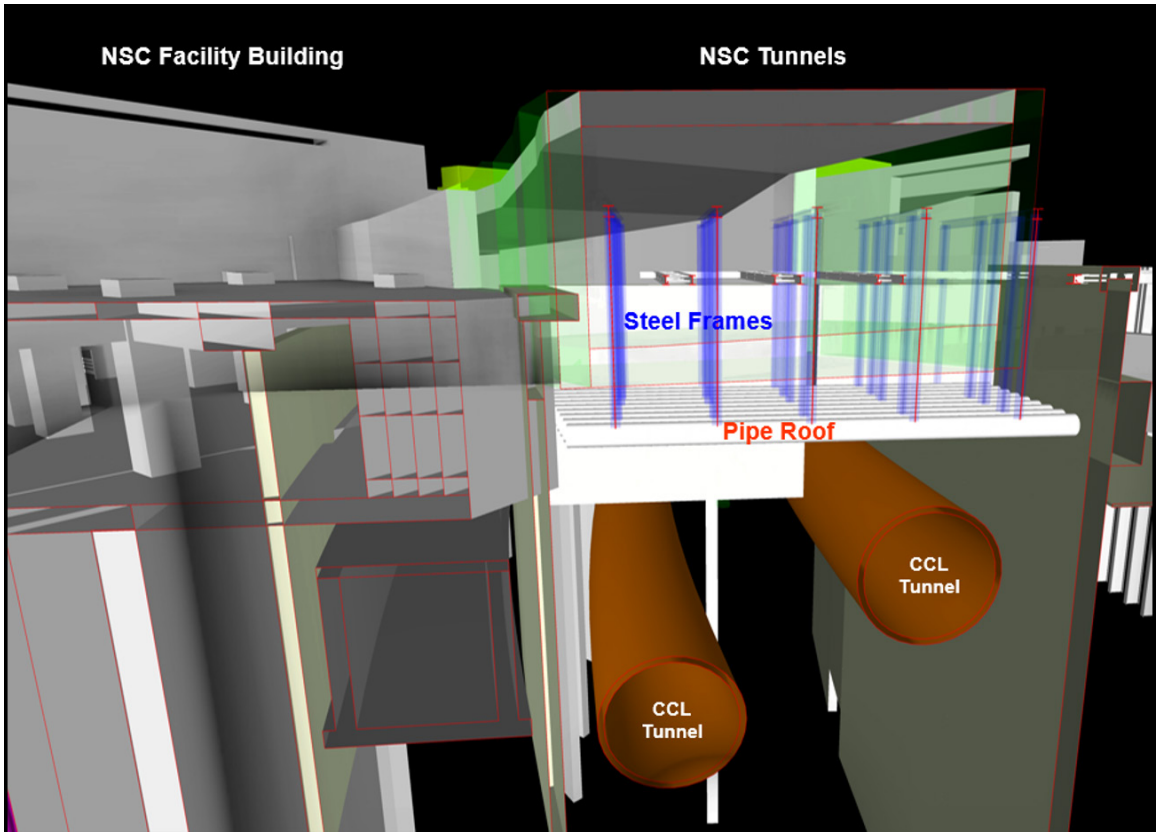
Deep Excavation and Interface with Existing Infrastructure

The NSC project involves deep excavation in complex ground conditions, presenting significant challenges in ground control and the protection of adjacent structures. Advanced monitoring systems and extensive ground improvement techniques ensure public safety and structural integrity. These engineering solutions demonstrate the capability to construct underground infrastructure while preserving existing critical transport systems.

[1] North-South, East-West, Circle, Downtown, North-East and Thomson-East Coast Lines

Contract N101

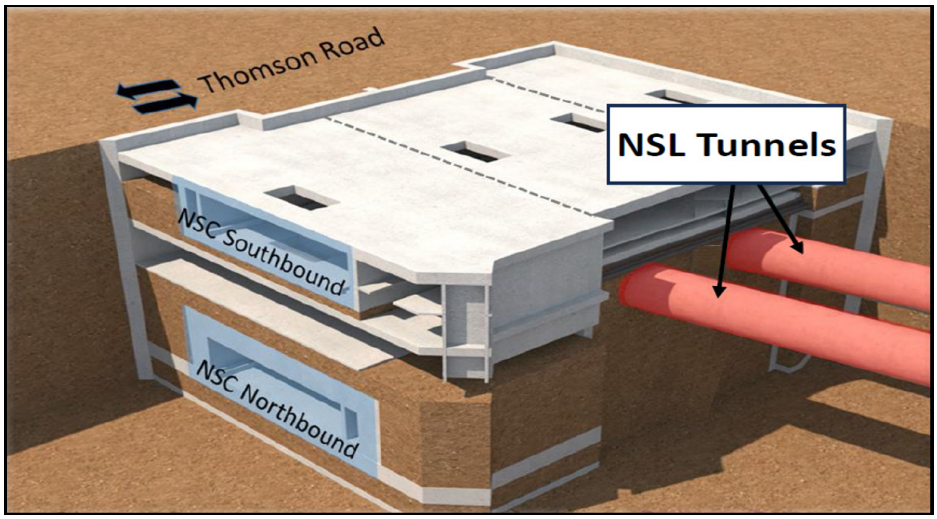
A notable example of the NSC-MRT interface is where the NSC tunnel crosses over the Circle Line (CCL) MRT tunnel between the Nicoll Highway and promenade stations in reclaimed land. Due to the need to consolidate ground conditions, a multi-phase compartmentalised excavation scheme with pipe-roofing and pre-installed steel frame systems was adopted to control excavation and minimize ground movement. The pipe-roofing prevents excessive ground heaving between the NSC tunnel base slabs and live railway tunnels, while the steel frame system actively controls the pipe roof if excessive heaving occurs.



Compartmentalised excavation scheme of NSC near the CCL tunnels

Contract N105

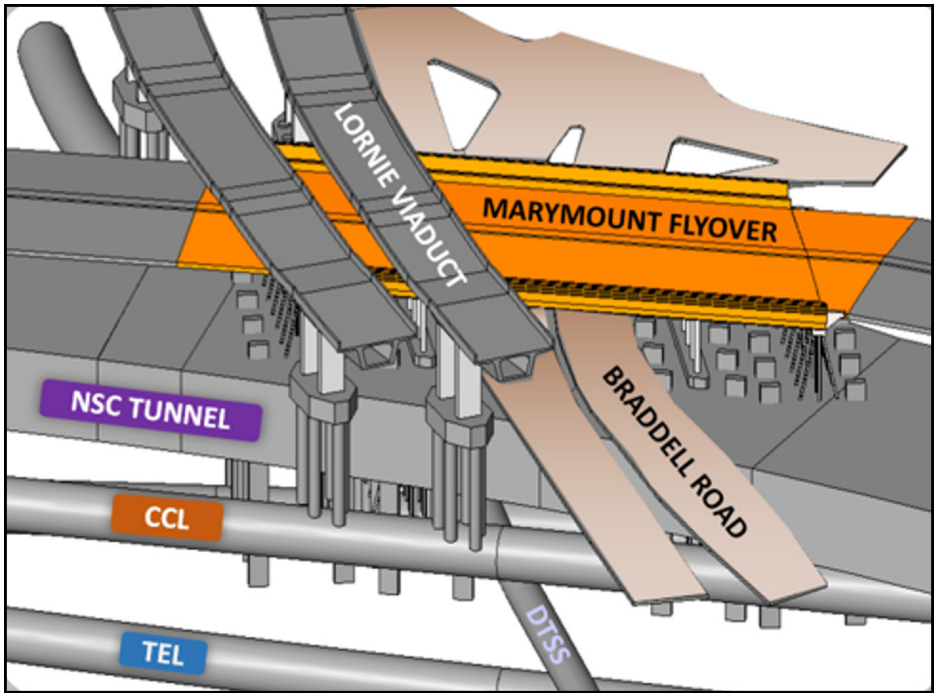
Another critical section involves the NSC tunnel crossing both over and under the operational North-South Line (NSL) MRT tunnel along Thomson Road through complex geology. To minimize rail disruption, the simple faceless tunnelling (SFT) method, which involves pre-cast tunnel segments pushed into position and mining, was adopted. An Automatic Tunnel Monitoring System (ATMS) provides real-time supervision for swift response, supported by ground instruments in critical areas. This innovative approach demonstrates how modern construction methods and monitoring systems ensure efficient and safe construction.



