



The Meeting Point: The north and south sections of the bridge are prepared to be joined together

Manukau Harbour Crossing

Project: Manukau Harbour Crossing Alliance

Publication date: 2010

Client: New Zealand Transport Agency

Consultant: Beca Infrastructure

Contractor: Fletcher Construction & Higgins

Region: Auckland

Sector: Infrastructure

Final Contract Value: \$180m

Tender: Competitive Alliance (Dual Target-Outturn-Cost)

Contractor selected: November 2007

Construction timescale: Mar 2008 – Mar 2011 (now Aug 2010)

Form of Contract: Project Alliance Agreement

In our 15th Pathfinder project, we investigate how getting the right project environment can unite a team and deliver outstanding results. Using the Manukau Harbour Crossing Alliance we explore how this high profile project was delivered within budget and seven months ahead of programme.

Background

The Manukau Harbour Crossing (MHX) project is a high profile project for several reasons:

- The flagship project is a key part of the Western Ring Route linking the cities of Manukau, Auckland, Waitakere and North Shore via SH20, SH16 and SH18 and will provide an alternative route to State Highway 1.
- It is an important part of the infrastructure planning for the 2011 Rugby World Cup.
- The MHX project is a major first success for the New Zealand Transport Agency (NZTA) in their commitment to the competitive alliancing concept.

Covering the stretch of SH20 between the Mt Roskill Extension in Hillsborough and Walmsley Road in Mangere, the MHX project will be delivered within budget and seven months early resulting in improved travelling times for commuters into Auckland CBD and improved access to the airport. Both improvements will create significant economic benefits for the region.

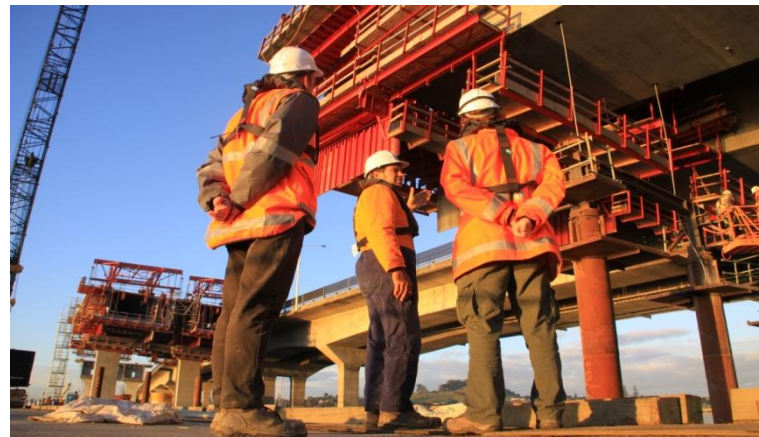
Beca Infrastructure, Fletcher Construction and Higgins won the competitive tender to join the NZTA-led alliance through their approach to combine a strong team with a competitive price for the MHX project.

The team ethic began several years ago on the first generation alliance project at Grafton Gully where the alliance partners had previously worked together. This prior experience was cited by NZTA as one of the major contributors to winning the MHX contract. The project was procured by the NZTA on a dual Target-Outturn-Cost (TOC) basis.

Additional Challenges Faced

NZTA's first competitive alliance There was a certain amount of pressure on this project as NZTA's first Competitive Alliance driven by a need to demonstrate that NZTA were obtaining best value for the project funded with public money. NZTA mitigated the risk by awarding the contract to an alliance team that it had previously worked with in a pure alliance environment. However, NZTA still had to prove that the Competitive Alliance concept could work.

Setting the right environment to deliver success Despite the alliance participants having worked together previously on Grafton Gully, getting the right culture, project environment and identity established for the Manukau Harbour Crossing alliance was an integral and important step to enabling success.



A site team's perspective as the project reaches a critical phase



The new structure adjacent to the existing bridge

High profile project Not only was this the first competitive alliance for the NZTA, this project was a critical part of improving the transport infrastructure between Auckland airport and the Central Business District in preparation for the Rugby World Cup in 2011. During its construction it was also going to impact upon road users who use SH20 in their daily commute. It was important that communication and expectations were managed well.

