



# Leveraging Project Procurement & Delivery Approaches for *Positive Outcomes*

How and When to Use Alliance Contracting



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# Foreword



Project delivery encompasses many forms of procurement methodologies from Design-Build or Construct (D/B or D/C) to Alliance Contracting, Construction Management at Risk (CMAR) or Construction Manager/ General Contractor (CM/ GC) to name a few, and include projects financed by agencies and those financed privately (Public Private Partnership, PPP or P3).

Before the pandemic, procurement processes were already facing several challenges, mainly due to projects' growing complexity and size as well as risk allocation among stakeholders. Indeed, PPPs and D/B infrastructure programs have come under pressure from cost and schedule overruns and a risk transfer model that has caused many design and construction firms to rethink their business strategies. For more than 20 years, Australia has successfully used Alliance contracting to deliver billion-dollar construction initiatives. This collaborative contracting method is built on the fundamentals of shared risk, no litigation and a commercial structure that caps financial exposure of the design and construction partners.

In a post-COVID-19 landscape, governments around the world are exploring multi-billion dollar stimulus packages to help kick start the economy. But the procurement challenges remain and as the flood gates open, how could they be resolved or at least mitigated?

What is the best way to get projects to market that will provide both a stimulus to the economy and value to taxpayers and end-users? During this next phase of economic activity, infrastructure owners can select the most appropriate procurement and project delivery approach to get shovels in the ground and meet the needs of the end-users and project stakeholders.

WSP has developed field-proven best practices to implement projects successfully under a wide range of procurement and delivery methods. Building upon this extensive experience, our experts can help clients set a roadmap to roll out the most appropriate delivery method based on their needs and requirements.

We are pleased to present to you our white paper on Alliance contracting. WSP's Global Integrated Contractor Delivery Network includes seasoned practitioners of this project delivery methodology and will share valuable lessons learned in this paper.

We look forward to discussing your project outcomes and the most appropriate project delivery approach to reach them.

**Eric Peissel**

*Global Director, Transport & Infrastructure*

# Understanding Alliance Contracting: A Collaborative Agreement at its Best

The textbook definition captures well the spirit of this alternative procurement and delivery method, which has become the norm in Australia in the past 20 years.

In essence, Alliance Contracting was born from the desire to align the interests of all stakeholders in a project, encouraging synergies and integration with two possible outcomes: Win-Win or Lose-Lose for every participant. The “pure alliance” approach relies on a mutual agreement that covers risk sharing, setting a cap on financial exposure, and not to litigating. If a problem occurs, it is everybody’s problem and all work together to solve it.

With traditional forms of contracts, each party is given separate and individual obligations on what is required of them, and risks are also allocated generally to either one party or the other. An alliance approach makes a fundamental shift to a shared or collective set of obligations, and a shared approach to risk and opportunity.

*“An owner and one or more service providers (designer, constructor, suppliers, etc.) work as an integrated team to deliver a specific project under a contractual framework where the commercial interests are aligned with actual project outcomes”.<sup>1</sup>*

1. [National Alliance Contracting Guidelines—Guide to Alliance Contracting](#), Department of Infrastructure and Regional Development, Australian Government, September 2015



**TRADITIONAL FORMS OF CONTRACT**

**Transfer risk**

Each party has and must fulfill its own separate/individual obligations



**Owner obligations**

**Contractor obligations**

Specific risks allocated to each party with perhaps some shared risks



**Owner risks**

**Contractor risks**



*Fundamental shift in the way risk (and opportunity) is dealt with under the contract*

**“PURE ALLIANCE” APPROACH**

**Share and jointly manage risk/opportunity**

Nearly all obligations are collective. Some individual obligations (eg. Owner’s obligations to pay)



**Mostly collective obligations**

Preferably all risks shared. However, some unique risks may be retained by the Owner (noting that it is not normal under a pure alliance for any risks to be borne solely by the Non-Owners Participants (NOPs))



**Nearly all risks (and benefits) shared**

# How It Works

## Procurement Process

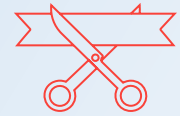
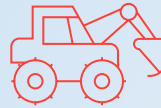
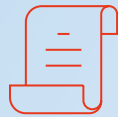
Once the decision is made to adopt the Alliance Contracting model, a government agency or a private-sector client will kick off the process with a prequalification and expression of interest process. Consortia will pre-form in anticipation of an expression of interest to get the team ready. Within the alliance, there are owners and Non-Owner Participants (NOPs). The owner is the ultimate owner of the infrastructure; the non-owner participants are all the other parties who are joining forces to deliver the project.

The owner would typically run a market engagement process to inform the market of the forthcoming project, outline the critical success factors, and perhaps seek industry feedback to help refine the approach. A formal expression of interest requests a response from consortia, where they seek details like prior relevant experience, key people, approach, and sometimes business as usual margin expectations. If a consortium is shortlisted, parties will sign an Alliance

Development Agreement that includes a technical proposal and target budget, called a target outturn cost. The target budget includes all the direct costs, indirect costs, risk, contingency, corporate overheads, and normal profit. The cost build-up is an absolutely transparent and open-book process.