Simple faceless tunnelling and mining methods employed at NSL interface

Contract N107

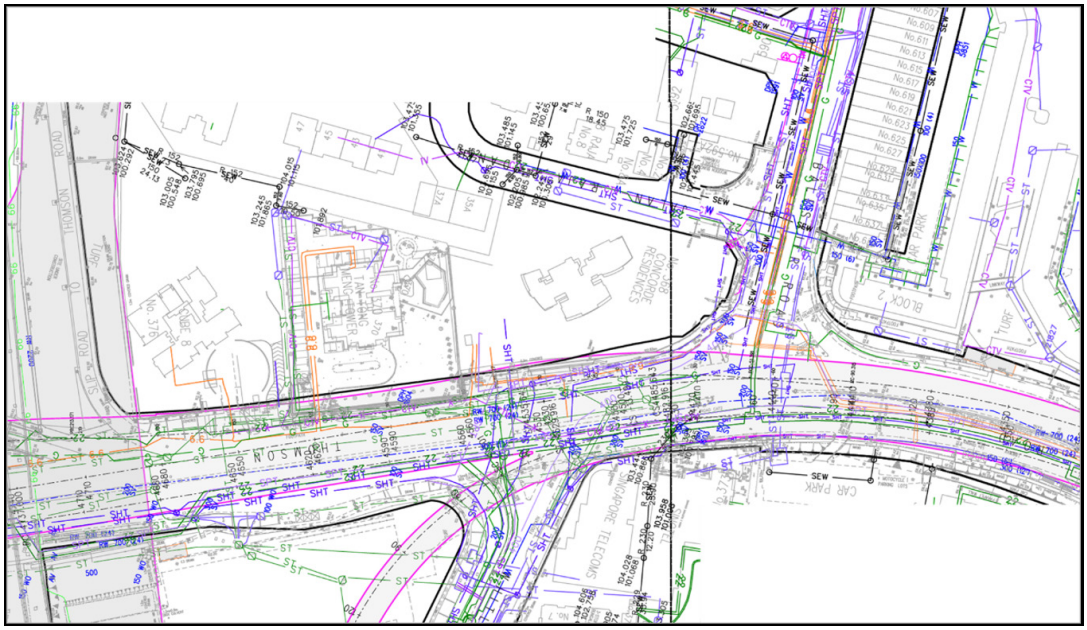
In the central region, the NSC tunnel interfaces with a complex multi-tier intersection at Braddell Road, located between the Lornie Viaduct, Marymount Flyover and Braddell Road above, while managing the CCL, Thomson-East Coast line (TEL) and the deep tunnel sewerage system (DTSS) below. All the infrastructure must remain fully operational during construction. With diaphragm wall foundation works coming within 2.5 m of the CCL tunnel, construction was carried out using carefully controlled sequences and a bite-sized'' approach to maintain ground stability and minimize vibration and ground movement.



NSC tunnel to be constructed at a complex multi-tier interface

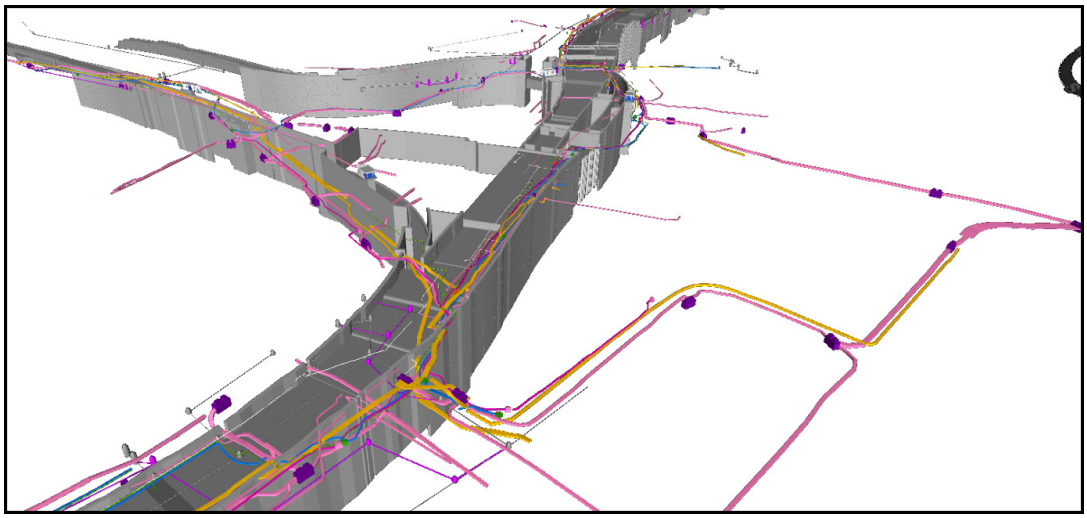
Complex Utility Diversions

The construction of the NSC requires complex utility diversions of critical infrastructure including high-voltage power cables, water mains, sewers, telecommunications cables and gas pipelines along the tunnel alignment. Working in congested underground spaces requires meticulous planning; nearly 7000 trial trenches were excavated to secure corridors for the placement of new utilities.



Example of extensive utility network along Thomson Road

An example is the diversion of twin colonial-era water pipelines along Thomson Road which span multiple NSC contracts, requiring coordination between construction needs and traffic management. Building Information Modelling (BIM) was used to precisely plan diversion routes around the tunnel and structural works.



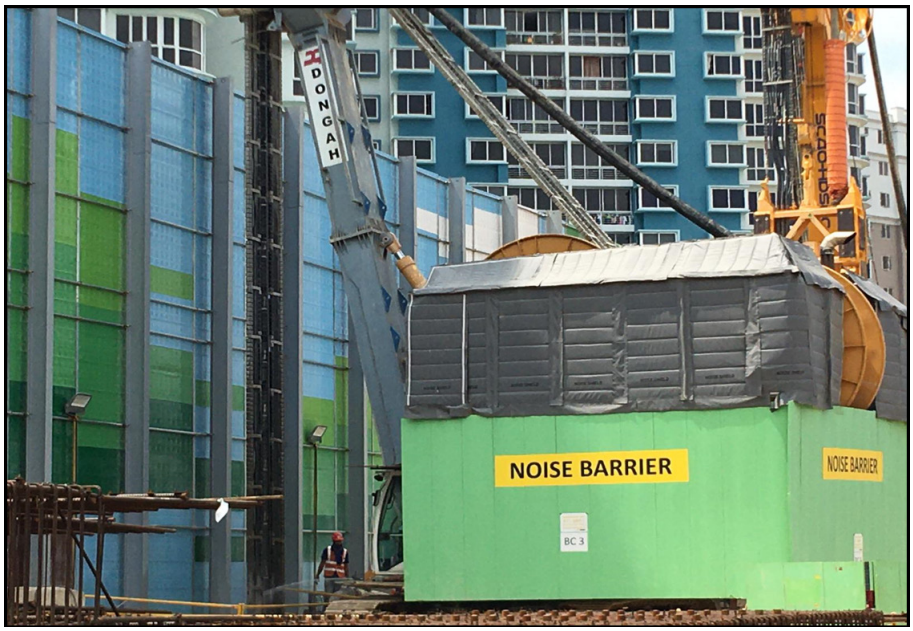
Modelling of diversion alignment within BIM

Working Near Stakeholders

The NSC project presents another set of distinct challenges due to its proximity to residential developments and stakeholders. Managing construction impact demands meticulous planning and the implementation of effective mitigation measures.

Perimeter noise barriers for noise management

Noise and vibration are managed through controlled construction hours, the installation of strategic noise barriers and real-time monitoring to provide relief for stakeholders. Where space permits, localised noise enclosures and machinery encapsulation work together with 12 m high perimeter noise barriers to create multiple layers of sound protection, minimizing disruption to surrounding residential and commercial areas.



