

AUSTRALIAN CONSTRUCTION ACHIEVEMENT AWARD

STAGE 1 ENTRY

Gold Coast University Hospital





The \$1.76 billion, 750-bed tertiary Gold Coast University Hospital (GCUH) is a vital component in Queensland Health's vision to deliver state-of-the-art health service facilities designed to cope with extraordinary population growth in South East Queensland.

The new facility forms part of a network of expanded services to better meet the needs of patients and their families, staff, students and visitors. Purpose-built, the new hospital offers a range of more complex services than ever before available to the region.

The project consists of six separate buildings, a total floor space of around 170,000 square metres, it includes 750 overnight-beds, tertiary level hospital facilities, pathology, and mental health facilities that provide new and expanded services for the Gold Coast. The hospital is located in the new, integrated Health and Knowledge Precinct at Southport and required the construction of roads and extensive landscaping to the 20 hectare site.

The hospital has created an innovative environment for health care provision, medical research and the teaching of future doctors, nurses and allied health professionals. Located adjacent to the Griffith University Gold Coast Campus, the development is one of the largest health infrastructure projects completed in Australia.



We submit the following entry for consideration for the 2014 Australian Construction Achievement Award.

Project Details		
Project title: Gold Coast University Hospital	Location: Parklands Drive, Southport	
Summary of scope of work (maximum of 50 words please) The project consists of six separate buildings, a total floor space of around 170,000 square metres, it includes 750 overnight-beds, tertiary level hospital facilities, pathology, and mental health facilities that provide new and expanded services for the Gold Coast. The hospital is located in the new, integrated Health and Knowledge Precinct at Southport and required the construction of roads and extensive landscaping to the 20 hectare site.		
Contract value: \$1.265 billion	Contract Type: Managing Contractor	
Contract period: 50 months	Date of Substantial Completion: Staged completion from 01/03/13 to 31/07/13	
Purpose of project: New tertiary hospital for Gold Coast Health Services.	Name of client / principal: Client: Queensland Health Principal's Representative: Building and Asset Services (previously Project Services)	
Contact name: Client: Jackie Hawkins; Principal's Representative: Graeme Pierce	Title: Client: Project Director Gold Coast University Hospital; Principal's Representative: Principal's Representative Major Projects	
Telephone: Client: 0407 624 953; Principal's Rep: T : (07) 5594 0737 or 0412 578 594	Facsimile: Client: (07) 5668 5099; Principal's Representative: Not available.	
Description	Data required	Response
Contract	Contract tendered value or equivalent (e.g. TOC)	\$1.265 billion
	Contract final value or actual outturn cost (AOC)	\$1.308 billion
	Principal reasons for variances	Client Variation for ICT Local Infrastructure Works
	Any unresolved disputes? Status of those disputes?	Nil
Contract Period	Commencement date	December 2008
	Original completion date	December 2012
	Actual completion date	Staged completion from 1 March 2013 to 31 July 2013
	Principal reasons for variances	Client Variation for ICT Local Infrastructure Works
Safety	Total hours worked	9,350,757 hours
	Total recordable incident Rate	4.06 (Lost Day Incident Frequency Rate)
	Details of any fatalities on the project	Nil

Details of the Entrant

Name and position (Managing Director or equivalent):

Stephen Green (General Manager, Queensland and Northern Territory)

Address:

Level 3, 44 Musk Avenue, Kelvin Grove QLD

Post Code:

4059

Contact name:

Peter Bayo

Title:

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ENTRY DECLARATION

We are duly authorised to submit this entry on behalf of the Entrant on this form and:

- Agree to abide by the rules and conditions governing the Australian Construction Achievement Award as set out in this document, including payment of final entry fees if selected as a finalist.
- Declare that substantial completion of the project has been achieved in the 12 months prior to 30 September 2013.

Signature:



Company: Lend Lease

Name and position: Stephen Green, General Manager – Queensland and Northern Territory, Building

Date: 7/11/2013

OUTCOMES ACHIEVED AGAINST PLANNED TARGETS FOR KEY PROJECT PARAMETERS

A weighting of 40% is attributed to this category and the entrant is expected to have met or exceeded expectations in all key result areas (KRAs) and demonstrate initiatives and achievements that have contributed to building the future of the construction industry. KRAs include safety, time, cost, quality, environment and heritage, sustainability (in the context of construction) and stakeholder satisfaction as a minimum.