The tender process is quite interactive, involving numerous workshops labelled as “positive guidance” where owners provide a clear direction on project parameters, objectives, budget, and Owner Value for Money statement. In addition, they set the key responsibility areas (KRAs) and key performance indicators (KPIs), identifying for which components they want to reward extraordinary performance and how.

For the successful consortium, the Alliance Development Agreement moves into a Project Alliance Agreement, which binds all parties. Everybody who is part of this launch signs up to that agreement and starts working together to deliver the project or program.



01

Prequalification and Expression of Interest process used to select:  
Single consortium for *Pure Alliance*  
Two consortia for *Competitive Alliance*

02

Owner and non-owner Participants (NOPs) enter into Alliance Development Agreement (ADA)  
Prepare a technical proposal  
Prepare Target Outturn Cost (TOC)  
Complete transparency in TOC build-up. Open to challenge.

03

ADA Proposal evaluated and then execute a Project Alliance Agreement (PAA)

04

Deliver the project (or program)

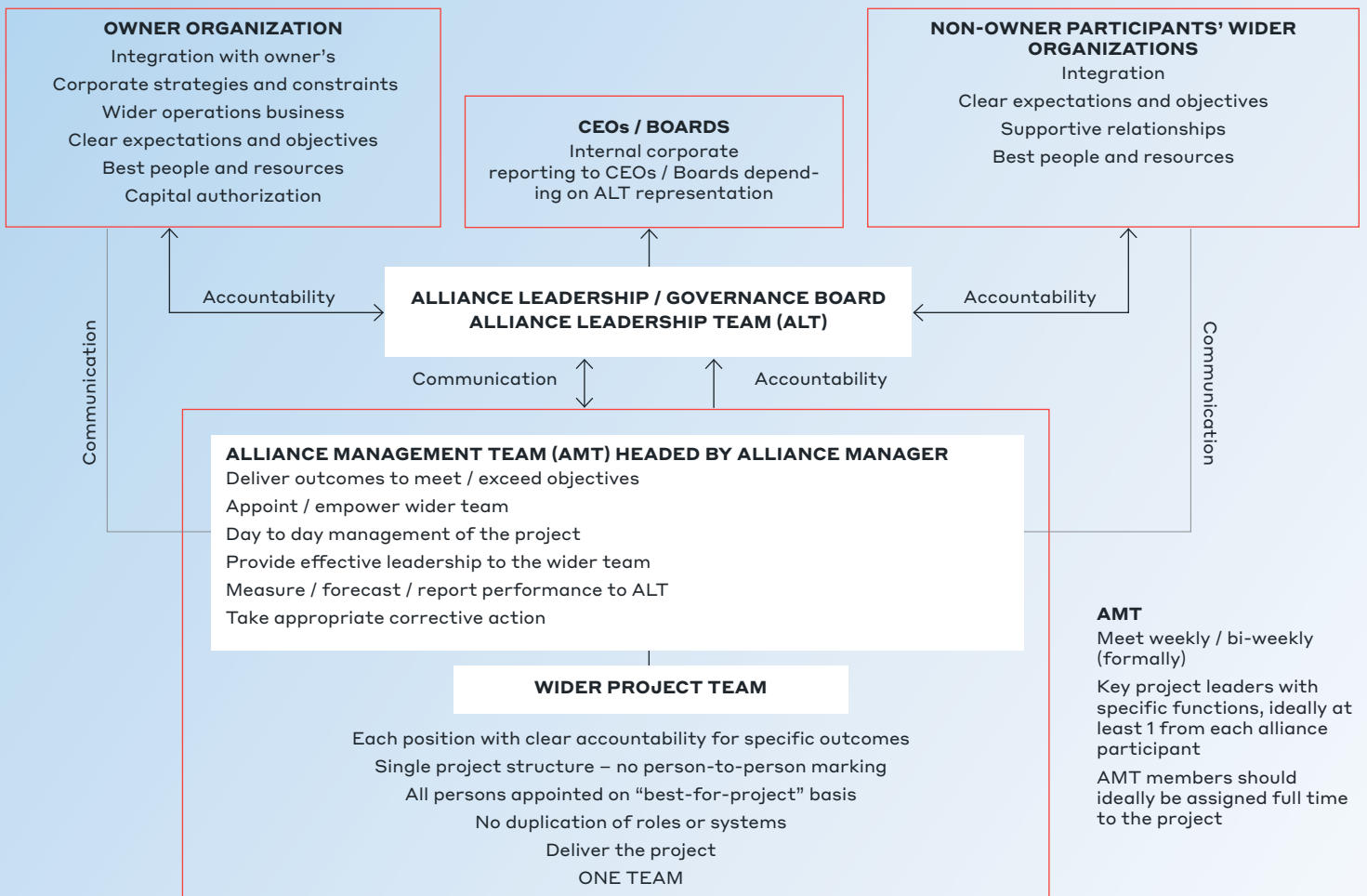


## Governance

Alliancing will work well where there are commonly aligned objectives, with the parties committing to work towards common goals and behave in a cooperative and collaborative manner articulated through setting out, at the beginning of the project, a “statement of intent” as to the aims and objectives of the project delivery and working relationships. The project governing body determines the effective way to achieve a shared vision for the project and agreeing the terms of a Project Charter incorporating these objectives and alliance principles and forming the philosophical basis for the project and expected behaviours. Parties should be aware of the quality of works and services required to meet the objectives of the alliance. Commitment to a “best for project” approach is required, which means that the alliance representatives will need to choose between any competing proposals put forward by several participants of the alliance.