Localised noise encapsulation for heavy machinery

Traffic management involving over 250 traffic diversions to facilitate the works requires strategic signage and community coordination to minimize disruption to daily commutes. For example, converting a cross-junction at Ang Mo Kio Avenues 5 and 6 into a signalised roundabout demanded regular stakeholder engagement to communicate traffic changes and maintain smooth traffic flow.

Roundabout conversion along Ang Mo Kio Avenues 5 and 6

Sustainable Design and Environmental Considerations

The pace of climate change has been accelerated by rapid urbanization worldwide. Given the significant contributions to global carbon emissions by the construction industry, the adoption of sustainable materials and environmentally conscious practices is being prioritized at NSC.

Commitment to reducing environmental impact in infrastructure is demonstrated using low-carbon concrete in tunnel and viaduct structures. NSC's 8.8 km road viaduct is being constructed using precast segmental box girders that will be cast using low carbon concrete such as carbon mineralised concrete, whereby carbon dioxide is trapped and permanently embedded into the concrete. A total of 2900 segmental box girder units, with a total estimated concrete volume of 107,400 m^3, will be precast for the viaduct using this technology; over 1,700 tCO_2e will be saved.

Other sustainability initiatives include reducing concrete's carbon footprint by replacing 65% of the cement with blast furnace slag. Additionally, incorporating plastic waste into the road premix will divert 375 tonnes from landfill and save 340 tCO_2e.

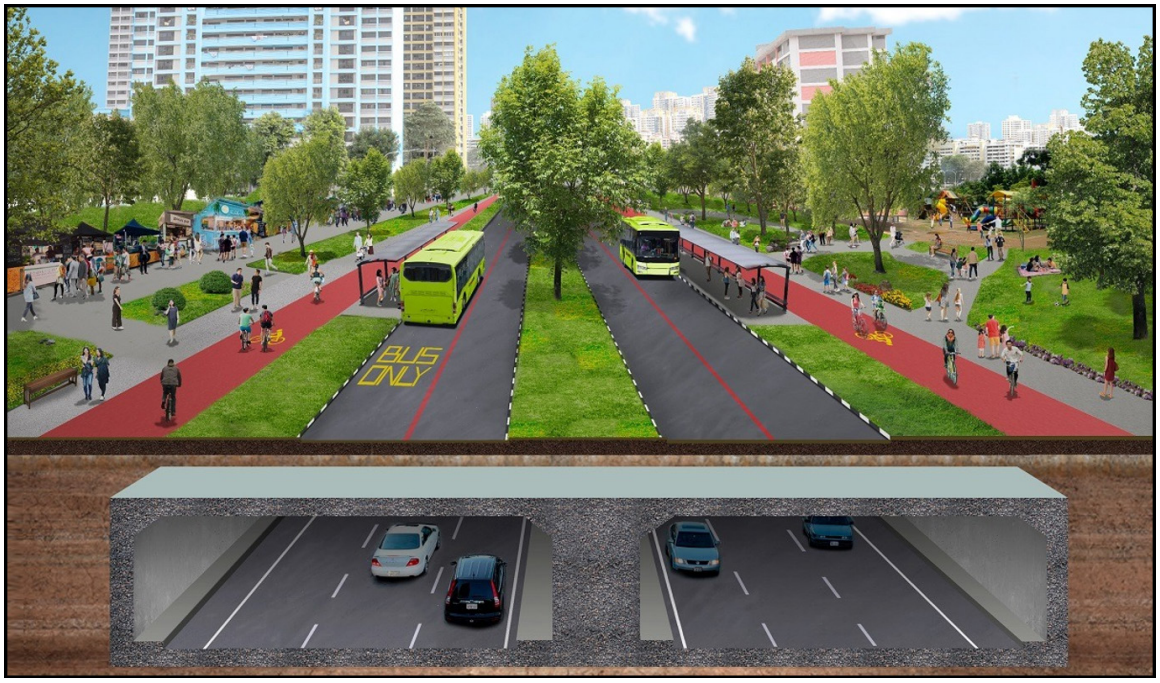
Construction safety and productivity are also enhanced through the use of technologies such as demolition robots and temperature-matched curing to optimize construction cycles. These sustainable methods will minimize NSC’s carbon footprint while establishing a model for future infrastructure developments in Singapore.

Urban Integration and Enhanced Connectivity

Beyond transport, NSC will deliver social benefits through a comprehensive Master Plan being developed by Henning Larsen upon their appointment in 2024. The plan will seamlessly integrate infrastructure with place-making elements and verdant greenery along the corridor.

The corridor will feature dedicated cycling and pedestrian paths with themed nodes, connecting to existing park connectors and cycling networks. Public spaces will be transformed into green sanctuaries with smart design elements, promoting active mobility and community interaction.

The transport corridor improvements will create vibrant community spaces while enhancing local liveability, demonstrating an integrated approach to urban planning that balances efficiency with quality of life.



Nodes along the NSC will become gateways to neighbourhoods and amenities

Looking Ahead

NSC exemplifies Singapore's commitment to sustainable urban development, showcasing how innovative solutions and careful planning can overcome complex engineering challenges.

NSC will establish new benchmarks for integrated transport infrastructure, enhancing connectivity while advancing Singapore's sustainable city vision. It serves as a global model for combining efficient transport solutions with sustainability.

The 14th International Conference on Road and Airfield Pavement Technology 2025 (ICPT2025)

The 14th International Conference on Pavement and Airfield Technology (ICPT) was held at the Chiang Mai Marriott Hotel, Chiang Mai, Thailand, on 16th – 18th July. The event was hosted by the Faculty of Engineering, Chiang Mai University, under the theme 'Discover the wealth of knowledge and benefits awaiting you in the field of pavement technology'. More than 210 delegates from 26 countries attended the conference and over 130 papers were presented.

The ICPT is a non-profit non-governmental organization hosted by the Centre for Transportation Research of the National University of Singapore. It was established in 1992 under an agreement between the Centre for Transportation Research, National University of Singapore, and the Pavement Engineering Society (Singapore). The first ICPT conference was held in Singapore in 1993 as a Southeast Asian regional event focusing on pavement construction and maintenance technology. Subsequent ICPT conferences were held in Singapore (1995), Beijing (1998), Kunming, China (2000), Seoul (2005), Sapporo, Japan (2008), Bangkok (2011), Taiwan (2013), Dalian, China (2015), Hong Kong (2017), Kuala Lumpur (2019), Sri Lanka (2021), and Beijing (2023). The next 15th ICPT will be hosted by Chang'an University, China in 2027.

Dr. Auckpath Sawangsuriya, Executive Committee and Manager of the Roads Association of Thailand (RATh), was invited to deliver his keynote presentation on the topic, 'Deflection-based evaluation and performance of asphalt pavements in Thailand'. He presented a number of case studies on the deflection-based evaluation and performance of asphalt pavements in Thailand. He suggested that the performance of asphalt pavements in Thailand could be efficiently monitored based on FWD deflections. As expected, most semi-rigid pavements outperformed conventional asphalt pavements in terms of deflections (e.g. most conventional asphalt pavement sections in Thailand were found in warning and severe conditions). Good rehabilitation strategies also resulted in better deflection-based performance of asphalt pavements. Deflection-based performance criteria were developed for asphalt pavement design, construction and rehabilitation in Thailand. However, the proposed deflection-based evaluation framework requires comprehensive implementation and verification in the field prior to the practical adoption of asphalt pavement structural condition criteria in Thailand.

Further information is available at: https://www.icpt2025.com/ and https://youtu.be/6Z72ZXPDyI0?si=p99tkw32v88GnR4H

Dr. Auckpath Sawangsuriya presenting his keynote presentation at the 14th ICPT

123rd REAAA Governing Council Meeting and Related Events

The 123rd REAAA Governing Council meeting, and a series of related events, were successfully held from 4th – 9th May 2025 at the offices of the National Transport Research Organisation (NTRO) in Port Melbourne, Australia. The events were held in conjunction with the NTRO Conference 2025. Under the capable leadership of Dr. Richard Yeo, Chief Operating Officer at the NTRO, the program brought together REAAA Council members, transport professionals, and industry leaders from across the Asia-Pacific region and beyond.

