



AUSTRALIAN
CONSTRUCTION
ACHIEVEMENT
AWARD
2010



SOUTHERN GATEWAY
ALLIANCE



2010 ACAA Entry Form

We submit the following entry for consideration
for the 2010 Australian Construction Achievement Award

DETAILS OF ENTRANT

Name of organisation:	Southern Gateway Alliance
Address:	PO Box 7136 Secret Harbour WA 6173
Contact name:	Gerry Hofmann
Title:	Assistant Project Director
Telephone:	(08) 9269 3649
Facsimile:	1300 308 953
E-mail:	gerry.hofmann@leicon.com.au

PROJECT DETAILS

Project title:	New Perth Bunbury Highway
Location:	Safety Bay to Lake Clifton, Western Australia <i>(50 km south of Perth)</i>
Summary of scope of work:	Design and construct the largest road project ever undertaken in WA, comprising 70.5 km of dual carriageways (32 km to freeway standard), 19 bridges, 6 interchanges, 32 km shared paths, 21 km noise walls, 21 km drainage, landscaping and public art. Project completed under budget and 3 months ahead of schedule.
Contract value:	A\$705 million
Contract type:	Alliance
Contract period:	36 months
Date of substantial completion:	20 Sept 2009
Purpose of project:	Public freeway and highway connection between Perth and the SW of WA
Name of client/principal:	Main Roads Western Australia
Address:	PO Box 6202 East Perth WA 6892
Contact name:	Leo Coci
Title:	Director Major Projects
Telephone:	(08) 9323 4300
Facsimile:	(08) 9323 4598

Entry Declaration

Project Details

We are duly authorised to submit this entry on behalf of the Southern Gateway Alliance 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 the construction of project work was the direct responsibility of the Entrant; and
- › Declare that substantial completion of the project has been achieved in the 12 months prior to 30 September 2009.

Date: 27 October 2009
Name: Ray Sputore
Title: General Manager, Western Region
Company: Leighton Contractors

Signature:

A handwritten signature in black ink, appearing to read 'Ray Sputore', written over a light green background.

Introduction

The New Perth Bunbury Highway (NPBH) project is the largest public road infrastructure project ever undertaken in Western Australia. It forms the vital link between the two largest cities in WA, reducing the travel time for up to 30,000 vehicles per day by approximately 30 minutes.

Delivered under an Alliance model, the \$705 million project was completed in September 2009, three months ahead of schedule, under budget and exceeding all project objectives.

Southern Gateway Alliance (SGA), comprising Main Roads Western Australia, Leighton Contractors, WA Limestone and GHD, was formed in late 2006 to undertake the design and construction of this massive project comprising:

- › 70.5 km of dual carriageway (32 km to freeway standard)
- › 19 bridges at 11 different sites
- › 6 interchanges
- › 32 km of shared paths
- › 21 km of noise walls
- › Numerous pedestrian and fauna underpasses
- › 21 km of drainage
- › Aesthetic enhancement and public art

The project involved excavation, haulage and placement of 15 million tonnes of raw materials. At peak, the haulage fleet comprised 140 semi-tipper trailers, the largest highway trucking fleet ever assembled in Australia.

Despite the sheer scale and logistics of the project, SGA has been able to deliver this project whilst balancing environmental sensitivity, community responsibility and political credibility and advancing the reputations of all participants in the process.



Outcomes achieved against planned targets for key project parameters

The project met or exceeded all project objectives and minimum conditions of satisfaction, achieving outstanding results and glowing endorsements from the major stakeholders.

SAFETY

The project was completed (over 3.8 million manhours) without a single Lost Time Injury. The project set new standards of safety in the construction industry by being awarded a Worksafe Platinum Certificate of Achievement.

TIME AND COST

The project was completed over three months ahead of schedule and under budget.

QUALITY

The project received third party certification to AS 9001 for quality systems, AS 14001 for environmental systems and AS 4801 in OH&S. Regular internal and external audits were conducted without any non-conformances.

ENVIRONMENT

The project had numerous environmental challenges, including restricted use of bores, 'Bush Forever' sites, State Forests, dieback, Aboriginal heritage, Declared Rare Flora (DRF), Acid and Potential Acid Sulphate Soils (ASS & PASS), waterways and pollution management. The project excelled in meeting all these challenges with outstanding outcomes.

