



# *Land Transport Excellence Awards 2022*

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# AWARDS

## Infrastructure and Development Category

### **Best Design Land Transport Integration**

*Recognises and honours the most outstanding organisation(s) that has exemplified design excellence in Land Transport Integration with adjacent developments.*

### **Best Design Rail/Road Infrastructure - Project Partner**

*Recognises and honours the most outstanding organisation(s) that has exemplified design excellence in Rail/Road infrastructure.*

### **Best Managed Electrical & Mechanical Systems - Project Partner**

*Recognises and honours the most outstanding organisation(s) that has excelled in the provision of Electrical & Mechanical systems for land transport infrastructure.*

### **Best Managed Rail/Road Infrastructure - Project Partner**

*Recognises and honours the most outstanding organisation(s) that has excelled in the development of Rail/Road Infrastructure and delivered a quality product.*





Award Finalist - Infrastructure & Development

**Best Design Land Transport Integration**

**DP ARCHITECTS PTE LTD & ARUP SINGAPORE PTE LTD**

<b>Award Title</b>	<b>: Best Design Land Transport Integration</b>
<b>Award Criteria</b>	<b>: Recognises and honours the most outstanding organisation(s) that has exemplified design excellence in Land Transport Integration with adjacent developments.</b>
<b>Organisation</b>	<b>: DP Architects Pte Ltd ARUP Singapore Pte Ltd</b>
<b>Project</b>	<b>: Paya Lebar Quarter</b>

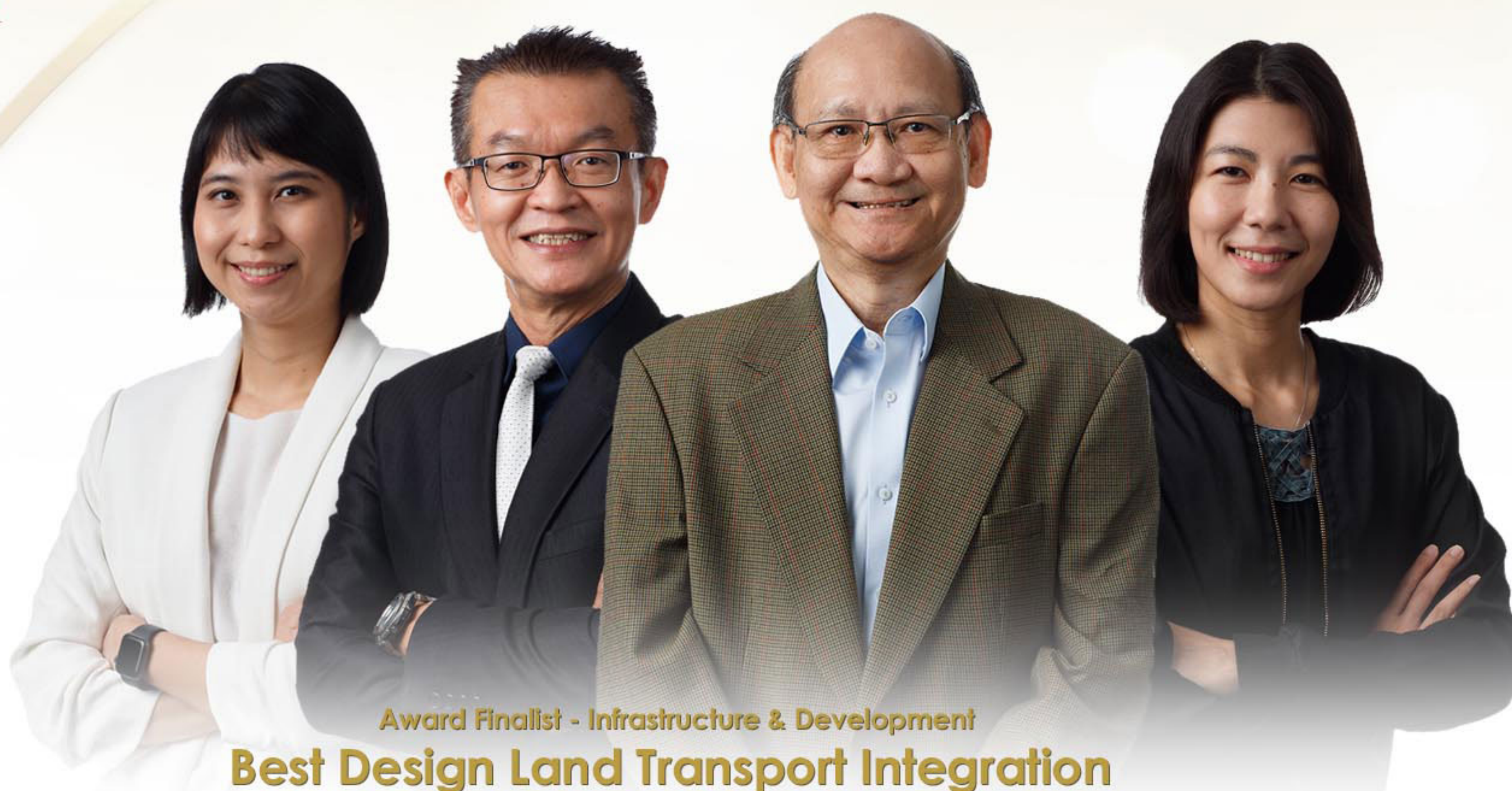
Completed in 2019, Paya Lebar Quarter (PLQ) is a mixed-use development comprising of three office towers, a retail mall and a residential development that is located next to the Paya Lebar MRT Interchange station. Spread over four hectares, PLQ sits in the heart of the Paya Lebar Central nodal business hub. An at-grade public promenade with an outdoor covered space that can host year-round community events creates a sustainable and vibrant urban district.