Potential community issues Given the location of the bridge the site office's engagement with the nearby local communities of Mangere Bridge and Onehunga was always going to be critical with their community being potentially disrupted by the construction process and increased construction-related vehicle movements on local roads. Managing the expectations of the local community and keeping them updated with progress was going to be a critical challenge to overcome.

Successful Outcomes

Cost, time & quality The project is scheduled to be delivered on budget and seven months early. 60% of the project benefit was delivered 11 months ahead of schedule through the opening of the 3rd lane on the northbound section of the bridge. Quality has been exceptional on this project with current rework rates on a par with or better than global best practice.

Ownership, responsibility & identity Key to successfully bidding the project was the intention that alliancing principles would be formed prior to the project being awarded with the NZTA incentivising the bid teams to innovate in the design phase.

To make this work the project partners participated in a series of workshops to create the environment within the alliance that enabled successful project delivery. After the contract award, one of the outcomes was the development of MHX Alliance Charter. The whole team took ownership and responsibility for its delivery throughout the project.

Also key to the project start-up was giving the project its own identity – it was important to the alliance that participants were prepared to commit to the project concept and the shared identity of the project rather than their company's individual role within the project. Naming the project together as a team, the MHX Alliance, helped develop the shared sense of ownership, responsibility and belonging.

Creating the right environment

The alliance team co-located all key staff to the Manukau Harbour Crossing site office. This was seen as a crucial step in creating the environment to succeed and a shared commitment to getting the relationships and the project scope right. Throughout the project, the team proactively measured performance that was benchmarked against the project programme and Key Result Areas. Milestones and targets were re-evaluated and reset to continuously encourage the team to strive for improvement, innovation and to drive 'Project Breakthroughs'.

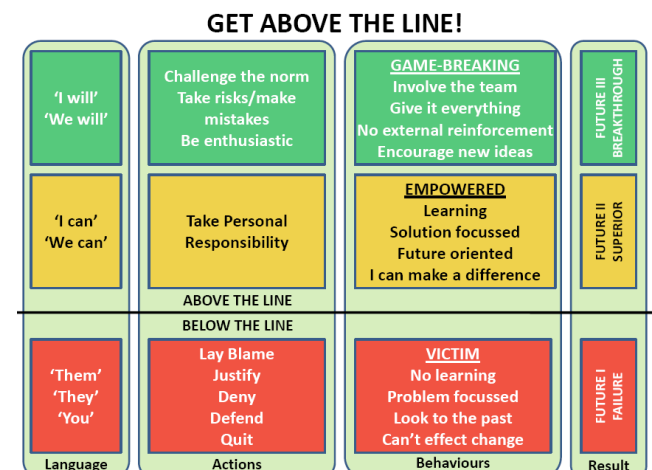
One of the key experiences from this project was how the alliance team pro-actively planned for 'Project Breakthroughs' and delivery for the client. This approach, which involved the team continually pushing for higher performance each time targets were reached enabled the alliance team to open the third lane of the northbound section of the bridge delivering 60% of the project benefit over 11 months ahead of schedule. This reduced travelling times from the airport to the city by 20 minutes in peak times.

Andrew Rose, Alliance Project Manager from Fletcher Construction, explained that the one team concept was critical to delivering a high performing team commenting *"This was a fantastic project to work on – key to its success was the development of the one team principle, development of our people on the project and mobilising individual responsibility across the team for targets, budgets and programme."*

Getting the culture right & recognising success

The project which started on site in March 2008 had many benefits that were derived from getting the culture right on site. From day one significant management effort went into creating an environment in which a strong MHX culture could develop, that drew on the strengths of the different participant organisations. Key to developing this strong MHX culture on the project was having the right leadership that encouraged and rewarded innovation and mitigated risk whilst maintaining accountability.