Group photo: 123rd REAAA Governing Council meeting, Port Melbourne, Australia

The day commenced with a series of Working Committee Meetings, including sessions of the Technical Working Committees, and the Hwang Award Committee. These sessions facilitated progress on ongoing initiatives, preparations for the awards presentation, and future projects.

This was followed by the Pre-Council Meeting, which set the stage for the main Council session.

Committee Deliberations and Governing Council Meeting

The 123rd REAAA Governing Council Meeting was held in the afternoon of 6th May 2025. Attendees included Council members and observers from Australia, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore, Taiwan, and Thailand. The meeting opened with welcoming remarks from the President and the Chair of the Australian Chapter, Dr. Richard Yeo. This was followed by introductions of council members. Key agenda items included confirmation of the Minutes of the previous meeting, financial reports, and reports from the Honorary Secretary-General and various working committees. Discussions focused on membership promotion, advertising, the upcoming 17th REAAA Conference in Korea, and nominations for the 18th Council term. Awards and fund committees provided updates on ongoing initiatives, while technical reports covered pavement technology; road safety; climate change, resilience, and emergency management; and youth engagement. The meeting concluded with a presentation on the host country's infrastructure and future projects .

The President, Dr. Sung Hwan Kim, reaffirmed his commitment to completing all initiatives before his term ends at the end of 2025. He emphasised the need for the Working Committees to provide timely updates, ensure effective execution, and submit final reports. In terms of the financial challenges, Dr. Kim

stressed the urgency of resolving outstanding membership fees by the end of June 2025 to sustain the association. The Council was urged to support REAAA's strategic goals and financial stability. Chapters were encouraged to recruit at least three new Institutional Members and expand the membership by targeting new countries, with outreach pairings suggested. A proposal to increase the annual Institutional Membership Fee from RM1,100 to RM 1,500 was introduced, pending approval. Support for the Advertisement Working Committee and leadership from the Technical Committee in knowledge sharing and e-publications were also highlighted. Dr. Kim expressed his hope for a successful and impactful end to the current term.

Dr. Sung Hwan Kim, President of REAAA, presiding over the 123rd REAAA Governing Council meeting

Dr. James Grenfell, the Chair of the Technical Committee, presented the first edition of the e-Journal, led by Dr. Marizwan, to the REAAA President as a symbol of the Working Committee's achievement.

Members attending the 123rd REAAA Governing Council meeting

The day ended with a Welcome Reception, which provided attendees with a warm and informal space to reconnect and build new professional relationships. Dr. Richard Yeo highlighting the significance of international collaboration and the role that REAAA plays in fostering this collaboration.

Dr. Kim then extended his greetings and appreciation to all the attendees. He emphasised the importance of cross-border knowledge sharing and expressed his enthusiasm for the upcoming REAAA activities.


REAAA President, Dr. Sung Hwan Kim and Vice President, Dr. Richard Yeo at the welcome reception

The event also featured a special recognition of Mr. Kieran Sharp for his outstanding lifetime commitment to REAAA, and the Australian Chapter. The award was presented by Dr. Kim after an introduction by Dr. Yeo. Kieran was the co-recipient of the inaugural Hwang Award for his services to REAAA in 2021. The evening concluded with socialising and networking, offering delegates a relaxed and convivial setting to connect.

The South Korean delegation invited everyone to attend the 17th REAAA Conference in Goyang in October.


Capturing the spirit of togetherness and appreciation at the farewell dinner
Members sharing warm moments and heartfelt farewells during the farewell dinner

Reports on the 27th Young Professionals and Engineers (YEP) Meeting and the 12th REAAA Business Forum are the subjects of separate articles in this edition of the Newsletter.

REAAA expresses its sincere gratitude to the NTRO, the REAAA Australian Chapter and all supporting organisations for their outstanding hospitality and contributions to the success of the events. The meetings not only strengthened professional ties but also reaffirmed REAAA's mission to drive excellence and innovation in the road and transport sector across the Asia-Pacific region.

Why Joining REAAA is Important: Key Benefits from the 123rd Governing Council Meeting

The 123rd REAAA Governing Council meeting clearly showed why being a member of REAAA is very valuable for professionals and organizations involved in road engineering.

First, REAAA is a strong platform for learning and sharing the latest ideas and best practices in road building, infrastructure strength, and sustainable transport. Members are given access to important, up-to-date knowledge through presentations and committee work, helping them improve their skills and to better manage projects at home.

Second, REAAA connects people from many countries, including senior officials, engineers, and experts. These connections go beyond simple networking – they lead to partnerships, teamwork, and shared solutions that help develop better roads and infrastructure across the region.

Third, REAAA is committed to growing and staying strong. By encouraging more members and finding new ways to raise funds, REAAA ensures it can keep offering relevant and useful events, training, and resources. This stability means members receive more valuable support and services.

Finally, REAAA is improving its digital tools, including the development of a new website and open online publications. This makes it easier for members to access reports, newsletters, and news at any time, and anywhere, helping everyone stay informed and connected.

In short, the 123rd Governing Council meeting demonstrated that REAAA is a powerful platform which helps members gain expert knowledge, build strong partnerships, grow professionally, and use modern technology. Joining REAAA means members receive all these benefits so they can stay ahead in the road engineering field and contribute to better infrastructure in the region.

12th REAAA Business Forum

The 12th REAAA Business Forum was held at the offices of the National Transport Research Organisation (NTRO) in Port Melbourne. It brought together industry leaders, researchers, and government representatives to examine the theme: 'Assessment and Performance of Asphalt Materials and Mixes'. Against the backdrop of intensifying climate impacts, particularly heavy rainfall and urban flooding, the Forum emphasized the critical role of advanced pavement engineering in creating more resilient and sustainable road networks.

Group photo: 12th REAAA Business Forum

The Forum featured a diverse range of technical presentations from across the region, covering topics such as Taiwan's roadmap for achieving net zero emissions through pavement innovation, the development of energy-saving and carbon-reducing asphalt materials, the use of accelerated loading and intelligent monitoring technologies to evaluate new pavement solutions, and Malaysian advancements in super fibre mixes to enhance asphalt performance and durability under challenging environmental conditions. The Forum concluded with a panel discussion involving informed asset management decision makers (including resilience and maintenance).

The following speakers participated in the Forum:

1. Dr. Suthakaran Sivagnanasuntharam (NTRO, Australia) – Pervious pavement systems for flooding resilience
2. Prof. Chang Jia-Ruey (National Ilan University, Taiwan) – The foresight and development of pavement engineering in Taiwan to achieve net zero by 2025
3. Mr. Peter Davcev (NTRO, Australia) – Use of recycled fibres in innovative pavement mixes
4. Mr. Tony Tang (King Ho Tai International Co., Taiwan) – Research and development on innovative energy-saving and carbon-reducing road materials: resin-added cold mix concrete pavement and resin-added cold mix reclaimed asphalt pavements
5. Dr. Richard Yeo (NTRO, Australia) – Use of ALF and IM technologies for the use, adoption and assessment of new and innovative asphalt materials and mixes
6. Mr. Abdul Hamid bin Othman (AHN VERTEX Sdn Bhd) – Super fibre mixes: pushing the limits.

The Business Forum reaffirmed REAAA's commitment to advancing innovation, climate readiness, and international collaboration in road engineering. With renewed purpose and shared knowledge, participants departed the event prepared to lead the charge toward more adaptive, high-performing, and future-proof road infrastructure across the Asia-Pacific region.

I emphasised that as the REAAA Business Forum Coordinator, we should prioritize infrastructure-related industries to strengthen Business to Business collaboration among member countries.

