



Three Stations, two clients, a range of pedestrian bridges and two contractors with two separate projects.

Northern Busway Stations

Client: North Shore City Council (NSCC), with NZTA as major Stakeholder

Contractor: NZ Strong

Architect: Jasmax, Preliminary Design, Opus, Detailed Design

Engineers: Opus and Connell Wagner

Publication Date: March 2009

Region: North Shore, Auckland

Sector: Public Amenities

Project Construction Timescale: Mar 2007 to Dec 2007

Form of Contract: NZ3910 with Special Conditions

This Pathfinder Project highlights the benefits created for construction projects when relationships are forged on a spirit of partnership.

Background

The project involved the construction of three bus stations, (Akoranga, Smales Farm and Sunnynook) pedestrian bridges, (including a 120m long pedestrian bridge over the motorway) and associated carparking.

The client's brief was to create high quality 'statement' bus stations that also performed well from an operational, security and maintenance framework. Performance measures also considered important by the client were the timeliness of completion, costs, management of the construction site and health and safety of the team.

Although NZ Strong was the main contractor for the Northern Busway Stations, simultaneously Fletcher Engineering was the contractor legally employed by a different client, NZ Transport Agency. Fletcher was employed to construct the 6.24km busway lanes, drainage and services, bridges and interchanges as well as preparing the three station building platforms.

The result was a matrix of entities that were often not formally bound to each other. A high degree of coordination and communication between the different teams was needed. The success of this endeavour can be directly attributed to the fact that everyone recognised the need to collaborate to effectively achieve their respective outcomes.

Management structures were initially established by the Opus, Beca, Connell Wagner team to help oversee these potentially complicated relationships. For example, there was a formal requirement within the traditional contracts for all the Northern Busway work to have monthly Project Control Group meetings and regular Project Management Board (PMB) meetings, where key members were represented. These types of meetings were

invaluable to the project as key representatives came together to review progress, deal with decisions, air any issues, and be informed of the next stage of works.

Successful Outcomes

Spirit of Partnership

At the first management meeting for the Busway Stations it was agreed that although the contract was traditional, an informal partnering charter should be established between North Shore City Council, NZTA, NZ Strong and Opus. NZ Strong being advocates for collaborative practice made creating an informal partnering charter between the team an easy step. *"It was a credit to all individuals involved that it worked as well as it did. The Charter was the starting point, but what made the difference was the attitude people brought to the table, which was one of let's work together and find a solution"* Peter Everett, NSCC. Muir Coup from Opus concurs with this, *"if you have people prepared to collaborate you can generally find a win-win solution otherwise the other option is to hide behind a paper war which ultimately still needs people to find a solution"*. NZ Strong supports these comments and found both the client and the architect supportive in every way towards making the partnering concept work.

Relationships between the different team members were purposefully established early on to enable people to meet for the first time in a congenial atmosphere. Having an established relationship helped them resolve issues more effectively when they arose later. *"It would have been very easy not to have done it, but there was a lot of value in us getting together before there was an issue, as relationships are not built on animosity"* Peter Everett, NSCC.

Innovative Variation Procedure

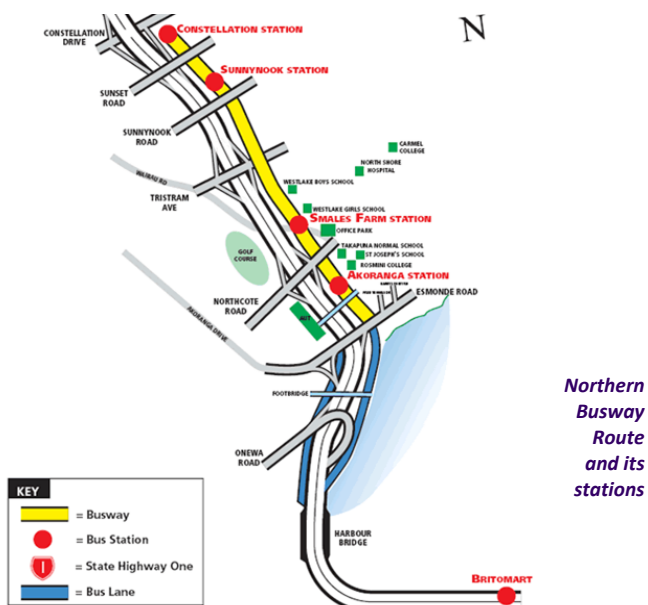
Due to the Contractors' proactive attitude they were able to introduce innovative collaborative practices to the table. One such initiative was the 'Grey Ledger' an informal variation management tool that offsets all the potential little variations against value management ideas with the idea that the two lists cancel each other. *"By using the grey ledger we try to have the costs of the tender ideally being the finished cost, so we bring to the table the alliancing type attributes of swings and roundabouts-offsetting costs with other good ideas which makes savings"* Shane Brealey, NZ Strong.