The development and introduction of the 'Above the Line' initiative communicated at the outset the language, actions and behaviours that were expected of individuals and teams that were working on the Alliance. The message was simple – stay above the line to work on this project. As the project progressed, trust, communication and team dynamics improved as the team built upon their experiences during the delivery of MHX.



The "Above the Line" initiative that was implemented at MHX

Culture Initiatives A number of initiatives were introduced during the project. At the start of the project the 'Alliance Cafe' concept was used to encourage small group discussions to enable individual engagement and to get the team culture embedded in the Alliance.

From frequently held toolbox talks through to programmes such as the 'Pride in Workmanship' campaign, these initiatives that were developed during the MHX project have been a significant factor in its success.

Schemes such as the 'Respect' campaign and the 'MHXcellence Programme' have delivered key messages and targets that have enabled the project team to focus on delivering the key objective of 'Breakthrough Handover'. This included the key components of right first time and zero defects at practical completion.

These programmes were all aimed at getting the culture right on the project and they have all delivered. The team also developed the 'Pride & Excellence' awards that were aimed at recognising success and to provide feedback and to positively reinforce excellent behaviour. This enabled the team to get significant early traction within the project team which in turn generated real momentum towards creating the successful and innovative project environment.



Above: The MHX Charter

Below and right: Reporting on the 6 KRAs



Measurement is critical At MHX, the concept of the high performing team was critical and the impact that poor performance can have in damaging productivity and the overall output of the team. Before the project started it took two months to develop and agree the Key Result Areas. The measures, which were communicated to the project team, were split into 'lag' and 'lead' measures and became integral to driving the Alliance's performance. The six KRAs at MHX are:

- Time
- Stakeholder engagement
- Environmental
- Traffic management
- Quality
- Safety

Having the relevant measures and reporting them on a regular basis enabled the MHX team to empower individuals to meet shared Alliance goals. Ongoing benchmarking throughout the project enabled stiff targets to be set and the clock was 'reset' when these targets were reached. Ultimately, this approach drove behaviours and was a significant factor in enabling the project to be delivered seven months early.

When exploring the projects Key Result Areas, quality throughout the project has been exceptional with low current rework rates. When benchmarked internationally this has demonstrated global best practice occurring on a New Zealand infrastructure project.

2 MONTH KEY RESULT TARGETS February and March 2010

Achieve 7 of 10 Targets = Family Pass to Rainbow's End

Targets	Status at end February 10			On
	Achieved	On Target	Still have a chance	
Complete erection of Beachcroft footbridge steelwork by the end February 2010.	✓			
Complete 70% of all the surfacing by end of March 2010 (cannot complete final tie in surfacing which is about 30% of all surfacing area).		✓		
Focus on near miss reporting - 15 near miss reports each month		✓		
P7 Land spans complete (excluding the closure).			✓	
WSL Pipeline installed from South Abutment to Rimu Rd.				✓
100% Compliance with Inspection and Test Plans related to on-site inspections of temporary or permanent works on Mangere Bridge as audited by the quality team.			✓	
Target zero complaints - In all cases the Stakeholder Team knew about these works in sufficient time to let affected residents know they would be happening.				✓
Reduce the recyclables in our general waste bin by to 15%.			✓	
Night time traffic management - all TM fully removed before morning peak & < 3 night time incidents.	✓			
All 2009 defects closed out by end March 10.			✓	

Succession planning

From the start, this project was designed and developed to create succession opportunities for individuals to develop and to upskill the competence of team members. It was widely acknowledged that different skills are required at different times during the project.

John Burden, an early Alliance Project Manager, was engaged in the start up phase and identified that succession planning was a key factor in the success of the alliance and future generations of alliances.

He commented that *“the project is ultimately bigger than the people that work on it and this approach was pivotal in creating the right environment. The start up phase of a project is incredibly demanding and as a result this project required a multiple approach to succession planning – it’s all about having the right people working at the right time on the project and recognising the variety of skills that are required at different stages of the project.”*

This approach to succession planning was at the centre of the development of the high performing team concept and in creating the right environment for the project to succeed and deliver.