SUSTAINABILITY

The project developed a sustainability framework, which is destined to form the basis for all similar projects in WA. The project also developed a sustainability decision-process for managing conflicting project objectives.

STAKEHOLDER SATISFACTION

All stakeholders were identified and profiled at the start of the project. Regular surveys were undertaken to ensure that stakeholder satisfaction was being maintained and action taken if issues developed. In the end, the project has won wide acclaim from all major stakeholders.



INITIATIVES AND ACHIEVEMENTS FOR BUILDING THE FUTURE OF THE CONSTRUCTION INDUSTRY

Alliancing innovation

In a first for the construction industry, the Alliance introduced the concept of having a material supply company as part of the head Alliance Agreement. This was in recognition that one of the key success factors for this project depended on the ability to source and transport large quantities of raw materials in a very short time period.

Work : Life balance

SGA introduced the concept of a 5-day working week throughout the project, recognising the modern and future trend towards balancing work and leisure time for employees. This enabled high calibre staff to be retained and productivity results met or exceeded levels that could have been expected from working a traditional 6-day week.

A new safety culture

SGA was able to establish a safety culture which was transferred to our subcontractors. The project team educated a traditionally undisciplined trucking industry and demonstrated how planned procedures were able to achieve the dual objectives of safety and income for unit rate based payments.

Complexity, difficulty and optimisation of the construction task

LOGISTICS

A construction site 100 metres wide and 71 km long presented enormous challenges in logistics. Numerous satellite offices were established at various locations along the alignment. The project was split into three construction Zones differentiated by scope and discipline. A central project office provided overall management and common resources to each Zone.

INTERFACES

In addition to the internal interfaces between design, construction, community relations and environmental teams, there were numerous interfaces with services authorities, stakeholders within the Main Roads, local shires, regulatory bodies, Government Departments and various local community groups and individuals.

CONSTRAINTS

Federal and State environmental approvals stipulated numerous requirements and restrictions, all of which had to be interpreted and managed. This involved transferring the intent of rules and regulations into design outputs and construction Method Statements.

COMMUNITY

The main alignment had more than 140 kilometres of adjacent residents across four local government areas. SGA developed a pro-active community relations management plan which encompassed stakeholder identification and profiling, establishing community forums, creating community response and communication protocols. The project was able to turn detractors into advocates.

ENVIRONMENT

SGA delivered exceptional environmental outcomes, including the creation of a 22 hectare landscaped artificial wetland, rehabilitation and landscaping works previously not experienced in this State and compliance with all required regulations and commitments.

HERITAGE

Being a predominantly greenfields construction project, Aboriginal heritage issues needed to be carefully managed. SGA established contact and rapport with the Elders of the local Aboriginal community and worked closely with them to ensure that a sensitive and sympathetic delivery of the works could be achieved through their communities.

Unique Risks

SGA identified the major project risks and set in place management procedures for controlling them. The main risks for NPBH were identified as:

- › The sheer logistics of being able to ramp up construction over a 71 km long front;
- › Cost and time overruns due to the mid-year winter rains affecting the asphaltting operations;
- › Fuel escalation costs;
- › Delays in the event of discovering DRF;
- › Capillary action within sand embankments on waterlogged flood plains;
- › Availability of resources at the start of the project when the economy was booming;
- › Excessive drainage requirements over the large floodplain portions of the project.

Each of these risks was managed and progressively monitored against the project's financial risk provisions.

Leadership and management of the project delivery

PROJECT TEAM RELATIONSHIPS

NPBH was delivered as an Alliance, with senior management working as an integrated project team. Considerable time and effort was invested in relationship training and team building to ensure integration of staff from different work cultures. Regular Project Director breakfasts were held along the alignment to provide information updates on the state of the project to the wider team.

INNOVATIONS

SGA adopted a GPS-based machine guidance system to undertake the earthworks without the use of site surveyors. This increased accuracy, reduced construction time and eliminated the need for on-site surveying and survey pegs. In another first, an Organisational Psychologist was employed to assist in team building and management took rides in the haulage trucks to allow closer communication with the drivers.

