

# TRANSPORTING PERTH TO NEW DESTINATIONS



MAIN CONSTRUCTION COMPANY : Georgiou Group  
ARCHITECTS : MPS Architects and Coniglio Ainsworth Architects  
CONSTRUCTION VALUE : \$125 million



The Aubin Grove Station Project involves the construction of a multi-modal station on the existing Mandurah passenger rail line. Featuring a dual pedestrian bridge, bicycle facilities, parking and expansive station platforms, the station marks a significant achievement in rail construction in Western Australia.

**Catering to Perth's expanding southern suburbs, the \$125 million Aubin Grove Station is expected to accommodate more than 3,900 boardings per day.** The first island rail platform to be built within a 'live rail' environment in Western Australia, undertaking the construction contract for the project was leading Australian building and construction company Georgiou.

The final scope for the project involved the construction of the new Aubin Grove train station, a 2,000-bay carpark, duplication of the Russell Road Bridge and associated road works.

A multi-modal interchange station, Aubin Grove features a 150m long island platform 10m wide with entry buildings on either side of the Kwinana Freeway. The station also has two footbridges on either side of the freeway, which link the two entry buildings to the station concourse above the island platform. Early Contractor Involvement (ECI) for Georgiou began in February 2015 and extended to October 2015.

As a result of the ECI process, Georgiou was awarded two contracts, one for the station works for Public Transport Authority (PTA) and one for the Russell Road Upgrade works for Main Roads WA. Design and construction of Aubin Grove Station started in November 2015 and was completed in February 2017. Design and construction for the Russell Road Upgrade began in December 2015 with completion in December 2016. At its peak, around 200 people worked on the project, involving 270,000 man hours.

As reasonably expected on such a significant project, the construction was not without its challenges. This included working between two live and fully operational 22kV rail line and the site located within the Kwinana Freeway.

Additional challenges included ensuring rail and freeway network services were maintained throughout construction, an ambitious construction programme, critical shutdown dates and space constraint.

However, all challenges were met and resolved, with the project resulting in a number of positive outcomes, including no lost time due to injuries (thanks to a high level of planning and risk elimination).

Road and rail services were maintained throughout the construction phase, with no unplanned disruptions, and the project delivered on budget. Furthermore, the ECI process enabled Georgiou to trim 12 months off the normal station design and construction programme.

The station concourse modules, which were prefabricated in the site's western carpark, were lifted into place during a concentrated installation campaign. The 30-hour shutdowns, booked 12 months in advance, saw each module lifted, placed and de-rigged within a narrow two-hour window for each lift. Importantly, while the necessary 30-hour freeway closures were the longest in Main Roads WA history, these were successfully carried out due to exceptional planning and execution.

To ensure the concourse modules could be lifted and placed within the tight timeframe, a customised lifting frame was developed, maximising the speed and safety of the lifting operation. This modular method

also enabled the bridge and station works to occur concurrently with two separate teams, reducing the number of shutdowns and reducing the risk of working within a 'live' environment.

"The medium-sized project was delivered in a complex high-risk environment integrated with tight time constraints," says Georgiou's Executive General Manager, John Galvin. "The project was delivered using alliance-type principles where 'best for project' was the attitude from commencement. This project was a community project that has been well received by the local community and the City of Cockburn, and delivered in difficult logistical circumstances.

"Achieving the onerous schedule was a significant achievement with a strong safety record and minimising the impact on both road and rail. Through innovation, attention to project management, collaboration with our clients and smart construction planning, the project delivered significant value to the WA Government," John adds.

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**Below** Fremantle Steel Group undertook extensive steel fabrication works on the project.

**Below** XL Precast supply quality architectural precast, transfloor panels and grey walls.



**As a proud Australian group of companies, Fremantle Steel Group was involved on the Aubin Grove Station.**

The company completed modelling works, shop detailing, fabrication, pre-assembly, protective coatings, delivery to site and erection of structural steel. Using superior technologically advanced manufacturing plant, processes and project controls, work included the station platform and concourse, east and west entry buildings and the overpass modules.

The project had challenges including schedule constraints, delivery of oversize components with access conditions and erection in extremely tight shutdown windows, and dealing with freeway traffic. Fremantle Steel's team of dedicated personnel, worked in seamless harmony to achieve scheduled deliverables, which is a testament to the detail of planning and the strong culture of the group.