To ensure seamless connectivity, the design team collaborated with numerous stakeholders and performed comprehensive pedestrian simulations and analysis on the interactions between PLQ and the East-West Line and Circle Line Paya Lebar MRT stations to ensure the smooth and seamless flow of pedestrians. PLQ also provides covered access between the MRT stations and the surrounding retail and lifestyle amenities. This space known as the Urban Room has greatly improved commuters' accessibility to the otherwise disparate development.

PLQ has won numerous industry accolades such as the BCA Green Mark Award 2017 (Platinum) Residential and Non-residential, PropertyGuru Asia Property Awards 2017 and EdgeProp Singapore Excellence Awards 2019

In recognition of the excellent integration and seamless connectivity with the various transport facilities, DP Architects Pte Ltd and Arup Singapore Pte Ltd have been nominated for the 2022 Land Transport Excellence Award's "Best Design Land Transport Integration" award.





Award Finalist - Infrastructure & Development

**Best Design Land Transport Integration**

**SD ARCHITECTS & ASSOCIATES PTE LTD  
FONG CONSULT PTE LTD**

<b>Award Title</b>	<b>: Best Design Land Transport Integration</b>
<b>Award Criteria</b>	<b>: Recognises and honours the most outstanding organisation(s) that has exemplified design excellence in Land Transport Integration with adjacent developments.</b>
<b>Organisation</b>	<b>: SD Architects &amp; Associates Pte Ltd Fong Consult Pte Ltd</b>
<b>Project</b>	<b>: Proposed Additions and Alterations To Existing Woodlands Regional Interchange and Woodlands MRT Station</b>

Completed and opened in mid-2021, the Woodlands Integrated Transport Hub (ITH) is Singapore's eleventh and largest integrated transport hub which provides commuters ease of transferability between the North-South Line (NSL) and Thomson-East Coast Line (TEL) of Woodlands Station.

Built to enhance the seamless transfers with the two stations, the Woodlands ITH features a wide array of community driven facilities. The wayfinding features, such as engraving the bus numbers' braille on queue rails and directional tactiles within the concourse, were designed to aid visually challenged commuters to navigate independently. These are amongst other distinctive features such as colour coded signages for immediate identification of space, and a barrier free priority zone to allow priority commuters to rest comfortably whilst waiting for their bus.