GENERATING A LEGACY FOR THE CONSTRUCTION INDUSTRY

Staff from regulatory bodies were seconded into the project team, providing a more streamlined approach to understanding and managing the environmental approvals processes. In turn, the knowledge that these people gained will allow them to better understand how to guide approvals when dealing with the construction industry on future projects. Also, the GPS machine guidance system has allowed this system to be further developed to next generation levels for the benefit of future projects.

CONTRIBUTION IN THE DESIGN PROCESS

The project established a Technical Advisory Group (TAG), consisting of eminent and experienced designers to challenge engineering standards and to establish new benchmarks in the design of flexible pavements, drainage, and embankments on saturated soils.

PLANNING & CONTROL OF DESIGN AND CONSTRUCTION OPERATIONS

The design process was integrated into the construction program, with staged deliverables and squad checks allowing optimum construction planning. A web-based document management system allowed efficient control and dissemination of all design documents over the entire project site.

OCCUPATIONAL HEALTH AND SAFETY

Safety was the project's highest priority and a fully integrated safety strategy was implemented to achieve the project's outstanding safety achievements.

ENVIRONMENT

NPBH met or exceeded all environmental obligations and project objectives and received acclaim from the EPA for its environmental procedures, standards and outcomes.

INDUSTRIAL RELATIONS

The project did not lose any time to industrial disputes. SGA established individual employment contracts for all its wages employees and provided fair and equitable terms and conditions of employment. The National Code of Practice in the Construction Industry was strictly observed.

PROJECT FINANCE AND PROJECT INITIATION

The project was fully government funded and was initiated through co-operation between the State and Federal Governments.

USE AND DEVELOPMENT OF NEW TECHNOLOGIES

The widespread use of the GPS machine guidance system advanced industry knowledge in this technology. Also, blown fibre technology was used to create the Intelligent Transport System (ITS) backbone down the main alignment.

TRAINING AND DEVELOPMENT INITIATIVES

More than 230,000 man hours were invested in developing and upskilling the workforce, including new trainees, apprentices, “at-risk” youth, supervision, construction leadership and women in non-traditional trades.

LEGACIES LEFT BEYOND THE CONTRACT OBLIGATIONS

More than \$600,000 worth of legacy projects were donated to the community – a 22 hectare wetland, a school playing field, an Indigenous walk trail, permanent toilets, iconic art lighting and the funding of research into DRF.

OPTIMISATION OF THE USE OF SCARCE RESOURCES

SGA adopted the use of recycled materials in a number of areas, trialling the use of bio-diesel and blending unsuitable material with higher quality material. The project team also trialled the use of mine tailings as a nutrient striping mechanism and blended recycled compost with topsoil for landscaping mulch.

LEAVING ENDURING SOCIAL BENEFITS FOR THE COMMUNITY

More than \$100 million was injected into the local community, with 36% of the 2,400 employees sourced from the local region. A “Vision Zero” road safety program was developed and implemented to create improved safety of the completed road.



Project Team

PARTICIPANTS IN SOUTHERN GATEWAY ALLIANCE:

- › Main Roads Western Australia
- › Leighton Contractors Pty Ltd
- › WA Limestone
- › GHD Pty Ltd

All design and construction activities were undertaken by the Alliance participants, working as an integrated team.

KEY PROJECT TEAM MEMBERS

Alliance Board	Phil Ladner, Peter Woronzow	<i>(Main Roads)</i>
	Ray Sputore, Wayne Bizzaca	<i>(Leighton)</i>
	Wally Lukic	<i>(WA Limestone)</i>
	Des Boland	<i>(GHD)</i>
Main Roads Representative	Leo Coci	
Alliance Management Team		
Project Director	Joe Trio	
Assistant Project Director	Gerry Hofmann	
Construction Manager	Scott Martin	
Engineering Manager	Ashley Wright	
Safety Manager	Doug Bevan	
Environmental Manager	Neil McCarthy	
Quality Manager	Les Marchant	
Raw Materials Manager	David Della Bona	
Alliancing & Innovation Manager	Ian Deck	
Commercial Manager	David Hulme	
Community Relations Manager	Tammy Mitchell	

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