Community management & communication

The alliance team at MHX quickly realised and understood the impact that the construction phase of the project would have on the local communities of Mangere Bridge, Onehunga and on road users of SH20.

As a result stakeholder engagement and traffic management became two of the six Key Result Areas. Before the project started, the Alliance team invited the local community to meetings prior to the project starting to communicate what the project was, how long it would take and how it would impact upon the local community.



Pre-fabricated sections – a key innovation at MHX

This was the start of the comprehensive community and stakeholder management programme that the alliance team has developed and since implemented.

Members of the local community are complementary about the regular email and newsletter updates that they receive regarding the progress of the project as well as the response to issues caused by the increased volume of construction traffic in the local area.

Since the start of the project, the MHX alliance has taken a very pro-active approach to managing local community communication and engagement which has encouraged community involvement in the project.

An overview of the scheme





The staging platform used to provide efficient working areas

Conclusion

The outcome of this alliance project was that the MHX vision became a reality. At times the project environment was intense, however, as an Alliance team this ultimately drove innovation, generated friendships and delivered a successful project within budget and seven months early.

Marcus Lin, the Alliance Client Representative, commented *“This project is testament to the capability of what an alliance can deliver – enabling a team that is prepared to work for each other and be prepared to sacrifice individuality for the collective gain”*.

The Manukau Harbour Crossing project has been a huge success in creating a project environment that fostered a culture of collaborative working, innovation and success on all fronts that has delivered the project on budget and seven months early.

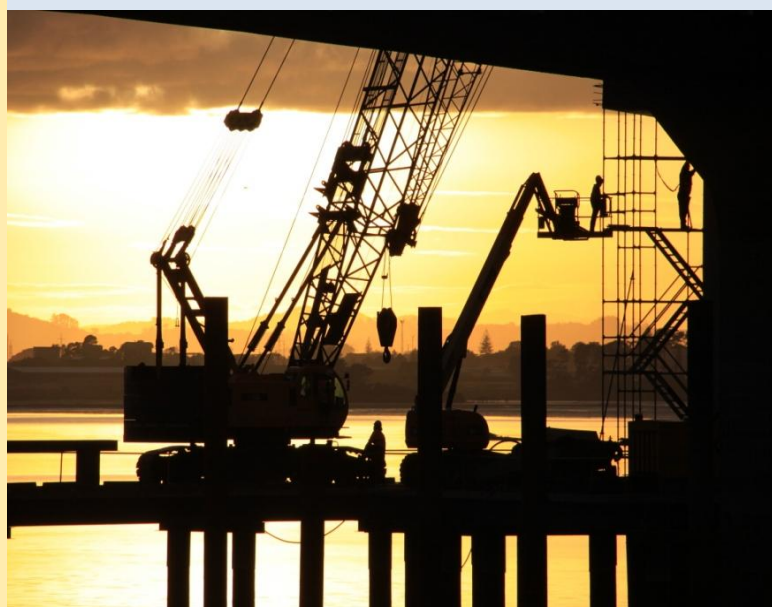
Some of the team members have now taken their excellent experience onward into a third generation alliance at the Victoria Park Tunnel. Others have been integral in securing the NZTA’s earliest Alliance ever, the ‘Mikays to Peka Peka’ section of Wellington’s SH1 to Levin.