Prepared by Nonon Wardhani, REAAA Business Forum Coordinator

27th REAAA Young Engineers & Professionals (YEP) Meeting

On Monday 5th May 2025, young engineers and professionals from across the REAAA member countries gathered in Melbourne for the 27th REAAA YEP meeting. Hosted at the National Transport Research Organisation (NTRO), the event took place in conjunction with the 123rd REAAA Governing Council Meeting and the 2025 NTRO International Technical Conference. The meeting brought together the region's brightest minds to share ideas and shape the future of transportation infrastructure.

The session was kicked off by the YEP Chairman Ir Hamzah Hashim, followed by a lively ice-breaking segment that set a welcoming tone for the day. Some Council members also attended the meeting in support of the YEPs.

Ten YEPs representing Thailand, the Philippines, Japan, Korea, Indonesia, Singapore, Taiwan, Malaysia, Australia and New Zealand delivered updates on their achievements, challenges, and aspirations. The session reinforced the shared vision and diverse initiatives driving innovation across the REAAA network.

A dynamic presentation entitled 'The Transport Revolution' from the NTRO Senior Technology Leader, Ms. Georgia O'Connor, explored how cutting-edge technologies and policy shifts are transforming mobility. This keynote address inspired thoughtful exchanges around the role of engineers in adapting to evolving transport landscapes. NTRO is leading 'The Transport Revolution' by driving innovation in mobility infrastructure through the use of advanced technologies, international collaboration, and data-driven solutions. Central to their efforts is the priority on closing critical knowledge gaps to enhance safety, sustainability, productivity, and resilience across road, rail, air, and port systems. Their offerings range from intelligent pavement assessment vehicles to digital twins and policy support, all aimed at transforming transport for a cleaner, smarter, and more connected future.

Ir. Hamzah Hashim, Chairman of the YEP Committee, presiding over the 27th Young Engineers Professional (YEP) meeting (the meeting host, Ms Georgia O'Connor, is on Hamzah Hashim's right)

Three standout technical presentations followed:

- Korea: Smart traffic safety systems for underground expressways, by Dr. Dongju Ka (Korea Expressway Corporation)
- Japan: Expressway renovation projects in Japan, by Takashi Omura and Osamu Kitaguchi (Metropolitan Expressway Company Limited)
- Taiwan: Seismic design considerations for road bridges in Taiwan, by Chia Ren Liu (Moh and Associates).

These contributions not only demonstrated technical excellence but also highlighted each country's unique approaches to problem-solving in transport engineering.

The meeting concluded with a strategic discussion on 'YEP governance for the new term (2025–2029)'. Participants brainstormed ways to enhance coordination, outreach, and innovation within the network, laying the groundwork for a more dynamic future.

A group photo session capped off a day celebrating regional unity and the power of youthful collaboration in engineering. Connections were strengthened, ideas exchanged, and a collective vision reaffirmed: to design smarter, safer, and more resilient transport systems for tomorrow.

What's New on YEP?

The 'Newspaper Tower Challenge' was a new activity introduced during this meeting, spearheaded by the YEP members from Japan. The event was designed to foster international exchange and collaboration among the YEPs. Participants were grouped into four teams; they challenged themselves to build the tallest free-standing tower using only six sheets of newspaper and tape. This hands-on activity encouraged creative problem-solving, teamwork, and cross-cultural interaction.

We would like to thank the NTRO for their amazing facilitation of the YEP Meeting. We are having a great time undertaking YEP activities. See you at Goyang in October!!

Prepared by Ir. Hamzah bin Hashim, Chair of the YEP committee

REAAA Climate Change, Resilience and Disaster Management Working Committee: Summary of Recent Activities

Caroline Evans
Infrastructure Victoria, Australia.
Co-Chair, REAAA Climate Change, Resilience and Emergency Management Working Committee

David Rolland
Civil Engineering Consultant, Australia.
Co-Chair, REAAA Climate Change, Resilience and Emergency Management Working Committee

Introduction

The increased frequency and intensity of extreme weather events from climate change impacts pose significant threats to the resilience of road infrastructure. To address the challenges associated with these events, the REAAA Climate Change, Resilience and Disaster Management (CCRDM) Working Committee aims to address issues of concern to REAAA member countries in the areas of infrastructure resilience to climate change, and disaster management. It also aims to liaise with other associations across the REAAA member region and other parts of the world and develop ways that these challenges can be collectively addressed.

In May 2025, the CCRDM, co-chaired by Caroline Evans and David Rolland from Australia, held a meeting at the offices of the National Transport Research Organisation (NTRO) in Melbourne. The meeting was attended by representatives from Australia, Japan, Korea, New Zealand, Singapore, Taiwan and Thailand with both in-person and online participation.

This article provides an overview of the highlights of this meeting, latest activities and next steps.

Highlights of Committee Meeting

The REAAA CCRDM Working Committee is actively promoting collaboration between existing and new member countries. The meeting served as an opportunity to share knowledge on climate change, resilience and disaster management activities that are essential to the region.

The Committee has developed new ways to engage with its members, with each meeting including a round table of presentations and discussions to encourage discussion. It takes a collaborative approach across central government agencies, local or regional government, consultants and contractors to work closely together to achieve optimal community outcomes. Key areas of focus include identifying best practice treatments, addressing landslide risk using predictive tools, and communicating emergency management guidance.

The round table of presentations also included:

- Innovative work being undertaken in Thailand, including the application of nature-based solutions for resilient and sustainable slopes.
- Landslide prediction frameworks and the use of Artificial Intelligence in New Zealand.
- Adapting Victoria's infrastructure to climate change, undertaken by Infrastructure Victoria.
- Climate change and resilience developments in Tonga.
- Flood protection for low-lying infrastructure in Singapore, including measures to reduce the carbon footprint associated with construction materials.

The benefit of these roundtable discussions is that they provide a platform to highlight activities in REAAA member countries being used to improve the resilience of roads through adaptation solutions, best-practice learnings to recover from earthquakes, and effective ways to manage disasters.

REAAA Resilience iCHE2024, Thailand

In September 2024, the Department of Highways (DOH), Ministry of Transport, the Kingdom of Thailand, in collaboration with the Roads Association of Thailand (RATh), hosted the 5th International Conference on Highway Engineering 2024 (iCHE2024). The theme of the conference was 'Future-proofing roads for Asia and beyond'.

As part of this event, REAAA was invited to organize a session by the REAAA Climate Change, Resilience and Disaster Management (CCRDM) Working Committee. The session focused on increasing the resilience of roads and recovering from disasters. The session provided an overview of the key actions being undertaken by the REAAA CCRDM Technical Committee, and collaborative activities with other road associations such as PIARC. The session highlighted activities being used in REAAA member countries to improve the resilience of roads through adaptation solutions, best-practice learnings to recover from earthquakes, and effective ways to manage disasters.

A Technical Report has been developed which outlines the outcomes of this session and key issues discussed. This will be made available by REAAA in the forthcoming months.

Latest Activities

REAAA Newsletter – 2024-2

A series of articles were prepared by the REAAA CCRDM for publication in the 2024-2 REAAA Newsletter which had as its major theme 'Climate change impacts on road engineering and management'. These articles addressed three major issues: planning for resilience, designing for resilience, and the technology and tools available to address these issues.

Planning for resilience is essential to road organisations and operators. Successful forward planning to address the impacts of climate change is not only about responding to disruptive or emergency situations but also helping organisations to make appropriate investment decisions at the right time and in the right

place. Adapting to climate change plays a key role in reducing the exposure and vulnerability of road infrastructure assets to these events and helps to increase its resilience. Adaptive solutions do not have to be expensive or involve large rebuilding infrastructure projects. Four case studies from Australia, New Zealand and Japan were prepared by members of the committee for publication in the Newsletter.

In order to mitigate climate change and extreme weather risks, transportation agencies must adopt a comprehensive approach that incorporates climate change considerations into all stages of infrastructure planning, design, construction, and maintenance. Two case studies from Australia and Thailand were prepared which addressed the issue of designing for resilience.

The ability of transport networks to provide lifeline infrastructure is crucial to the distribution and continuous flow of the goods and services essential for human livelihoods, the functioning of society, and economic prosperity. Four case studies from Indonesia, New Zealand and Australia presented different tools and techniques that are being applied to help reduce the impacts of climate change on road infrastructure assets and to help organisations better plan for resilience.