Considerations for ease of services maintenance and periodic structure inspection were also showcased through the adoption of semi-opened concourse ceiling as well as easy cleaning and longer-lasting internal and external façade materials.

Innovative safety features include the provision of a reverse warning system and blinker lights at the bus parking bays to alert bus captains to reduce the risk of collision with other buses in the blind spots. The existing covered linkway was also replaced with a high covered linkway, with additional provisions of proper steps and railings to enhance safety and accessibility.

In recognition of their clever and thoughtful design, SD Architects & Associates Pte Ltd and Fong Consult Pte Ltd have been nominated for the 2022 Land Transport Excellence Award's "Best Design Land Transport Integration" award.





Award Finalist - Infrastructure & Development

**Best Design Rail/ Road Infrastructure – Project Partner**

**AEDAS PTE LTD & ARUP SINGAPORE PTE LTD**

<b>Award Title</b>	: Best Design Rail/ Road Infrastructure – Project Partner
<b>Award Criteria</b>	: Recognises and honours the most outstanding organisation(s) that has exemplified design excellence in Rail/Road infrastructure.
<b>Organisation</b>	: Aedas Pte Ltd ARUP Singapore Pte Ltd
<b>Project</b>	: Contract T203 – Construction of Woodlands Station and Cut and Cover Tunnels for Thomson-East Coast Line

Completed in 2019, Thomson-East Coast Line (TEL) Woodlands Station is a two-level underground station with crossover tunnels interchanging with the existing above-ground North-South Line (NSL) Woodlands Station via an elevated transfer link, and the Woodlands Bus Interchange through an underground link. It is also able to be transformed into one of the largest Civil Defence shelters in Singapore.

The rail alignment was optimised to bring the new TEL station closer to the existing NSL station, which reduced the transfer distance and strengthened the intermodal transport network of Woodlands. The TEL station was also designed to allow for a future building development to be constructed directly above the station. Besides from optimizing the limited land, it also caters for a more seamless integration with direct and efficient linkage between the station and adjacent developments.

In addition to pedestrian walkways and underground pedestrian links which are designed to enhance connectivity, the conversion of an incidental space into a pedestrian link flanked by commercial spaces enlivens the station journey and experience as well as reinforce the interchange station as a key transport node at the Woodlands Regional Centre.

TEL Woodlands Station has won design accolades such as the BCA Design Engineering and Safety Award 2020-Excellence (Civil Engineering Category) and the ACES Design Excellence Awards 2020-Excellence (C&S).

In recognition of the excellent design work and integration with the existing transport hub, Aedas Pte Ltd and Arup Singapore Pte Ltd have been nominated for the 2022 Land Transport Excellence Award's "Best Design Rail/ Road Infrastructure – Project Partner" award.





Award Finalist - Infrastructure & Development

**Best Design Rail / Road Infrastructure – Project Partner**

**AEDAS PTE LTD & T.Y. LIN INTERNATIONAL PTE LTD**

<b>Award Title</b>	: Best Design Rail / Road Infrastructure – Project Partner
<b>Award Criteria</b>	: Recognises and honours the most outstanding organisation(s) that has exemplified design excellence in Rail/Road infrastructure.
<b>Organisation</b>	: Aedas Pte Ltd T.Y. Lin International Pte Ltd
<b>Project</b>	: Contract 2101 – Architectural and Engineering Consultancy Services for the Proposed Thomson-East Coast Line (TEL) - Mandai Depot

The Thomson-East Coast Line Mandai Depot is an integrated rail and bus depot. Spread over 32-hectares, Mandai Depot consists of an Operation Control Centre, a Depot Control Centre, a stabling yard with a capacity for 90 four-car trains, administration buildings, storage warehouses, workshops and ancillary facilities for the safe functioning and operation of the TEL train fleet vehicle and associated railway systems. The bus depot directly above the rail depot building provides parking and maintenance facilities for 550 buses.