There are three main levels forming the alliance governance:

- 1 The Alliance Leadership Team acts as the governing body across the project, with full-decision-making authority in the alliance. Typically, roles are filled by very senior people in the organization that are ultimately accountable for the business in the alliance. It is a self-sufficient entity, able to make binding decisions, as a team, and on behalf of all alliance owner and non-owner participants.
- 2 The Alliance Management Team is an integrated project team responsible for delivering the project, and comprises a combination of constructor and design representatives, along with owner's representatives.
- 3 The Wider Project Team is a single integrated team, typically co-located in one office, all wearing the same badge or wearing the same logo so that the parent company where people are employed becomes irrelevant once the team is embedded within an alliance.





## When to Use It

With projects growing in complexity, risk, and scale, the Alliance Contracting model lends itself better than traditional delivery methods to ensure a positive outcome. With this model, 80 percent of complex projects are delivered on time and on budget or better<sup>2</sup>. One significant advantage is the collectively shared risk among all participating organizations—a major consideration before embarking on a project.

Under normal circumstances, the scope of the project should be clearly defined by the clients; in the case of a crisis, just like COVID-19, clients can rely on this transformative model to bring a volume of work to market very quickly, without knowing what that scope is. Through innovation and true collaboration, the owner and NOPs can deliver projects in a way that could not be done in the traditional delivery methods.

## When to Use it in a Nutshell

- ✓ Complex interfaces and/or unpredictable risks
- ✓ Technical challenges requiring innovative solutions
- ✓ Complex stakeholder issues and/or external threats
- ✓ Very tight timeframes
- ✓ Difficult to define scope and/or likely scope change
- ✓ Useful where significant value can be added by the owner
- ✓ Risk and opportunity are better managed collectively
- ✓ Needs to be of scale to justify procurement effort and cost.

*“The true strength of the alliance model is that all participants are focused on the outcomes and the project is delivered through a true peer relationship where all participants have equal say. The key cultural change required is for individuals to understand that unlike the traditional approach where risks are allocated to individual parties (Owner/Designer/Contractor) the alliance approach is a collective sharing of all agreed risks/benefits.”*

Peter Spies, Chief Advisor Engineering, Waka Kotahi, New Zealand

Waterview Connection

Kaikōura Earthquake – Response, recovery and rebuild

2. Source: Alliancing benefits and challenges in infrastructure projects, Alain Mignot, projectmanager.com.au



## Key Success Factors

As collaboration and trust form the backbone of Alliance Contracting, this procurement and delivery method relies on the following success factors:

- 1 **Select a high-performance team:** each participating organization selects the best team members, looking for the right behaviours, experience and how the team will work together.
- 2 **Be clear on what success looks like:** with a clear overview of the client's expectations and requirements, each participating organization can deploy their resources accordingly to deliver the project.
- 3 **Deliver value for money:** forming one integrated team and committed to best-for-project decisions, the alliance enables innovation and can challenge standards to deliver a better project.
- 4 **Be prepared to collaborate as one team:** working in good faith from beginning to end, each participating organization needs to be transparent and engage advice to fully materialize the benefits of the alliance model.
- 5 **Select the right project size:** to fully reap the rewards of the Alliance Contracting model and be viable for all participating organizations, project value should be higher than \$100 million worth of work.



Watch the [Snack & Learn Webinar on Alliance Contracting](#)

# How Can Alliance Contracting Unlock Stimulus Funding?



[Watch the Snack & Learn Webinar: Unlocking Stimulus Funding Using Collaborative Contracting: A Global View](#)

## What is the broad environment for post-COVID infrastructure investment?

Infrastructure spending has historically been a pillar of post-recession stimulus plans in an effort for governments to spur economies back to life and put people to work. For example, after the 2008 financial crisis, the American Recovery and Reinvestment Act (ARRA) earmarked billions to “shovel ready” infrastructure projects – those that could be completed within three years. While the extent of the downturn caused by the COVID-19 pandemic may not be known for months or years to come, governments and policy makers are nevertheless starting to design massive infrastructure spending programs as part of larger relief packages. Below is a snapshot of a few of the proposed campaigns<sup>3</sup>:

- The Trump administration is preparing a US\$1 trillion infrastructure package with most funds focused on transportation projects;
- The Canadian federal government is setting aside up to CA\$33.5 billion for new infrastructure challenges arising from COVID-19. Provinces are doubling down and earmarking additional funding to municipal infrastructure programs;
- The UK recently announced the “largest ever investment” in infrastructure with £600 billion earmarked for road, rail, telecommunications, schools and hospitals;
- Australian Prime Minister Scott Morrison announced a AU\$1 billion investment in shovel-ready infrastructure projects with further infrastructure spending expected to be a key part of the government’s JobMaker plan to rebuild the economy and create more jobs;
- New Zealand’s COVID Response and Recovery Fund (CRRF) will set aside an additional NZ\$3 billion in fresh capital to the previously approved NZ\$12 billion infrastructure investment plans;
- Europe has put together a €750 billion stimulus plan that included funding for critical infrastructure;
- China has unveiled a US\$667 billion spending bill specifically directed towards infrastructure investment;
- The Asia Pacific Region have all announced stimulus packages of varying amounts, led by Japan’s US\$1.1 trillion and South Korea’s US\$85 billion plans;

3. [Policy Responses to COVID-19](#), International Monetary Fund



While investing in infrastructure is broadly accepted by governments globally as a policy tool for stimulating an economy that is experiencing a recession there are, however, challenges with government's ability to both access funding for infrastructure and then direct it in the most effective manner.

The challenge during a recession for government is access to tax revenue to invest in infrastructure placing more reliance on borrowing. As borrowing becomes the main source of investment funds during a recession recovery period, it places more emphasis on prioritizing infrastructure projects (shovel worthy) that can provide the stimulus to an economy in the short to medium term while also providing long-term sustainable economic and societal benefits.

Maintaining infrastructure construction activity is often first line of defense in stimulating economic development. In the US state and local governments continue to move forward with highway and bridge projects, particularly those that were under contract or in the procurement process.

One significant COVID-related trend is the increased investment in the maintenance of current transportation assets. There has been accelerated delivery of projects to stimulate the economy, for example taking advantage of lower traffic volumes to advance the scheduled

completion of on-going projects. In the US for example, during COVID despite the loss in funding, some states have taken advantage of the lower numbers of road users to accelerate planned road improvement projects. The Florida DOT accelerated 40 projects in April 2020 while the Georgia DOT awarded almost US\$110M in contracts in the same period. Additionally, some large maritime resiliency programs are also continuing in addition to the cruise terminal business taking advantage of reductions in sea traffic to upgrade and make repairs to facilities.

While expediting existing funding allocations towards existing infrastructure improvements can assist in slowing an economic decline it is an investment in the larger projects that will generate a longer term more sustained economic recovery. The choices that governments can make regarding funding allocation are often between speed of procurement and delivery versus the type of infrastructure that can promote longer term and sustained economic growth. Ideally a balance is struck between the speed of procurement to quickly provide the stimulus that an economy needs and sustainable investment to maintain growth. Investing in the maintenance of existing infrastructure (state of good repair), although necessary, can be an attractive mechanism to provide a quick stimulus to an economy but often does not contribute to longer term sustainable growth.



### What are the inherent disadvantages to traditional/DB deliver for getting projects off the ground?

Government stimulus is most effective when it can be deployed in the short or near term. By putting people to work governments and politicians can kick start the economy, ease the stress of social safety-net spending on government budgets and promote a fast and efficient economic recovery. Unfortunately, traditional delivery models including Design-Build (DBs) and Public Private Partnerships (P3s) have been ineffective avenues for putting government money to work in a post-recession environment. While there are many contributing factors, two primary reasons can be attributed to the lack of competitiveness in the current DB/P3 model and the time to market for new DB and P3 infrastructure projects.

In a 2014 Ontario Auditor General's report<sup>4</sup>, 47 general contractors and 14 facility managers expressed interest in the province's 56 P3 projects completed or substantially completed at the time. However, over 80% of those projects were awarded to 5 general contractors. Similarly, two of the facilities managers were awarded more than 50% of the contracts containing a maintenance component. Furthermore, a study by the International Transport Forum<sup>5</sup> on competition in infrastructure

projects in Europe analyzed the procurement data of P3s over a multiyear period. The findings indicated a two-tier market represented by a few firms gaining top-ranking positions in both road and rail delivery. This suggests competition in the market for P3s and large road and rail infrastructure projects does not differ.

Accentuating this lack of diversity in recent years, stalwart players in the P3/DB market are re-evaluating their interest in the delivery model. With increased risk transfer to the private market, the tightening of innovation opportunities and the increasing shift to a lowest cost-wins evaluation criterion, large infrastructure programs are becoming a playground for a select few. For evidence, you have to look no further than some recent high-profile announcements by Fluor, Granite, Skanska and SNC Lavalin, who have all selectively pulled back from fixed-fee, lump sum contracts.

What does this lack of competitiveness mean? Foremost, for owners to get people to work on new large-scale infrastructure, they first need a viable project the market wants to deliver. This is becoming harder with few companies able or wanting to play. A 2018 audit performed by the European Court of Auditors looked at 12 P3 projects in France, Greece, Ireland and Spain. The report found that a lack of competition for large

4. 2014 Annual Report of the Office of the Auditor General of Ontario

5. [Competition for Infrastructure Projects: Traditional Procurement and PPPs in Europe](#), by Athena Rouboutsos, Working Group Paper, International Transport Forum

contracts put owners in weak negotiating positions and caused start up delays to major projects due to complex contract talks. This issue is not isolated to Europe. In 2019 the city of Edmonton in Canada was forced to cancel the procurement of their CA\$1.7B LRT expansion after two of the consortia pulled out of the procurement.