The project set about to achieve key outcomes:

- provide a building that met the needs of Queensland Health and Gold Coast community;
- work within a budget of \$1.76 billion;
- open September 2013;
- challenge the current standards in environmental, health and safety and best practice for our people and industry to follow;
- provide training to the workforce in excess of the required 10% training;
- provide employment opportunities for the local community.

GCUH was delivered on time and within budget, and to the best quality. The end completion date was met with incorporation of requested changes to the overall scope, including variation of \$60 million ICT works originally to be undertaken by the client. The original scope being delivered under budget meant the client could reinvest these savings in other areas.

Lend Lease received a staged completion between 1 March and 31 July 2013 and the hospital opened on 28 September 2013. This was despite the collapse of the Hastie Group in 2012, who had the mechanical, hydraulic and medical gas subcontractors totalling over \$150 million.

Gold Coast Hospital and Health Service Chief Executive, Ron Calvert said “even the delay caused by the collapse of Hastie Group did not affect overall Health Services operational commissioning program as Lend Lease ensured early site access and cooperative dock management to allow the activities, including the load in of free standing equipment, while construction works continued.”

The project team established a culture of identification and elimination of potential hazards in the work place and as a result achieved a Lost Time Injury Frequency rate of less than 1. The project achieved a number of measurable benefits in the team’s best practice approach:

- Communication onsite took on the form of daily tool boxes and significant focus on delivering a simple message using diagrams, face-to-face discussions and consistent signage.
- Solar powered access lighting – eliminated the need for underground cable and allowed lights to be easily moved as construction works progressed
- Defined access paths – provided clear direction and separation of vehicles and people and allowed easy access around the site
- Factory floor – established the site as akin to a factory floor, not a construction site, thus materials were staked in defined areas, rubbish immediately disposed of and a continual focus on all work teams defining their work areas to highlight areas of risk.
- No cast-in electrical – elimination of cast in electrical conduits from all slabs, although requiring significant thought on how to route electrical cables during the design process, resulted in no incidents where cables were struck in the building (a significant issue in the construction industry).

The project achieved over 831,000 hours of accredited training with its workforce, achieving 108% level of compliance as certified by Construction Skills Queensland (CSQ).

The team achieved this by understanding the needs of the workforce and targeted training to workforce, employers and the project. Training ranged from mobile scaffold erection, fire extinguisher training, safety committee member training, Diploma in Building and Construction incorporating Cert IV in Construction and Cert IV in OH&S.

A project of this scale requires the engagement industry. ICN reported around 75.5% of the project included Queensland-sourced content and over 9.5 million hours were worked onsite.

Lend Lease's ability to drive the team, establish a strong culture, undertake complex project planning and construction techniques, manage design documentation, implement clear design and construction deliverables and manage 70 user groups, and reference groups, all within a vast and collaborative team environment, was key to the project's success.

Due to the medical and research nature of the building, producing a quality built product was critical. With such a large facility, the design development process enabled standard construction details to meet the requirements of the brief, user groups and government guidelines. Both internal and external peer reviews were periodically conducted on compliance of the design.

Collaborative partnerships with stakeholders remained core to the project's success. Lend Lease established a partnering approach with Queensland Health and associated stakeholders, achieving a smooth, ordered handover and a new hospital occupied by staff confident in the operation of their new facility.

“To finally commission the Gold Coast University Hospital, a total of 219 patients were moved safely and efficiently in just two days and without the intervention of any unforeseen clinical events. This success arose from meticulous planning by the Gold Coast Hospital and Health Service and partnering with the local community, local and state government agencies and the managing contractors, Lend Lease.”

The collaborative and successful partnerships teamed with specialist expertise have resulted in the creation of one of the very best user-centred, inspirational healthcare facilities for patients, staff and visitors.”

Minister for Health, The Hon. Lawrence Springborg MP



COMPLEXITY, DIFFICULTY AND OPTIMISATION OF THE CONSTRUCTION TASK

A weighting of 30% is attributed to this category and the entrant would be expected to address construction complexity (e.g. logistics, interfaces, constraints and community) and the unique risks that had to be managed to deliver an award winning project.

The scale and complexity of Australia's largest health infrastructure project presented coordination and logistical challenges. A strong team culture included clear goals, roles, responsibilities and accountability.