To achieve the most effective operation of the depots and associated facilities, the site configuration was optimized with thorough considerations of fire safety, workflow, accessibility, security, material transport routes and efficient land-use. Multiple out of the box design solutions were adopted for both temporary and permanent structures to enhance the project buildability and reduce on overall project time and cost. Furthermore, the Mandai Depot development incorporated numerous sustainable strategies to achieve the most efficient energy performance. The architectural materials and colour concept honored the unique natural surroundings of Mandai.

In recognition of their excellent public transport facilities design, AEDAS Pte Ltd and T.Y. Lin International Pte Ltd have been nominated for the 2022 Land Transport Excellence Award's "Best Design Rail / Road Infrastructure – Project Partner" award.





Award Finalist - Infrastructure & Development

**Best Design Rail / Road Infrastructure – Project Partner**

**SAA ARCHITECTS PTE LTD & TRITECH CONSULTANTS PTE LTD**

<b>Award Title</b>	<b>: Best Design Rail / Road Infrastructure – Project Partner</b>
<b>Award Criteria</b>	<b>: Recognises and honours the most outstanding organisation(s) that has exemplified design excellence in Rail/Road infrastructure.</b>
<b>Organisation</b>	<b>: SAA Architects Pte Ltd Tritech Consultants Pte Ltd</b>
<b>Project</b>	<b>: Contract T209 – Design and Construction of Lentor Station and Tunnels for Thomson-East Coast Line</b>

Completed and opened as part of the Thomson-East Coast Line Phase 2 in 2021, Lentor Station is a two-level underground MRT station with 5 station entrances providing connectivity to the surrounding existing residential plots and future development.

Bus stops located along Lentor Drive are all in close proximity to the station entrances with sheltered linkways to provide seamless connectivity. Taxi and pick-up drop-off locations are deconflicted with traffic movement at the bus stops through careful and planning and design.

In support of LTA's Walk Cycle Ride endeavor, 300 numbers of bicycle parking lots have been provided around all the entrances to promote active mobility lifestyle.

The aesthetically pleasing station entrances are fitted with glass and vertical fins at facades facing the road, and concrete walls with granite cladding, which serves as privacy screens, facing residential units. Through careful design of cross ventilation and maximising natural day lighting, the passive design approach at the entrances helps to reduce energy consumption.

In recognition of their thoughtful and clever design, SAA Architects Pte Ltd and Tritech Consultants Pte Ltd have been nominated for the 2022 Land Transport Excellence Award's "Best Design Rail/Road Infrastructure – Project Partner" award.





Award Finalist - Infrastructure & Development

**Best Managed E&M Systems - Project Partner**

**HOLLYSYS (ASIA PACIFIC) PTE LTD**

**Award Title** : Best Managed E&M Systems - Project Partner

**Award Criteria** : Demonstrated excellent project management ability and leadership to drive the project to completion on time safely and through adopting innovative and productive methods.

**Organisation** : HollySys (Asia Pacific) Pte Ltd

**Project** : Contract T255 – Integrated Supervisory Control System for Thomson-East Coast Line

HollySys (Asia Pacific) was awarded Contract T255 for the design, manufacturing, installation, testing and commissioning of the Integrated Supervisory Control System for the Thomson-East Coast Line.

HollySys developed a remote automatic deployment function for software and database updates, allowing simultaneous update of software in up to fifteen stations to be performed remotely from the Operation Control Centre with a simple click on the human machine interface. This allows the optimization of the limited engineering hours to perform functional checks with interfacing systems, ensuring the software updates to be rigorously tested before the commencement of revenue service the following day.

HollySys also developed an automated database configuration tool to convert design documents into a format that can be used by their software for database production, thereby improving productivity and accuracy.

In recognition of their excellent performance, HollySys (Asia Pacific) has been nominated for the 2022 Land Transport Excellence Award's "Best Managed E&M Systems - Project Partner" award.





Award Finalist - Infrastructure & Development

**Best Managed E&M Systems - Project Partner**

**MEIDEN SINGAPORE PTE LTD**

**Award Title** : Best Managed E&M Systems - Project Partner

**Award Criteria** : Demonstrated excellent project management ability and leadership to drive the project to completion on time safely and through adopting innovative and productive methods.