The benefits are the substantially decreased volume of paperwork, reduced hassle of variations, plus it establishes a forum for the Contractor to bring cost saving ideas to the table with the overarching intention of getting more value for less money. *"It was quite a neat way of working, we hadn't worked that way before, but it saved on some of the paper war and it saved on Quantity Surveyors time"* Muir Coup, Opus Consultants. *"We would use it again with the right contractor. It ultimately depends on who is driving it. We certainly would work with NZ Strong this way again"* Peter Everett, NSCC.

Maintaining a Collaborative Culture

Both the Project Management Board and Project Control Group upheld the principles behind the informal charter. This sent a strong message down the line to work in this way. Meetings were also consistently held between the different matrixes to discuss each others programme, costs, and how the different parties involved were affected by each other's work.

The Busway Stations project was managed out of the Northern Busway Project Office, which also oversaw the wider Busway Civil Works Contract. This provided several benefits – one was its close proximity to the site. Secondly, it was a neutral zone, ie it belonged to none of the clients and it therefore allowed its own culture to evolve. Thirdly, all the documentation was stored there. And finally, Fletcher Engineering's site office was only 100m away. All these factors helped enable relationships to develop and ensured that queries were answered promptly.



Key principles for repetition

- Importance of Health and safety.
- Clear, transparent reporting.
- Good level of communication between the team.
- 'Grey Ledger'
- Contractor implements strong housekeeping procedures and reporting, both for internal and external use with the rest of the project team.
- Contractor adopts KPI measures to help monitor and improve their performance.
- Forward Planning prior to start of work.
- Everyone taking a global view that they are all in this together.
- People being aware of the wider strategic goals of the both the civil and station projects whilst also focussing on their own projects.
- Constant flow of information between parties.
- Project Control Group and Project Management Board Meetings.
- Building relationships early.

Contractor's Actions Cement Way Forward

The Contractor's commitment towards collaboration was proven when a problem arose on day one.

Rather than request a time extension, NZ Strong had anticipated that a retaining wall under Fletcher's contract may not be built in time and had organised a back-up plan, which, with the client's agreement they initiated. According to NSCC, Peter Everett, *"NZ Strong went a long way towards setting the tone by how they operated when they encountered difficulties. There are always issues that come up, but it is how you deal with them - they came in with a real partnership attitude"*.

NZ Strong's proactive approach started even earlier when they submitted an alternative methodology at tender. This helped them win the four way competitive tender as their method ensured that they won by a \$1M margin.

This method also had an added advantage of reducing the number of motorway closures from 17 to 4.

The original tender methodology outlined a strategy that involved cranes to lift the 120m pedestrian bridge over the motorway, but, during the tender stage, NZ Strong's team, (which comprised construction experts, architects and engineers - Five out of Seventeen staff are from professional consulting backgrounds) sought to challenge this thinking and brainstormed together to produce a solution.

The new solution addressed buildability and construction methodologies to streamline the programme, ensure a safe environment for their workers and reduce costs. The result was to design a gantry trolley (to facilitate the cladding, glazing and finishing of the motorway overhead bridge) - a first in New Zealand.

The \$40K extra cost to implement this system resulted in a net saving of around \$700K. Both the cost savings and the minimal disruption to the transport network appealed to the client. The Contractor stated that on complicated projects like this one, there is always an opportunity for innovative builders to look at the project as a whole and see how they can add benefit to the project.

Performance Indicators

NZ Strong have adopted 6 key performance indicators which they use internally to monitor and continually improve performance within their teams. They believe this system has worked well for them and resulted in *“this pathfinder project being probably our smoothest, fastest, most profitable, highest profile job that we have done. It is an accumulation of our own skill base, systems and knowledge and bringing it all together. Plus and most importantly, the Client and consultants were receptive to our ideas. You can only go as fast as the speed which everyone else will allow you to”* Shane Brealey, NZ Strong.



Northern Express buses travelling on the busway provide a much faster alternative to travelling by car

Clear Reporting and Communication

The collaborative message was supported by the high standard of reporting, seen as key to the culture of operating in an open and honest manner. Clear reporting drove all the site meetings and outlined all the information required to build the project. It identified progress, current programme, issues pending and any outstanding.