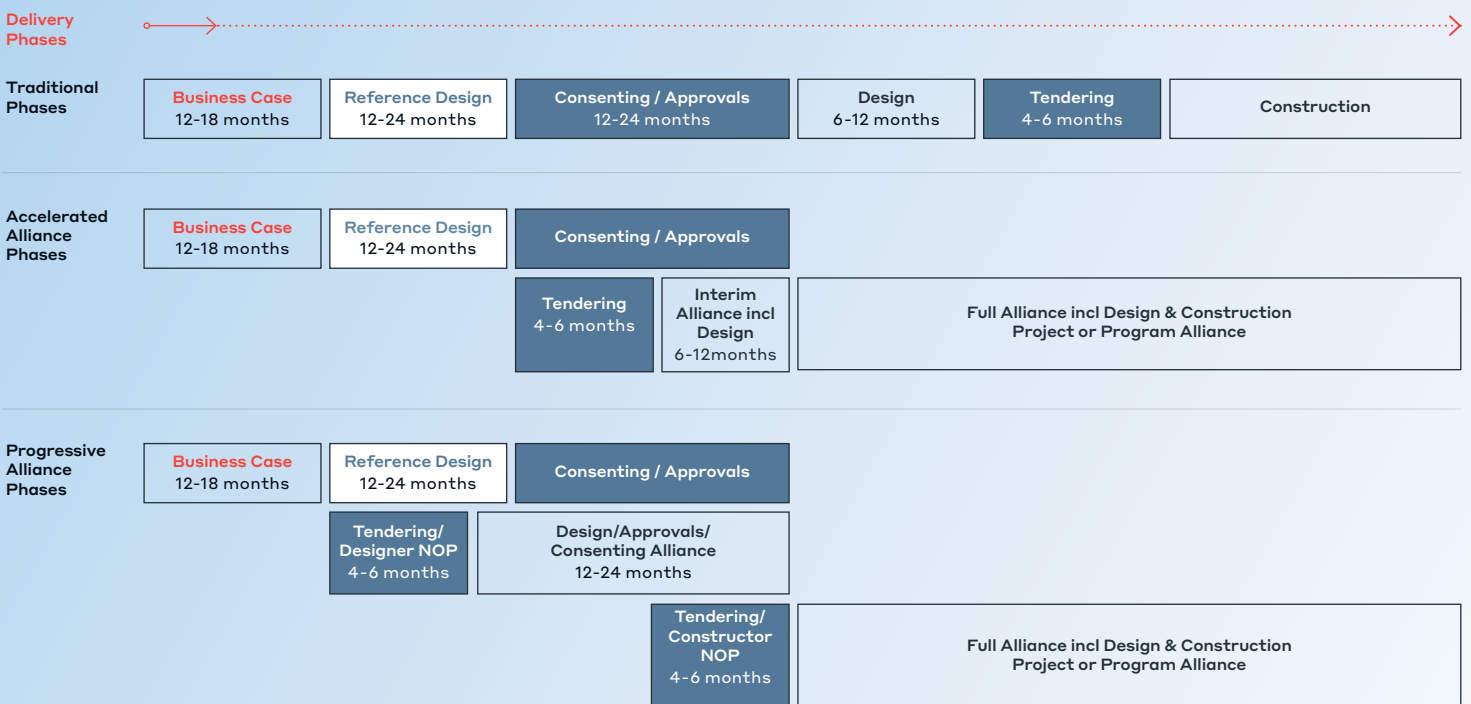
To a lesser extent, in many global markets the DB and P3 environment is dominated by a small number of large international players. While this may not prevent infrastructure from being built, the optics of a large amount of stimulus spending leaving the country may weigh on the minds of policy makers and taxpayers alike.

“SHOVEL READY” is the phrase that is often thrown around to refer to infrastructure projects that are viable for stimulus spending. Unfortunately, most infrastructure projects are in some state of concept or planning. Furthermore, new infrastructure spending that can lead to long-term or sustained economic growth – think new transit or water infrastructure – can take years to move from concept to shovel ready. These timelines can be accentuated in both DBs and P3s which have a sequential project development processes with lengthy consultant and contractor procurements at each stage. If projects happen to be in dense and urban areas that impact the public, third party stakeholder or First Nations, these timelines can be considerably longer, or revisited in later phases of the procurement. The 18 km East West Line<sup>6</sup> tollway P3 in Melbourne, Australia, was awarded to a consortium at a contract value of AU\$5.3B in September 2014. However, in the November state elections, the

project became a central issue of disagreement and was eventually cancelled at a cost of AU\$1.1B to taxpayers.

This approach to procurement is often called Waterfall Planning, where one phase of development is often dependent on the completion and inputs from the preceding one. While this method is a mainstay in the engineering and construction industry, it is lauded by many others for its lack of flexibility, speed and one direction flow of progression. This lack of efficiency in this procurement model is one reason the construction industry has been slow to evolve. In a recent McKinsey Global Institute report<sup>7</sup>, construction productivity averaged only 1 percent a year over the past two decades, compared with growth of 2.8 percent for the total world economy and 3.6 percent in manufacturing. In an environment where speed of cash deployment is critical, the traditional method of procurement handcuffs governments and policy makers from incorporating early stage infrastructure programs into stimulus programs.