**Organisation** : Meiden Singapore Pte Ltd

**Project** : Contract T253 – Power Supply System for Thomson-East Coast Line

Meiden Singapore Pte Ltd was awarded Contract T253 for the required design, manufacturing, installation, testing and commissioning of the Power Supply System for the Thomson-East Coast Line (TEL) Stages 1, 2 and 3.

One of the key challenges faced during the project was the delivery of heavy and bulky equipment to the plant rooms within the underground station. Due to the complexity of the underground stations, Meiden Singapore Pte Ltd worked closely with all the interfacing civil contractors to identify temporary construction openings and streamline the delivery route, completing the delivery safely while reducing the risk of damage to their equipment.

Meiden Singapore Pte Ltd utilized virtual reality to conduct health and safety trainings for site personnel. They also executed the testing for the Emergency Traction Tripping System using an emulator, enabling the concurrent testing and commissioning activities of TEL Stage 2 to proceed while TEL Stage 1 was in revenue service.

In recognition of their excellent performance, Meiden Singapore Pte Ltd has been nominated for the 2022 Land Transport Excellence Award's "Best Managed E&M Systems - Project Partner" award.





Award Finalist - Infrastructure & Development

**Best Managed E&M Systems - Project Partner**

**ST ENGINEERING**

**Award Title** : Best Managed E&M Systems - Project Partner

**Award Criteria** : Demonstrated excellent project management ability and leadership to drive the project to completion on time safely and through adopting innovative and productive methods.

**Organisation** : ST Engineering

**Project** : Contract T260 – Communications System for Thomson-East Coast Line

ST Engineering was awarded Contract T260 for the designing, manufacturing, installation, testing and commissioning of the Communications System for the Thomson-East Coast Line.

The project had a multitude of critical project milestones, that was compounded with numerous interfaces with multiple contractors, and line-wide distribution of communications equipment. Given the criticality of close control and monitoring of project activities, ST Engineering developed a cloud-based progress tracking tool to align stakeholders on the project progress in real time. This enabled problems that were encountered along the way to be promptly resolved to achieve the various project milestones.

The Communications System was designed with ease of maintainability and expansion taking into consideration the importance of ensuring system reliability and avoiding disruptions to the operations of the line. For example, the Video Surveillance System cameras in the stations were designed into integrated camera housings, holding multiple cameras, which allowed for easier installation and maintenance.

In recognition of their excellent performance, ST Engineering has been nominated for the 2022 Land Transport Excellence Award's "Best Managed E&M Systems - Project Partner" award.





Award Finalist - Infrastructure & Development

**Best Managed E&M Systems - Project Partner**

**THALES SOLUTIONS ASIA**

**Award Title** : Best Managed E&M Systems - Project Partner

**Award Criteria** : Demonstrated excellent project management ability and leadership to drive the project to completion on time safely and through adopting innovative and productive methods

**Organisation** : Thales Solutions Asia

**Project** : Contract C152C – Signalling system for NSEW Lines A&A Works and 4-in-1 Depot for EW Line

Thales Solutions Asia was awarded Contract C152C for the Signalling System for North-South-East-West Lines (NSEWL) Addition and Alteration (A&A) and 4-in-1 Depot for East-West Line.

During the installation of noise barriers throughout existing MRT system, Thales had to relocate existing radio access points and signal lights for the Communication Based Train Control (CBTC) System during engineering hours without impacting the revenue service the next day. The challenging works with the shortage of workers during the pandemic were completed smoothly with the involvement of Thales Engineers by rigorous pre-roll out planning and testing to first ensure that the system design and software due to the relocation was fully compatible with the existing NSEWL CBTC system.

In recognition of their technical expertise, precise planning and close coordination with the operator and the system-wide contractors, Thales Solutions Asia has been nominated for the 2022 Land Transport Excellence Award's "Best Managed E&M Systems - Project Partner" award.