Communication was transparent and open. Everyone involved received the reports *“and this, we believe drives the culture of no surprises and therefore helps maintain a healthy culture”* Shane Brealey, NZ Strong. Full reports were provided at the monthly PCG meetings. What was unusual was that both Opus and NZ Strong provided these monthly reports. NZ Strong’s reporting was of such a high quality that it became central and its information was relied upon by all the team. *“Our style of reporting made it clear what decisions were required by what dates and everyone adhered to that”* Shane Brealey, NZ Strong.

Decision Making and Early Involvement

Because of the complex, multi-headed nature of the client, the client realised the need for a clear strategy on decision-making prior to the start of the work. This ensured clarity on how decisions were made, who had authority to make decisions, and what decisions were required to go to full council. Overall the teams felt this worked well.

One of the keys to the success of this project was the client’s decision (through Opus’ recommendation) to notify NZ Strong of their successful tender three months prior to the commencement of work. This enabled NZ Strong to order and prefabricate the bridge and carefully programme the work to ensure that they could deliver on time. *“We had four months pre-construction period. That was to the client’s credit. When clients want you start within a fortnight, you are at a disadvantage – you start flat-footed. You need momentum prior to hitting the site. It is very inefficient otherwise, as you end up finding solutions for building while you are doing it rather than finding solutions before you start. In this case, this was a good initiative from the client.”* Shane Brealey, NZ Strong.

Level of Trust

Everyone agreed that the Project Team were willing to acknowledge their mistakes and work together to solve the problem. *“We were very open with what we discussed, as it is our philosophy to work in a collaborative environment”* Muir Coup, Opus Consultants.

The level of reporting, transparency and people’s willingness to help solve issues meant that by the end of the project there was a strong level of trust. *“That is why we resolved accounts so quickly at the end. There was enough trust in our relationships to be able to take each other at our word.”* Peter Everett, NSCC.

Strong Coordination between NZ Strong and Fletchers

As mentioned, the three busway stations were located inside Fletcher Engineering’s work area. Part of Fletcher’s responsibility was to prepare the building platforms and supply services to a specific location. Whilst there was no direct formal relationship between the two companies, in order to help coordinate their programmes they both recognised the need for a high level of communication and through their own initiative, put structures in place from the start. Weekly meetings throughout the duration of the project helped them to work together towards realising issues such as environmental, health and safety considerations and programming.

One of the Northern Busway Stations



Summary of Benefits

The willingness for all Project Team key members to adopt the informal partnering charter and actively embrace its principles provided an environment that supported the Contractor's proactive attitude and willingness to go beyond standard practice. This in turn created tangible benefits such as producing the project on time, to cost and to the high level of quality. But it also produced intangible benefits as well, both to the enhancement of their reputation, to the point where NSCC is now one of their best referees and that they have ongoing work with NSCC, Opus and Fletcher Engineering. It is difficult to be able to place a value on all these benefits.

Lessons learned

Key lessons to take forward from this project have been identified as:

- **Establish Relationships Early:** Very useful for key team members to meet early, particularly the Governance Board so as to establish relationships prior to resolving issues that arise during construction.
- **Post Project Reviews:** Both the client and NZ Strong reviewed their processes after the project to ensure that they learned from their successes and mistakes.

Possible improvements

As in all projects, there are always aspects which can be improved and which the team can take on board for future projects.

- At the tender stage for the tenderers to be fully informed of the client's brief and main objectives
- Under an informal partnering charter if implementing penalties such as Liquidated Damages than for the client to consider in tandem an equal incentive. In addition, as construction is not an exact science, an agreed neutral zone should be considered either side of the target date of completion where no Liquidated Damages or bonuses apply
- Early Contractor Involvement in the documentation process would have contributed to better buildability decisions and cost savings.
- Change the construction methodology: whilst all the different teams worked well together, it could have ended quite differently. It relied heavily on people's professionalism and required a lot of effort into managing the risk. The client recommends for future projects to have a different procurement model, where one contractor is in charge and overviews the whole project.
- Government bodies able to work with preferred suppliers

Conclusion

The collaborative nature of this project with the emphasis on relationships resulted in a project that was built on time, to budget and to a high level of quality.

Within a month of Practical Completion the team were awarded the Code of Compliance Certificate. Only by taking a global view that they were all in this together were the Project Team for the Busway Stations as well as the other teams on the overall project able to achieve such a positive outcome.

This quickly translated into benefits for the team, such as ongoing work for NZ Strong with NSCC and between Fletcher Engineering and NZ Strong.



In addition, the Project Architect from Opus, joined the NZ Strong team, where he is now responsible for coordinating ongoing work with Opus. These examples demonstrate clearly the strong relationships that were forged during this project.



For further information visit
www.constructing.co.nz