Identifying, procuring and delivering large infrastructure projects that provide both short and long-term stimulus to the economy provides the best overall position. The challenge that is generally faced with shovel ready projects is that the procurement stage is often longer than desired to provide the short to medium term economic benefit. Therefore, a means by which we can procure delivery in a relatively short time will provide an advantage for delivering infrastructure and achieve a longer sustained economic boost.



6. [East West Link \(Melbourne\)](#), Wikipedia

7. [Improving construction productivity](#), by Filipe Barbosa, Jan Mischke and Matthew Parsons, McKinsey, July 18, 2017

# How Can Alliance Contracting Speed up the Process from Concept to Shovel Ready?

Alliance Contracting is a procurement model that can be used to procure the delivery of projects in a shorter timeframe. It can deliver short- and long-term benefits of infrastructure investment, it can quickly go from an “announcement” to “jobs created”, in other words an effective tool to achieve shovel ready status.

Upon an emergency or crisis, it is rare for projects to be at the stage with completed planning, design, approvals, and procured construction companies, ready to start construction. It takes time to undertake each of these processes, and most traditional delivery models, with a Waterfall Planning approach can take years to go from concept to shovel ready.

## Traditional Approach

Most infrastructure delivery is supported initially by the development of a **business case** or investment case. This outlines the overall scope of the project and the associated benefits and costs. The concept at this stage is usually quite high level; just enough to confirm the overall project objectives and design concept and allow indicative estimates of cost. Timeframes for business cases vary widely, but large projects could take between 12 and 18 months and are often linked to government budget cycles.

*“The Alliance model has been used by the Waka Kotahi on over 30 diverse projects where risks, project complexity and in some instances (disaster recovery projects) yet to be defined scope, needed to be managed. The alliance collaborative contracting model with well-defined commercial principles of risk/reward sharing and a best-for-project focus creates mutually beneficial relationships so as to produce outstanding project outcomes.”*

Peter Spies, Chief Advisor Engineering,  
Waka Kotahi, New Zealand

Waterview Connection

Kaikōura Earthquake – Response, recovery and rebuild

After a business case is approved, further design work is usually completed, often called a **reference design**. The reference design further develops the concept and importantly defines project scope and limitations. The reference design typically informs the **consenting** or **approval process** that needs to be followed to ensure compliance with regulatory requirements.

Traditionally, approvals and tender design need to have been completed before the commencement of a tender process for construction. This sequence is required because this delivery model involves the complete transfer of key risks to a contractor. Finally, after perhaps 5 or more years, shovels enter the ground. Clearly, the intent of the stimulus is to be achieved much more immediately.

There are, however, collaborative contracting procurement methods that can reduce this period by several years.

## Alliance Approach

An alliance approach is collaborative, and ideally suited to projects that do not yet have absolute clarity on project scope and extent. By design, they allow for equitable risk-sharing between owner and non-owner participants as the project development and delivery unfolds.



There are two procurement paths described below that enable a rapid approach to procurement of design and construction services within alliance frameworks.

#### Accelerated Alliance

As per the traditional approach, an Accelerated Alliance still assumes that the **business case** and **reference design** work has been substantially done, and the consenting or approval works have also begun.

However, rather than complete this process, the tender for the procurement of design and construction alliance participants can commence before the consenting is complete. The most suitable team is selected based on various evaluation criteria, and include commercial expectations based on “business as usual” and proven through an audit. Because the project is not yet sufficiently developed to confidently price, an “interim alliance” is formed, whose primary purpose is to complete the design, consenting and construction planning. Some early work packages, perhaps on the critical path, can begin during this period, giving life to the first shovel ready work packages. The interim alliance commercial model is just like a small-scale early phase alliance, with a target cost developed to funding the interim phase works.

This interim phase though leads to sufficient project definition that a full project target outturn cost (TOC) can be developed. Approval of the delivery TOC gives life to the full-scale alliance, with further design work done and construction commencing at scale.

#### Progressive Alliance

A Progressive Alliance is similar to the Accelerated Alliance but differs in the staged appointment of design and then later, construction. As it is mostly the design services that are needed to further develop a reference design and initiate consenting, these services are procured early. Then at a later stage, the constructor non-owner participant can be selected to join and the full organizational alliance can be formed.

This approach provides design continuity through reference design, consenting and delivery, and enables a faster start to construction as the design is more developed when the constructor NOP joins.

The collaborative and risk-sharing elements of the alliance delivery model enable years to be taken off the traditional approach to plan, design, consent then construct a project. Given the time-critical nature of stimulus funding, the alliance model offers numerous benefits as one of the fastest routes to enable a project to be indeed shovel ready and unlock the investment.

