ALLIANCE MODEL BRINGS INNOVATIVE PRACTICE

Our second Pathfinder case study looks at a roading project north of Auckland. It is delivering ahead of time and to budget thanks to an Alliance model that has helped full integration of social and environmental measures and, in the process, promoted innovative practice.

By Charissa Snijders, Charissa Snijders Architect Ltd, Auckland

The Northern Gateway Alliance was formed to design and construct the Northern Gateway toll road (ALPURT B2), the last stage of the realignment and extension of the Northern Motorway between Albany and Puhoi. The motorway involves the construction of five culverts, six bridges and three eco-bridges. Total earthworks have reached over 4,000,000 m³.

The Alliance is delivering the project for the NZ Transport Agency, New Zealand’s state highway manager. The high-risk nature of the work, along with its potential consent risks and complex engineering challenges, all contributed to the NZ Transport Agency decision to select the Alliance model for this project. The engineering had to take into account several difficult geological formations, steep mountainous terrain and the site’s sensitivity within a significant environmental area. Thus, environmental and social measures were deemed to be important to the success of the project.

Key performance measures

One would expect a project of this scale and impact on the environment to adopt a social policy that actively informs key stakeholders and interest groups. The Northern Gateway Alliance developed a project communications plan to ensure local residents and businesses are kept well informed of upcoming activities and project milestones. Key aspects of the plan include regular newsletters and monthly meetings with the community reference group, representing the interests of local residents and businesses.

The most surprising result of adopting social and environmental measures has been the internal impact on the project team. A myriad of innovation has resulted, as people felt listened to and valued. This is evident in every aspect of the team’s work, as depicted by the following examples.

Increased lifecycle, reduced footprint

The Northern Gateway Alliance decided to increase the value of the road pavement from the initial specification to deep lift asphalt. The quality is superior and changes the road life from 2 to 20 years, thus providing significant cost savings to the NZ Transport Agency over the life of the project. The additional $2.5 million cost will be shared by the Alliance as a whole.

Stepping up the bitumens to around 1:1 or 1:2 eliminated the need for benches, which meant less bush clearing and reduced the impact on a sensitive environment. Due to the steep slopes and construction constraints, the slopes were cut using GPS-guided excavators. Investigation was also required to find an innovative solution to enable placement of the mulch and revegetate the steeper slopes. This was achieved by importing a mulch blower from the United States.

Biodiversity was encouraged throughout. For example, the design of the fish baffles through the culverts went beyond consent conditions. The team came up with ways of providing passage as well as establishing fish habitat with rock pools within the large culvert.

Adding value to the community

The Northern Gateway Alliance built a footpath for DOC through the bush at the northern end that will form part of the Te Araroa Walkway (from Cape Reinga to Bluff). By shifting extensive
earthworks nearby, they were able to widen the road and put a median down the middle to improve construction and end-user safety. The Alliance also made financial contributions to environmental programmes in local schools, by funding “Trees for survival” in conjunction with Auckland Regional Council. These innovations create a win-win situation for everyone.

**World-class best practice**

In a world-class project such as this, time, cost, quality and safety are the givens. Beyond these core measures, construction projects can add value to the industry, the community and the environment. The following are some examples of world-class best practice adopted by the Northern Gateway Alliance.

**PRINCIPLES, OBJECTIVES, INNOVATION**

Collective agreed principles and objectives were created at the formation of the Alliance and kept alive throughout the project with the Project Alliance Board basing its decisions on the project objectives. Deputy project director Gavin Hendricks said it was the first time he had seen this have meaning as a contract on site.

The Project Alliance Board continuously challenged everyone to make decisions in alignment with the agreed principles and objectives and to find better ways of working. To help people admit mistakes and continuously improve, a formal process called the ‘opportunity for improvement’ was adopted. Anyone can write an opportunity for improvement, and each one receives a response from a manager. Where appropriate, new procedures are put in place. The response has been huge with around 2,400 submitted so far.

**TRAINING, COMMUNICATION, INTEGRATION**

There was a strong emphasis on training for those who wanted to upskill either their interpersonal skills or technical knowledge. Workshops and team-building events focused on building a single team culture from the six key organisations. A shared working environment was established during the design phase and on site during construction.

Design manager Noel Nancekivell said that the ability to talk to one another so easily was fantastic. ‘By sharing the workspace, you walked away with a better knowledge of each other’s business, which helped us to understand one another.’

Transparent and open communication was supported by a communications centre monitoring the electronic document management system – a single project database.

Team members were encouraged to contribute beyond their typical sphere of knowledge. This facilitated the integration of design and construction. NZ Transport Agency’s Brett Gliddon said that there was so much cross-pollination that the design engineers became project engineers and the client engineers were doing detailed design.

**SAFETY, CULTURE, BENCHMARKING**

Health and safety has been very strong, ‘probably the best that we have worked under’, according to supply chain member Jeff Roach. This was achieved by developing and living a collective safety vision with a designated safety team, single safety charter and a safety manager who is on the Alliance management team.

The ‘hearts and minds’ cultural assessment tool was adopted from a wider Shell Oil safety programme where project teams work together to manage risk.

Benchmarking was achieved by teams being in competition with each other to promote continuous improvement in erosion settlement control. The project has exceeded standard best practice for roading construction. Environmental manager Michael Cassidy says that other roading projects are now trying to beat their target. Ultimately, that is great for the environment.

**Alliance model gets the tick**

Gavin Hendricks has been in the industry 23 years, and this is the best project he’s worked on. Innovation comes from a willingness to listen to each other, which provides a greater motivation to contribute. The teams agree that each member takes ownership and works towards the same goal.

An Alliance model propels people to shift their behaviours. However, as with the Hopkirk Research Institute (see Build 108, October/November 2008, pages 38–39), many of these practices can be adopted within a traditional contract environment if the client is willing to lead. It is harder, but not impossible.

What this project demonstrates is that, when the client is in alignment with world-class best practice, the team can go beyond the normally expected success measures of time, cost, quality and safety and add value to each other, the community and the environment.

*A more detailed report on this, and other Pathfinder projects, is available at www.constructing.co.nz.*