Key workplace challenges included:

- excavation of over 450,000 cubic metres for three basement levels
- operation of ten tower cranes simultaneously
- working at heights
- over 2,100 workers at peak
- high risk work associated with complex atrium structures, internal voids, plantrooms and detailed facades
- noise , dust and vibration
- adjoining neighbour issues
- traffic control , entry/exit points, with over 1,000 truck movements at peak.

To maintain a construction workforce of over 1,800 for 12 months (peaking at in excess of 2,100), the project and programming was divided into six major work areas. The 160 Lend Lease staff worked on key work areas (plots) and then 'micro projects', typically relating to the individual buildings. Each of the areas was controlled and managed by independent teams.

With three-monthly and two-weekly programs, the teams prepared detailed sequence and staging plans including offsite procurement controls and hold points. These programs were statused once a week for each work area, production rates measured, and critical activities monitored for progress against the target dates.

The team's pre-construction focus was managing logistics and carefully planning for safety. This resulted in innovative design and site management initiatives that contributed to the project's strong safety record.

Key to the success was the Project Delivery Plan (PDP), which was prepared to ensure:

- identified risks were eliminated or managed by coordinated construction sequencing;
- maximum efficiency was achieved by coordinating actions;
- all Lend Lease employees expectations;
- subcontractors understood expectations;
- ensure individual plots looked and acted consistently.

Commissioning and validating the 140,000 square meters of clinical space required 18 months of user inspections and an independent review of over 5,000 commissioning tests.

Due to the nature of the head contract and the various contractual requirements for the staged handovers, a completion strategy was developed. This articulated all the necessary completion activities, documentation and sign offs required to achieve Technical Completion and Final Completion.

“As a client, we could not have asked for more from a Managing Contractor. Lend Lease did not just treat this as a project but approached it with the same enthusiasm and motivation the health services has in designing a state of the art healthcare facility for the community”.

Gold Coast Hospital and Health Service Chief Executive, Ron Calvert



LEADERSHIP AND MANAGEMENT OF THE PROJECT DELIVERY

A weighting of 30% is attributed to this category and the entrant would be expected to address leadership and management aspects that have delivered a project worthy of the Award. These will include project team relationships; innovations generating a legacy for the construction industry; entrant's contribution in the design process; planning and control of design and construction operations; occupational health and safety; industrial relations; use and development of new technologies; training and development initiatives.

7 Delivery of a complex project on time and within budget is testament to the entire project delivery team. Lend Lease's ability to drive the team, undertake significant levels and details of project planning and construction techniques, manage design documentation, implement clear design and construction deliverables and manage the user groups and stakeholders, all within a vast and collaborative team environment, was key to the project's success.

The Lend Lease team demonstrated great leadership in the management of workplace health and safety. The team developed a proactive, best-practice safety policy that improved project and industry-wide safety standards.

Based on strong leadership and a risk management culture embraced at all levels, Lend Lease's safety policy and philosophy significantly improved safety outcomes across the project. A number of safety strategies and innovations had a positive impact on the wider industry.

Ownership by staff and contractors was essential and that each team member understood their role.

Innovations and development of new technologies for the construction industry were established, including:

- Wagstaff Piling – developed an edge protection screen installed at the initial pile setout and only removed once the hole was bored, reo placed and concrete poured. This achieved a total elimination of the fall risk into a 2m diameter hole;
- Lewis Cranes – now using management system and anti-collision software on all cranes when two or more cranes onsite;
- Christopher Contracting – using materials handling aids on all projects;
- ARC – side-lifted cradles eliminate issue of edge protection while unloading trucks, but also waiting time onsite for cranes to unload trucks therefore saving money.

One key success was Lend Lease's ability to maintain strong personal relationships with subcontractors and key stakeholders. We set clear standards for dealing with each other and maintained a professional approach, even in times of pressure. Lend Lease worked well with Queensland Health to achieve their objectives and with subcontractors to ensure the most efficient and cost effective design solution.



PROJECT TEAM NAMES AND RESPONSIBILITIES

Managing Contractor: Lend Lease

Client: Queensland Health – Health Planning Infrastructure Division

Gold Coast Health Services District

Client's Representative: Project Services – Department of Public Works (now Building and Asset Services)

Local Authority: Gold Coast City Council

Local Community Stakeholder Advisory Group

APC - Architects: Hassells / Silver Thomas Hanley / PDT (Architecture Joint Venture)

EJV - Engineers: Aurecon / SKM / S2F (Engineering Joint Venture)



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