In practice WSP’s global project delivery experts have applied Alliance contracting on projects providing real world solutions to a technical challenge allowing owners to benefit from faster time to market and getting shovels in the ground in an expedited fashion. As demonstrated in the following case studies, the collaborative approach to project delivery also resulted in enhanced stakeholder consultation process and early completion of the project.



# Where/when is Alliance Contracting Used?

Alliance contracting was first developed during the 1990s in the UK oil and gas sector for petrochemical projects such as offshore drilling platforms where the traditional delivery of a complex risk profile involving a diverse range of suppliers, skills and disciplines typically led to significant cost and time overruns. It has since been successfully adopted and further developed on a range of infrastructure investments globally, including in Australia and New Zealand.

The use of Alliance Contracting for infrastructure has been adopted for a range of reasons, including where:

- Improved and extraordinary outcomes are sought under extraordinary circumstances, through the extra relationship facilitation and motivation possible through an alliance, including with project location and/or complexities that are exceptionally challenging;
- Uncertainty in scope of work;
- Diverse risk profile where the complete transfer of risks to a supplier is not sustainable or optimal;
- Specialist resources and capacity are not available from a single supplier;
- Delivery deadlines and needs which cannot be met by traditional sequential phases;

- Extensive project complexity such as technical, environmental and stakeholder considerations;
- Time constraints which require scope definition, design and construction to occur concurrently and requires an innovative approach;
- Significant scope for added value through innovation;
- Considerable complexity is involved, with little time to resolve issues, such as environmental, and those that require special and complex key stakeholder involvement; and
- Key stakeholder interfaces and relationships are complex and/or particularly difficult and require a special approach.

As discussed in our previous section [“How can Alliance Contracting Speed up the Process from Concept to Shovel Ready”](#), the contractual basis of alliancing is well suited to achieve a quick start on projects.

Alliancing gives the Owner and Non-Owner Participants flexibility to react, change and adapt to difficulties with minimum delay. Allowing capacity for the Owner to deliver a large and critical body of work in a tight timeframe in resource-constrained markets to enhance community capability and productivity.

# What Types of Collaborative Delivery Exist?

## Project Alliance

The original collaborative model was developed for delivery of a single large project to align project objectives, drivers and incentives between project owners and supplier participants. Alliance Contracting is also referred to as Integrated Project Delivery (IPD) in North America. There are various procurement methods used in the establishment of project alliances, including:

- 1 **Pure Alliance** – the preferred alliance consortia or partners are selected based on a quality assessment with the target price subsequently negotiated.
- 2 **Competitive Alliance** – two or more consortia submit proposals and target prices which are evaluated using price and quality criteria to select a preferred consortium to form the Alliance with.

## Progressive Alliance

A Progressive Alliance is used to deliver a sequence or programme of similar projects under a Project Alliance model. The initial project is established and delivered as a single Alliance with the intention of adding additional projects/packages subject to good performance on the first and then subsequent packages. It allows efficiencies and

learnings on the first alliance to be used on subsequent packages. Packages will typically be partially overlapped to deliver the full programme of packages to optimal deadlines. Multiple consortia can be selected to deliver the initial packages under separate alliances while measuring comparative performance. This allows the more successful Alliance/s to continue as an ongoing progressive alliance with each subsequent package being negotiated.

## Delivery Partner

The delivery partner model involves the owner supplementing its in-house project management capability with participants skilled in project development including planning, cost management, programming, business cases, design development, procurement and construction management. These skills are typically engaged using an Alliance Delivery model. The key difference being that the participants do not provide detailed design or construction services which are procured by the Alliance from separate suppliers.

This model is particularly suited to owners/clients who are faced with a significant increase in infrastructure investment but are unable to permanently increase in-house resources.

## Summary of Collaborative Models

Various collaborative delivery models are summarized below together with other delivery models typically used for infrastructure projects:

Model	Description
<i>Pure Alliance</i>	Traditional alliancing is a form of relationship contracting in which the Owner collaborates with non-owner parties (e.g. design, constructor, accredited transport operators, etc.) to share risks and responsibilities in delivering the construction phase of a project. Consistent with Owner's requirements, national guidelines and policies. Procurement involves a two-envelope system of evaluation (one having the capability offering and the other an indicative price). Alliance participants are selected early in the procurement phase on the basis of factors other than price, including the alignment expected with, and the relationships expected between, the participants. The Owner chooses the entities it regards as most able to deliver the required project outcomes, including value for money.
<i>Competitive Alliance</i>	Competitive alliancing is a form of relationship contracting in which the Owner collaborates with one or more non-owner parties (e.g. design, constructor, accredited transport operators, etc.) to share risks and responsibilities in delivering the construction phase of a project. Consistent with Owner's requirements, national guidelines and policies, it is assumed that any alliance package would be structured as a competitive target outturn cost (TOC) alliance whereby a TOC is developed by more than one alliance in an environment of competitive tension.
<i>Delivery Partner</i>	A collaborative framework model is adapted to supplement an owner's in-house capability to deliver a portfolio of projects or handle a one-off increase in capital investment. The delivery partner then works together with the owner to progress project development and select delivery models for individual projects.
<i>Managing Contractor/ Construction Management</i>	This form of contracting involves the Owner appointing a head contractor (the managing contractor) who engages subcontractors to deliver the works. The managing contractor is responsible for administering these subcontracts and accepts some delivery risks. Payment arrangements typically include reimbursement of costs plus allowances for management fees, margins and overheads. The contract may also include an incentive regime in relation to key performance indicators such as cost and schedule targets (with some contracts including a 'guaranteed maximum price', usually subject to defined exclusions). The managing contractor is engaged early in the process to manage the scope definition, design documentation and construction of the works. The managing contractor sometimes performs elements of the design and/or construction and is paid based on an agreed fixed price or schedule of rates. Subcontracted works are tendered on a competitive and transparent basis, where possible on a fixed price, fixed time basis.
<i>Franchisee Delivery, i.e. Rail</i>	The Owner has entered into Projects Agreements with the rail franchisee, respectively, which provide for these franchisees to deliver infrastructure works on behalf of the Owner. These arrangements are similar to a managing contractor arrangement, the difference being that it is with the incumbent rail/tram service providers. Consequently, the franchisees could be used to deliver infrastructure under an existing contracting framework, which provides for a cost-plus approach with a fixed margin.