International Workshop on Road Disaster Management, Japan

An International Workshop on 'Road Disaster Management: Enhancing Cooperation, Coordination and Diversity' was held in Osaka, Japan, on 27th May 2024. The Workshop was jointly organized by PIARC Technical Committee 1.5 (Disaster Management) and the Japan Road Association (JARA) in cooperation with the REAAA CCRDM, the Hanshin Expressway Group of companies, and the Hanshin Expressway Research Institute for Advanced Technology.

The aim of the workshop was to share case studies and exchange information on how PIARC member countries cope with extreme weather conditions. The event highlighted the importance of enhancing coordination and cooperation during a disaster response as well as the importance of inclusive disaster management, especially gender, inclusion and diversity. The workshop was attended by 160 participants on-site and 370 participants on-line.

The main topics discussed included:

- Good practices, in terms of coordination, in the road and road-related sectors and among various stakeholders. Presentations included 'Noto Peninsula disasters: Coordination and cooperation in management and lessons learned'.
- Different types of road closures, including reactive, preventative and proactive approaches that can be considered and implemented where needed.
- The use of rapid impact assessments to inform defensible decision-making and support the prioritization of resources to achieve prompt stabilization, reinstatement and the repair of infrastructure.
- The importance of gender inclusion and diversity in all stages of disaster management to achieve better outcomes for the community.
- Resilience building for road disaster management coordination and cooperation in different regions.

The workshop involved key speakers from the REAAA CCRDM from Australia, Japan, New Zealand and Thailand. The session on the 'Challenges in resilience building for road disaster management coordination and cooperation in different regions' is an example of successful collaborative efforts between PIARC and REAAA in joining together to share knowledge on these significant issues for road authorities, industry and the community. A PIARC report has been developed featuring the REAAA session and will be made available.

Next Steps

A fundamental objective of the REAAA CCRDM is to identify innovative practices being undertaken in the REAAA region, and to discuss and share this information via meetings, conferences and workshops. The Committee continues to seek opportunities to collaborate with other associations such as PIARC and continue to work together to find new ways to prepare, respond and recover from events and reduce their impacts in the future.

REAAA Climate Change, Resilience and Disaster Management Working Committee meeting on 6th May 2025, NTRO, Melbourne, Australia

NTRO Technical Conference – The Transport Revolution

The National Transport Research Organisation (NTRO) hosted the International Technical Conference in Melbourne from 7th – 9th May, 2025 It brought together global professionals to explore the transformative changes sweeping the transport sector under the theme: 'The Transport Revolution: Solutions Led by Innovation'. The aim of the conference was to address a range of critical topics shaping the future of mobility.

The event featured an array of expert guest speakers, industry exhibitors, and more than 200 delegates, creating a vibrant forum for discussing the future of transport in Australia, New Zealand, and worldwide. Keynote speakers included prominent figures such as Gonzalo Alcaraz, the Director-General of the International Road Federation, who spoke about the concepts reshaping global mobility, and Jo Evans, Chief Customer Officer at TRL, who shared the UK's experience with transport networks adapting to hybrid working conditions and climate events. The Hon. Gabrielle Williams MP, Victorian Minister for Transport Infrastructure, Michael Hopkins, CEO of the National Transport Commission, Dr. Sung-Hwan Kim, President of REAAA, and Dr. Jijun Wang, who discussed China's high-speed rail infrastructure, also delivered insightful addresses.

The conference program was diverse, with afternoon sessions focusing on topics such as asset management and the decarbonisation of transport infrastructure. Road safety was a significant point of discussion, with dedicated sessions exploring both general road safety and smarter, safer infrastructure solutions. The NTRO's David McTiernan highlighted the 'Road Safety Revolution', which is aiming to shift the paradigm around this critical issue, while Melanie Venter from the NTRO provided insights into Australia's current road safety context and potential learnings from other nations.

Further enriching the discussions were presentations on the role of Intelligent Transport Systems in India for safer outcomes (ITS India President Akhilesh Srivastava), and perspectives from ITS Australia CEO Susan Harris. Rochelle Leach from the NZTA discussed the need for consistent asset management information and AI applications in fault identification. Advanced data collection technologies were also showcased by the NTRO's Georgia O'Connor and Sam Afkar, who highlighted the impact of vehicles such as NTRO's iPAVE.

A notable highlight was the presentation by Sally Stannard, Director-General of Queensland's Department of Transport and Main Roads, which focused on the unique climatic challenges faced by Queensland's roads and the infrastructure pipeline for the Brisbane 2032 Olympic Games. Brook Hall, Executive Director of the Centre for Connected and Automated Transport, demonstrated practical applications of collaborative efforts in creating a national plan for connected and automated vehicles.

The final day of the conference included a workshop led by IRF Director-General Gonzalo Alcaraz on 'Enabling smart mobility – the role of physical and digital infrastructure', which examined the crucial role of infrastructure in supporting future transportation systems.

In conjunction with the conference, the NTRO also hosted the National Transport Research Awards and Gala Dinner, celebrating innovation and recognizing significant contributions to the transport industry across Australia and New Zealand.

Overall, the 2025 NTRO International Technical Conference served as a vital platform for knowledge sharing, collaboration, and the exploration of innovative solutions to the evolving challenges and opportunities within the transport sector. It underscored the commitment of global professionals to shaping a safer, more sustainable, and efficient future for mobility .

3rd Mino Best Project Award: Winners Decided!

Katsuji Hashiba
Chairman, Mino Best Project Award Committee

The REAAA Governing Council endorsed the winners of the 3rd Mino Best Project Award at its 123rd meeting held on 6th May 2025 in Melbourne, Australia.

The Award was established in 2016 to recognize outstanding road and/or bridge projects constructed in the Asian and Australasia region. The Mino Best Project Award Committee accepted nominations from July to December 2024. In February 2025, the Committee Members evaluated 15 candidate projects (8 for Category I and 7 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.

Following a review, the Committee decided to award prizes to the following projects; the REAAA Governing Council endorsed this decision.

Category I

- Fengyuan-Tanzi section, National Freeway No. 4 (Taiwan)
- Phnom Pen to Sihanoukvill Expressway, Cambodia (Malaysia).

Category II

- Sustainable road construction and maintenance plan for provincial highway (Taiwan)
- Construction of Bagan Datuk Bridge, District of Southwest Perak to Kampung Sejagop, District of Central Perak, Perak Darul Ridzauan (Malaysia).

The prizes will be given to the winners at the 17th REAAA Conference in October 2025 in Goyang, Korea.

Congratulations!

Category I

Fengyuan-Tanzi Section, National Freeway No. 4 (Taiwan)

Phnom Pen to Sihanoukvill Expressway, Cambodia (Malaysia)

Category II

Sustainable road construction and maintenance plan for Provincial Highway (Taiwan)

Bagan Datuk Bridge in the District of Southwest Perak to Kampung Sejagop in District of Central Perak, Perak Darul Ridzauan (Malaysia)

Hwang Award Update

The Hwang Award was established through the generous support of Honorary Member, Mr. Hwang Gwang-ung from Korea. It recognizes individuals who have made outstanding contributions to the road sector and promoted regional cooperation across Asia and Australasia.

Presented every four years at the REAAA Conference, the award honours those who have consistently advanced the Association's goals, taken on key leadership roles, and enhanced its international profile.

Following a series of meetings and requests for nominations, the Hwang Fund Committee selected Dato' Ir Dr. Dennis Ganendra, Chief Executive Officer, Minconsult Sdn. Bhd. (Malaysia), as the next recipient of the award for his exceptional contributions to REAAA, including over 26 years of dedicated service, leadership as Honorary Secretary-General (1998–2006), and efforts to strengthen the Association's global presence.