Fremantle Steel Group combines two fabrication companies under one management; Park Engineers in Welshpool and Fremantle Steel Fabrication in Jandakot, with well over 100 years of experience in fabrication of structural steel components and both quality accredited to ISO 9001.

The Group also includes Interstate Crane and Transport Hire, with a mobile crane fleet ranging up to 350 tonne and a heavy haulage fleet for road transport.

The companies facilities provide 36,000m<sup>2</sup> of undercover workshops, with automated processing equipment and 60,000m<sup>2</sup> of laydown area for pre-assembly and module work. A specialised beam manufacturing plant and a sophisticated multi axial pipe and tube laser cutting line complement the companies processes, for high quality structural steel, platework and pipework.

Fremantle Steel Group congratulates the Georgiou Group on this successful project.



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**XL Precast's extensive project experience has yet again been highlighted through its work on Aubin Grove Station.**

The company produced the precast walls for the station's lift cores and platform step out (composed of transfloor). They also provided the precast stair landing, which consisted of exposed aggregate with dark stone. The company switched from water blasting to sand blasting the aggregate to achieve a better finish.

"XL produced a sample panel for the architect and we had to achieve the consistency on all the product produced," explains XL Precast's, Daniel Gonzalez. "We had special moulds made to make the stairs and we experimented with different methods to achieve the best result that gave the required look."

He adds that achieving the architectural finish required for every step of the process took meticulous care during manufacturing. "XL precast achieved the finish required and worked hard onsite to help Georgiou achieve their deadlines and the required finish."

In addition to bringing a wealth of precast experience to projects, XL Precast often works with builders and developers to achieve the

most cost efficient method, reducing floor cycle times. "XL Precast can offer alternative engineering and reduction of panels, panel hardware, reinforcement steel and concrete to achieve a more competitive precast package for a project. All of our designs are completed inhouse and we can offer engineering certification and propping design."

The company also recently achieved a lower cost transfloor system in comparison to other precast flooring systems within the Perth market. This saw XL Precast granted a change of design on a significant building as a result of the savings.

XL Precast is currently working on the Prime Building Joondalup, Perth Mint, West Perth Fire Station, McPhee Warehouse and RAAF Base Pearce. The quality results of XL Precast is further confirmed by its work on the Taskers Apartment building development, which won Perth's Best Apartment Building in the MBA awards in June 2016.

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Aubin Grove Station, Western Australia

**Below** DASH Civil completed civil and concrete works for the Aubin Grove Station construction.



**Contracted by Georgiou Group on the Aubin Grove Station, DASH Civil Contracting’s full range of capabilities was employed on the development.** DASH Civil Contracting is founded on providing the highest standard of expertise, competency and excellence on major projects.

As well as civil works, the company’s capabilities include concrete works, (footpaths, full bridge construction, retaining walls and more) drainage works, precast panel installation, and plant and labour hire.

Starting in February 2016, DASH Civil completed rail corridor works (including new platform construction), drainage installation, footpath/crossover construction, provided detailed earthworks within the rail corridor, pier and abutment footing and retaining walls.

It also completed the foundation for the mechanically stabilised earth wall and panel installation, provided reinforced concrete, formwork and reinforcement preparation and concrete pours, and labour and plant hire (wet and dry hire). All works were carried out and completed to the highest Main Roads Western Australia standards.

In addition to a capacity to deliver large and small-scale projects, DASH Civil offer a 24/7 service to its clients ensuring it can always provide flexible and proactive solutions. “We have developed a great reputation and continue to build strong relationships with our clients,” says DASH Civil’s, Shaun Maiden.

“As a result we have received repeat contracts after delivering quality and cost effective products. We also maintain and encourage a high standard safe work environment for the workforce and public. The success of our reputation and business is dependent upon the quality of products and services we provide and undertake to ensure that there are no exceptions to this rule,” he adds.

DASH Civil continues to work with WBHO Infrastructure, Gateway Western Australia, Georgiou and the City of Cockburn. It also provided works on the Perth Airport Gateway for Gateway Western Australia and Elizabeth Quay development.

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