Award Finalist - Infrastructure & Development

**Best Managed Rail / Road Infrastructure – Project Partner**

**GS ENGINEERING & CONSTRUCTION**

<b>Award Title</b>	: Best Managed Rail / Road Infrastructure – Project Partner
<b>Award Criteria</b>	: Recognises and honours the most outstanding organisation(s) that has excelled in the development of Rail/Road Infrastructure and delivered a quality product.
<b>Organisation</b>	: GS Engineering & Construction
<b>Project</b>	: Construction of Woodlands Interchange Station and Tunnels for Thomson – East Coast Line

Contract T203 was awarded to GS Engineering & Construction (GS E&C) for the construction of the Woodlands Interchange Station, cut & cover tunnels for Thomson – East Coast Line, addition & alteration works to the existing North – South Line Woodlands Station (NS9) and Woodlands Bus Interchange.

One of the major challenges faced during the construction was the extensive utility diversions which hampered the progress of piling works. To overcome this, GS E&C planned and implemented additional stages of traffic diversions and deployed more machinery and workers to create more working spaces and maximise the concurrent works that could be carried out. This enabled the construction works to progress and complete in time.

A new transfer link bridge had to be constructed between the existing MRT viaducts to connect between the existing NSL Woodlands Station which is above ground and the new underground TEL Woodlands Station. To minimize disruptions during the erection of this link bridge, GS E&C prefabricated the link bridge trusses offsite before transporting and installing the entire bridge in one night using self-propelled modular trailers. This innovative construction method allowed the works to be carried out safely without affecting the MRT operations.

In recognition of their good construction planning and execution, GS E&C has been nominated for the 2022 Land Transport Excellence Award's "Best Managed Rail/Road Infrastructure – Project Partner" award.





Award Finalist - Infrastructure & Development

**Best Managed Rail / Road Infrastructure - Project Partner**

**HWA SENG BUILDER PTE LTD**

- Award Title** : Best Managed Rail / Road Infrastructure - Project Partner
- Award Criteria** : Recognises and honours the most outstanding organisation(s) that has excelled in the development of Rail/Road Infrastructure and delivered a quality product.
- Organisation** : Hwa Seng Builder Pte Ltd
- Project** : Contract ER519A – New Road between Lorong Halus & Pasir Ris Industrial Drive 1 & Expansion of KPE/TPE Interchange

The completed two-phase expansion of the Kallang - Paya Lebar Expressway (KPE) / Tampines Expressway (TPE) road interchange serves existing and new developments in Punggol Town as well as improves connectivity between KPE and TPE with Punggol Central, Pasir Ris Industrial Drive 1 and Lorong Halus. Since the progressive opening from 2018, traffic conditions have improved along the TPE between Punggol Way and KPE, and the existing access points of Punggol town through Punggol Road and Punggol East.

To overcome the challenges of constructing new vehicular structures and roadway over the existing Sungei Serangoon, expressways and a former landfill, Hwa Seng Builders leveraged extensively on Building Information Modelling and Virtual Design Construction to plan and execute the construction works. By first simulating the site constraints and constructing a virtual twin, safety concerns and construction inefficiencies were identified, thus allowing the construction methodologies to be finetuned for the actual construction. The digitalisation efforts also facilitated the substantial adoption of prefabrication for key viaduct/bridge superstructure elements such as column and beams which led to increased productivity, reduced manpower at site and improved overall safety for the project.

In view that the construction works were adjacent to Paya Lebar Airbase, Hwa Seng Builder put in extensive efforts in managing the construction works to ensure that the safety and operations of the Airbase were not affected.

Hwa Seng Builder had a stringent procurement approach and comprehensive risk management system in place, thereby delivering the project timely and safely. Proactive effort was also placed in engaging the affected stakeholders to inform them of the progress of works and organizing celebratory events, thereby fostering good working relationships.

In recognition of their excellent performance, Hwa Seng Builder Pte Ltd has been nominated for the 2022 Land Transport Excellence Award's "Best Managed Rail/Road Infrastructure - Project Partner" award.