Dr. Dennis Ganendra has played a pivotal role in promoting the growth and influence of REAAA beyond his formal leadership positions. Drawing on his extensive international engineering and management experience in more than 28 countries, he has actively fostered collaboration between governments, industry leaders, and development agencies to advance the Association's mission. His initiatives have expanded REAAA's global network, encouraged knowledge sharing, and promoted sustainable, innovative practices in the road sector. Through his vision and commitment, he has contributed greatly to enhancing REAAA's relevance and visibility on the world stage.

The Award will be presented at the 17th REAAA Conference in Goyang, Korea, in October 2025. The awardee will receive a plaque and prize money of US$10,000.

Congratulations, Dennis!

Smart Highway Award

Richard Moh
Chairman, Award Selection Committee

The Smart Highway Award was established to recognize outstanding achievements in the development and application of smart highway management systems across the Asia and Australasian region. Its purpose is to foster the exchange of knowledge and experience in smart highway development, while encouraging cross-disciplinary integration and the application of smart technologies in road engineering in response to the rapid advancement of AI, 5G, Big Data, IoT, and other innovations.

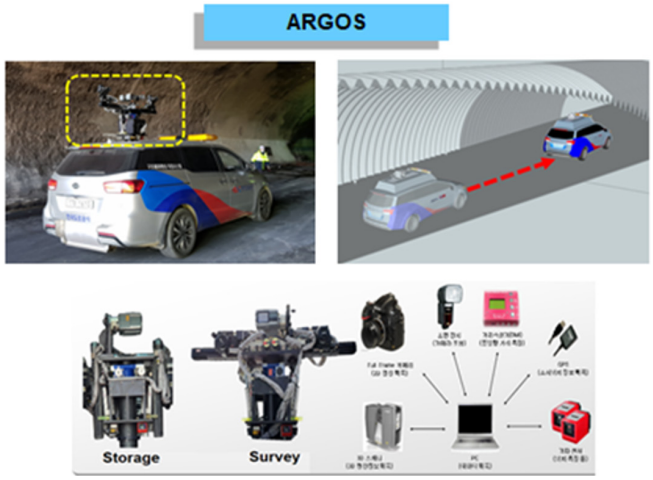
The first call for applications was launched in January 2024 and remained open until 31st July 2024. A total of 17 submissions from five member countries – Korea, Malaysia, Singapore, Thailand and Taiwan – were received. Following a thorough evaluation, the Award Selection Committee identified the winning project in March 2025, and the recommendation was subsequently endorsed at the 123rd REAAA Governing Council Meeting held in Melbourne on 6th May 2025.

The winner of the 2025 Smart Highway Award is the Korea Expressway Corporation for its project, Automated Robot for Structural Safety Management. The award will be formally presented on 31st October 2025 during the closing ceremony of the 17th REAAA Conference in Goyang, Korea.

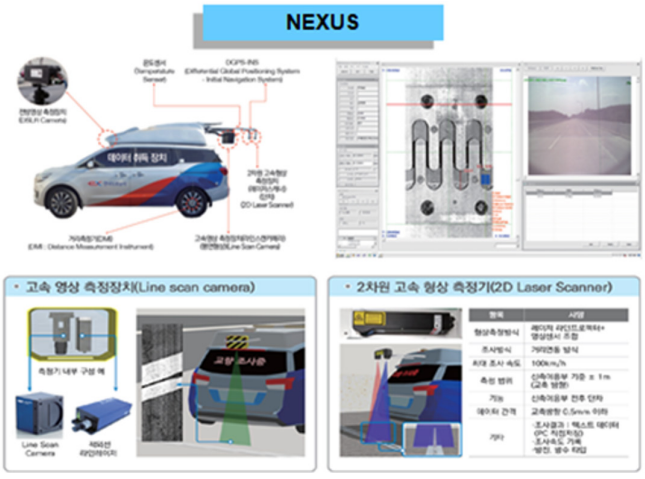
The REAAA extends its sincere appreciation to all participants in the inaugural Smart Highway Award. Each submission was of outstanding quality and collectively showcased the industry's progress and ongoing innovations. In recognition of these contributions, a complete list of project submissions is provided.

The Smart Highway Award is sponsored by the China Road Federation and funded by the Far Eastern Electronic Toll Collection Co. The Korea Expressway Corporation, as the winner, will receive the award trophy and prize money of USD 20,000.

Winning Project: Automated Robot for Structural Safety Management



ARGOS System Configuration



NEXUS System Configuration

Smart Highway Award 2025: Participants

No.	Member Country	Project Name
1	Korea	Development and operation of digital twin for a cable-supported bridge
2		Development of advanced digitalized smart pavement analysis platform
3		Safety and innovation: winds, cable-free jet fan
4		Automated robot for structural safety management
5		Expressway hazard prediction: 'Hi-alarmer'
6		Smart luminaires reflecting weather and traffic conditions
7		A study of road network performance evaluation methodology using mobility big data analysis
8		Smart slope management using drone and IoT technology
9	Malaysia	Prolintas Smart Surveillance System – S3
10		Prolintas data sense
11		Setiawangsa–Pantai Expressway (SPE) – DUKE Phase 3/ Duta-Ulu Kelang Expressway (DUKE)

No.	Member Country	Project Name
12	Singapore	Upgrading of short tunnel integrated traffic and plant management system
13	Thailand	The development of an innovative toll collection system using automatic license plate recognition (ALPR) and automatic vehicle identification (AVI) on motorways in Thailand
14	Taiwan	The smart heavy vehicle management system in Taiwan's national freeway system
15		Express highway construction information management system
16		5G smart traffic service project for Yunlin–Chiayi region
17		Integrated applications of AI technology and smart construction site management

Katahira Conference Award Update

The Katahira Award was established in 1991 in memory of the late Dr. Nobutaka Katahira, who served as REAAA President during the 5th Council term (1983–1986). The award aims to encourage young engineers to contribute to the advancement of science and technology in road development and related fields. It is presented to outstanding papers submitted for presentation at REAAA Conferences.

For the 17th REAAA Conference in Goyang, Korea, eligible authors were invited to nominate their papers for the prestigious award. The winners will receive a certificate and a cash prize, to be presented during the Conference.

The selection process is currently underway, and the results will be officially announced at the 17th REAAA Conference in Goyang. We look forward to recognizing the outstanding contributions of this year's awardees.

Special Lifetime Contribution Award

At the recent REAAA Governing Council meeting in Melbourne, the REAAA Australian Chapter bestowed a Special Lifetime Contribution Award to Kieran Sharp for his services to the Chapter over the last 40 years. Kieran was the co-recipient of the inaugural Hwang Award for his services to REAAA in 2021.

Dr. Jaime Pacanan, Former REAP President

Dr. Jaime Pacanan, Former REAP President

We are deeply saddened to announce the passing of Dr. Jaime Abarsoza Pacanan, former President of REAAA and a long-serving Council Member. He passed away in May 2025 at the age of 75.

Dr. Pacanan was a respected civil engineer, former Undersecretary of the DPWH, and a steadfast advocate for regional cooperation in transportation and infrastructure development. His leadership, professionalism, and dedication to the advancement of civil engineering in the Asia-Pacific region leave a lasting legacy.

A full tribute will be published in the next issue of the REAAA Newsletter.

Calendar of Events

The programme is updated according to the decisions taken.