Summary of Benefits

- **Staging and provision of better working areas**
Enhanced productivity was created through providing more space that enabled the team to work more efficiently and deliver a faster solution. It also delivered the environment for success and overall reduced risk to the project.
- **Onsite pre-cast assembly**
Enabled a significant cost and time saving despite the initial capital outlay for the facility.
- **Getting the culture right**
Getting the team and the project environment right and primed for success. This included co-location in the same office, shared Key Result Areas, initiatives, reward programmes and community involvement.
- **Communication**
Communication at all levels was critical in the delivery of this project. From ongoing discussions with the client to regular newsletters and events with the local community and the general public the stakeholder engagement and communication was an integral part to the success of this project.
- **Delivering the 3rd Lane**
Enabled the public to enjoy 60% of the project benefit 11 months ahead of schedule through the early opening of the 3rd lane of the northbound section of the bridge.
- **Multiple generation alliancing**
The benefit of bringing the same team from a previous alliance enables the team to hit the ground running, test ideas and create innovative solutions without having the learning curve of working together for the first time.
- **Share your results**
A major effort was made at MHX to share progress and communicate KRA results within the project team and also with the local community. This kept the team up to date and identified areas for improvement across the team.

Key principles for repetition

- The use of the Competitive Alliance procurement route
- Early stakeholder buy-in including the local community
- Benefits of multi-generation alliancing
- Jointly developed KRAs
- Building the culture and high performing team concept
- Risk ownership formed from team workshops
- The benefits of succession planning within the team
- Keep the client within the team
- Plan for innovation and breakthroughs
- Developing the Charter: a shared vision for the project team
- Establishing aspirational goals that built on the Alliance Charter





Early in the project: the existing bridge in the foreground

Key Lessons and Possible Improvements

Key lessons and possible improvements that can be taken from this project are:

- **Client must be fully engaged:** Key to the success of the alliance was having the client fully involved and integrated from Day One.

NZTA appointed an Alliance Client Representative to the project who was co-located with the Alliance team from the start of the project.

This approach engaged the client in the Alliance concept and in sharing the challenges the team faced as well as enjoying the recognition when 'Project Breakthroughs' were achieved and targets reached.

- **Competitive alliancing can work:** Whilst competition played its part up to the award of the contract, the employment of pure alliancing techniques post project award truly delivered for the MHX team.

Aligning team values, challenging the norm, empowering individuals for the greater good of the team has ultimately enabled better decision making and driven success on this project.

The client has benefited from the competitive alliance approach through the competitively tendered delivery of the asset seven months early.

- **The success of the 2nd generation:** Culture and trust improved greatly from the first generation alliance at Grafton Gully where this alliance team cut its teeth.

Working together at Grafton Gully meant that the project participants knew each other, understood their roles and how they could contribute to the overall outcome of the project.

The typical learning curve that exists between project participants at the start of any project was less applicable to this project and the trust and working relationships that had been created and developed at Grafton Gully continued to develop on MHX.

This is a major learning for any client that has a forward workload in terms of getting best value and return on their construction procurement.

- **How can we get to peak performance quicker?**

Coherence around the high performing plan at the start of the project and its first 100 days is crucial. This includes being totally brutal about team selection and getting the right people engaged for varying phases throughout the project.

Critical to this is in developing a plan for replacing 'faces that don't fit' in the alliancing model and being prepared to make the effort to upskill competence and experience to create the high performing team.

ASPIRE TO GENERATE VALUE IN THE JOURNEY...

Deliver value to the community



- ▶ High quality / low maintenance finish
- ▶ An iconic gateway
- ▶ Their local environment greatly enhanced

Create the best ever project culture

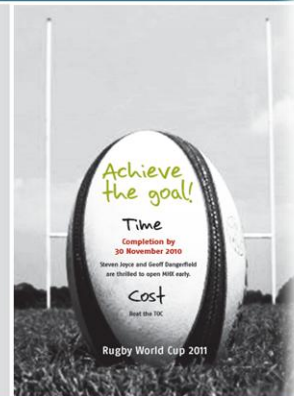


- ▶ Full engagement by the whole team
- ▶ Challenging business-as-usual norms
- ▶ Hurting no-one
- ▶ Being 'great to deal with'
- ▶ Setting new industry benchmarks

Benefit careers / lives / family



- ▶ Grow personally and professionally
- ▶ Enjoy working safely and productively
- ▶ Limit work hours to a sustainable level



...NOT JUST AT COMPLETION

The MHX Aspirational Goals



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