**Award Title** : Best Managed Rail / Road Infrastructure – Project Partner

**Award Criteria** : Recognises and honours the most outstanding organisation(s) that has excelled in the development of Rail/Road Infrastructure and delivered a quality product.

**Organisation** : Sato Kogyo (S) Pte Ltd

**Project** : Construction of Upper Thomson Station and Tunnels for Thomson-East Coast Line

Located under the busy traffic junction of Upper Thomson Road, Soo Chow Garden Road and Bright Hill Drive, Upper Thomson station is an underground station which forms part of the Thomson-East Coast Line.

The major challenge of this project was the close proximity of the construction works to critical structures such as the live Circle Line, shophouse, residential buildings, and MacRitchie Viaduct/Marymount Flyover. Special attention was paid to minimise vibration and ground settlement to sensitive structures. For instance, instead of carrying out rock blasting which would cause significant vibration, a breaker was used to crush the very hard granite. Grouting was also done to strengthen the foundations of the buildings next to the station to minimise the impact of the construction works on them. The clever use of engineering solutions helped to complete the construction works for the station and tunnels with minimal impact to the surrounding buildings.

The innovative use of a retractable micro Tunnel Boring Machine to construct one of the station entrances obviated the need for a receiving shaft. This greatly reduced the number of stages of traffic diversions, which would otherwise be very disruptive to motorists and residents around the area.

In recognition of their good planning and execution of the construction works, Sato Kogyo (S) Pte Ltd has been nominated for the 2022 Land Transport Excellence Award's "Best Managed Rail/Road Infrastructure – Project Partner" award.





Award Finalist - Infrastructure & Development

## Best Managed Rail / Road Infrastructure - Project Partner

### SHANGHAI TUNNEL ENGINEERING CO (SINGAPORE) PTE LTD (STECS)

<b>Award Title</b>	: Best Managed Rail / Road Infrastructure - Project Partner
<b>Award Criteria</b>	: Recognises and honours the most outstanding organisation(s) that has excelled in the development of Rail/Road Infrastructure and delivered a quality product.
<b>Organisation</b>	: Shanghai Tunnel Engineering Co (Singapore) Pte Ltd (STECS)
<b>Project</b>	: Contract T206 – Construction of Tunnels Between Woodlands Station And Woodlands Avenue 12 Including Crossover Tunnels And Reception Tunnels To Mandai Depot For Thomson-East Coast Line

Contract T206's scope of works includes ten tunnel drives with five Tunnel Boring Machines (TBMs), a 550m long Cut & Cover tunnel, and other ancillary structures such as cross passages, and Escape Shafts. The tunnels constructed under T206 form part of the fully underground Thomson – East Coast Line Stage 2, which opened in August 2021.

STECS implemented numerous innovative and value-engineering solutions in T206 to improve work efficiency, increase productivity and ensure safe completion of the project. In view of the very hard granite that would be encountered, high strength tungsten carbide edged steel roller discs were installed in the face of the TBMs to "cut" through the granite. A dual stone crusher was also fitted in the TBMs, to crush the large granite rocks, as the TBMs tunnelled through the granite. Controlled blasting using explosives were also used which halved the construction time of the shafts and cross passages, allowing the works to be completed much faster.

As the tunnelling works were in close proximity to many residential buildings and educational institutions, and undercrossed major roads such as the Seletar Expressway, extensive use of real time monitoring coupled with close supervision of the tunnelling operations was done to ensure that the works did not affect their safety and functions of them.

Through innovative engineering, STECS adopted a "peanut" shaped design for the tunnel shafts, which reduced the amount of excavation by 80% as compared to a more traditional rectangular shaft. The design also greatly reduced the amount of steel works that would have been needed to support the shafts. Aside from the considerable time and manpower savings gained, environmental impacts were also significantly mitigated through the reduction of soil that needed to be excavated and disposed, steel that had to be installed and volume of truck traffic needed to transport them.

In recognition of their excellent performance, Shanghai Tunnel Engineering Co (Singapore) Pte Ltd has been nominated for the 2022 Land Transport Excellence Award's "Best Managed Rail/Road Infrastructure - Project Partner" award.



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