Date	Event	Place	Domain	Type
Oct 26, 2025	Meeting of the PIARC National Committees	Korea International Exhibition & Convention Center 217-60, Kintex-ro, Ilsanseo-gu, Goyang-si, Gyeonggi-do, South Korea	CNAT	PIARC Meetings
Oct 27-28, 2025	Council Meeting		CGEN	PIARC Meetings
Oct 26-28, 2025	PIARC Meeting of National Committee		Meeting	PIARC
Oct 28-31, 2025	・124th REAAA Council Meeting ・13th REAAA Business Forum ・28th YEP Meeting ・13th HORA Meeting ・17th REAAA Conference ・17th REAAA General Meeting ・125th REAAA Council Meeting		Conference & Exhibition	REAAA
Oct28-30, 2025	6th IRF Asia-Pacific Regional Congress		Congress	IRF
Nov 12-14, 2025	International Seminar "Convergence of New Technologies for Road Network Operations, ITS and Connected cooperative Mobility"	Tunis (Tunisia)	Road Network Operations TC 2.4	PIARC Seminars

Date	Event	Place	Domain	Type
Dec 9-12, 2025	IRF Global R2T Conference & Exhibition	The Westin Long Beach 333 East Ocean Boulevard, Long Beach, Los Angeles, CA, United States	Conferenc & Exhibition	IRF
Mar 10-13, 2026	17th World Winter Service and Road Resilience Congress	Chambéry (France)	Winter Service Road Resilience Decarbonization	PIARC Congresses
Apr 23-24, 2026	· 126th REAAA Council Meeting · 29th YEP Meeting · 14th REAAA Business Forum	Taipei, Taiwan	Meeting	REAAA
Sep-Oct 2026	· 127th REAAA Council Meeting · 30th YEP Meeting · 15th REAAA Business Forum	TBC	Meeting	REAAA
Sep 30-Oct 02, 2026	3rd PIARC International Conference on Road Tunnel Operations and Safety	Cracow (Poland)	Road Safety Road Tunnel Operations	PIARC Seminars
Mar-May 2027	· 128th REAAA Council Meeting · 31st YEP Meeting · 16th REAAA Business Forum	TBC	Meeting	REAAA
Sep-Oct 2027	· 129th REAAA Council Meeting · 32nd YEP Meeting · 17th REAAA Business Forum	TBC	Meeting	REAAA

Date	Event	Place	Domain	Type
Oct 04-08, 2027	XXVIIIth World Road Congress	Vancouver (Canada)	Congress	PIARC Congresses
Mar-May 2028	· 130th REAAA Council Meeting · 32nd YEP Meeting · 18th REAAA Business Forum	TBC	Meeting	REAAA
Sep-Oct 2028	· 131st REAAA Council Meeting · 33rd YEP Meeting · 19th REAAA Business Forum	TBC	Meeting	REAAA
Mar-May 2029	· 132nd REAAA Council Meeting · 34th YEP Meeting · 20th REAAA Business Forum	TBC	Meeting	REAAA
Sep-Oct 2029	· 133rd REAAA Council Meeting · 21st REAAA Business Forum · 35th YEP Meeting · 14th HORA Meeting · 18th REAAA Conference · 18th REAAA General Meeting · 134th REAAA Council Meeting	Taiwan	Conference & Exhibition	REAAA

REAAA WELCOMES NEW MEMBERS

The membership of REAAA as of 7th April 2025 was 1221. The REAAA Council and Chapters have approved the following 71 new members for the period between 19th July 2024 to 7th April 2025.

Institutional	*4*
Life	*4*
Ordinary	*47*
Ordinary (Reinstate)	*16*

The list of new members approved at the 123rd REAAA Council Meeting in Port Melbourne, Australia on 6th May 2025 is as follows:

List of newly elected members

Institutional Members

1.	Lebuhraya Duke Fasa 3 Sdn. Bhd.	I.0402 Malaysia
2.	PT. Hilmy Anugerah	I.0403 Indonesia
3.	Taiwan Society for Circular Economy	I.0404 Taiwan
4.	Quek & Quek Civil Engineering Pte Ltd	I.0405 Singapore

Ordinary Members

1.	Dr. Jaw Chang-Laiw	O.4003 Taiwan
2.	Joe Davylyn Anak Nyuin	O.4004 Malaysia
3.	Liew Tze Yean	O.4005 Malaysia
4.	Evelyn Mallari Brutas	O.4006 Philippines
5.	Hanford Cheung	O.4007 New Zealand
6.	Gemma Mathieson	O.4008 New Zealand
7.	Marlon Cabalong	O.4009 New Zealand
8.	Matthew Williams	O.4010 New Zealand

Ordinary Members

9.	Matthew Avery	O.4011 New Zealand
10.	Murray Keast	O.4012 New Zealand
11.	Russell Pearson	O.4013 New Zealand
12.	Martin Taylor	O.4014 New Zealand
13.	Nor Aznita binti Yusof	O.4015 Malaysia
14.	Willon Paul Nanak	O.4016 Malaysia
15.	Dato' Zull Amran bin Muhamad	O.4017 Malaysia
16.	Datuk Ir Ismail bin Abd Rahman	O.4018 Malaysia
17.	Mohammad Rafnie Arif bin Bunny Linoby	O.4019 Malaysia
18.	Syamimi Nadira Binti Mohd Nor	O.4020 Malaysia
19.	Siti Nurbaya Ismail	O.4021 Malaysia
20.	Endy Raymond	O.4022 Malaysia
21.	Azwan Ezzany bin Azmi	O.4023 Malaysia
22.	Ir. Eliyani Yazreen binti A.Ran	O.4024 Malaysia
23.	Norhafizal bin Ab Shukor	O.4025 Malaysia
24.	Siti Norul Fateha binti Zakaria	O.4026 Malaysia
25.	Mohamed Amin bin Hussin	O.4027 Malaysia
26.	Nadia binti Mustafa	O.4028 Malaysia
27.	Muhammad Nur Shahir bin Mokhtar	O.4029 Malaysia
28.	Siti Alia Soleha binti Sofian	O.4030 Malaysia
29.	Azizul Afandi bin Azizul Akmal	O.4031 Malaysia
30.	Ir. Ts. Muhamad Syakir Bin Zulkafli	O.4032 Malaysia
31.	Ir. Faisol Hussain	O.4033 Malaysia

Ordinary Members

32.	Izyan Nazihah binti Nor Azman	O.4034 Malaysia
33.	Nor Azniza binti Ishak	O.4035 Malaysia
34.	Keijiro Tsurukawa	O.4036 Japan
35.	SHIBATA Yuki	O.4037 Japan
36.	Hiromasa Kobayashi	O.4038 Japan
37.	Tsubasa KAINO	O.4039 Japan
38.	Andreas Hudisasmoko, S.T, M.T	O.4040 Indonesia
39.	Fann Tan Kai Ling	O.4041 Singapore
40.	Dr. Thanasak Wongtanakitcharoen	O.4042 Thailand
41.	Pongsakorn Chullabodhi	O.4043 Thailand
42.	Dr. Suthakaran Sivagnanasuntharam	O.4044 Australia
43.	Naoyuki KAWAMOTO	O.4045 Japan
44.	Kiyohito KOBAYASHI	O.4046 Japan
45.	Masato WATANABE	O.4047 Japan
46.	Mitsuru ISHI	O.4048 Japan
47.	Rosemary Interrigi	O.4049 Australia

Ordinary Members (Reinstate)

1.	Zulhairi bin Hasan (Ir)	O.2835 Malaysia
2.	Dirayah Binti Dollah	O.3613 Malaysia
3.	Muhd Yusrizan bin Mohd Yusof	O.3623 Malaysia
4.	Mohd Nasharuddin Hashim	O.3264 Malaysia
5.	Nur Khairunnisa Bakri	O.3558 Malaysia

Ordinary Members (Reinstate)

6.	Ir Seow Wui Giap	O.3651 Malaysia
7.	Dato' Ng Shin Chie	O.3704 Malaysia
8.	Mohd Khizam Md Ali	O.3605 Malaysia
9.	Syed Tajul Malik Bin Syed Tajul Arif	O.3360 Malaysia
10.	Katherine Chuo Sheau Ning	O.3640 Malaysia
11.	Mohd Hafiz Izran bin Che Rosli	O.3715 Malaysia
12.	Yong Wai Keong	O.3603 Malaysia
13.	Mohd Khairul Idham Mohd Satar	O.3555 Malaysia
14.	Narayanan Raju	O.3639 Malaysia
15.	Amirul Rafik Anwar Taufeek	O.3762 Malaysia
16.	Datuk Wira Ir. Roslan bin Ismail	O.2897 Malaysia

Life Members

1.	Dr. Chung, Bong-Jo	L.0441 Korea
2.	Huang, Li-Ling	L.0442 Taiwan
3.	Coriolis Geostro Dimagiba Baldonado	L.0443 Philippines
4.	John Nathaniel Leoncio	L.0444 Philippines