# How Does Alliance Contracting Differ from P3 or DB Delivery Models?

*“Teams need to embrace the ‘no blame no claim’ culture that needs to be set. It is something that is sometimes rare in the traditional contracting market, but when it works, it is very powerful.”*

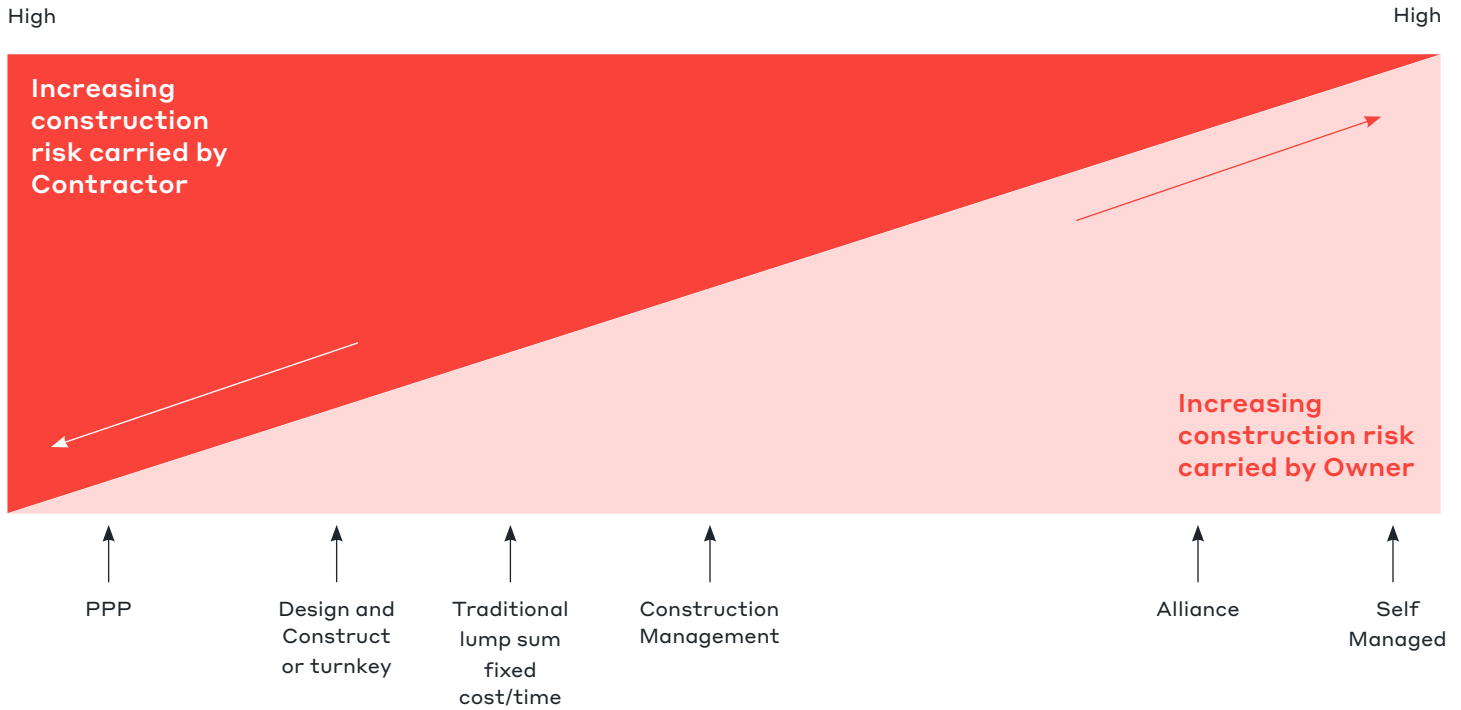
Jean-Pierre Gauthier, P. ENG., Senior Vice President and District Manager,  
PETER KIEWIT SONS ULC, Canada

Alliance contracting differs significantly from other delivery models such as Public Private Partnerships (P3/PPPs) and Design Build/ Design & Construct (DB/D&C), the following table provides a comparison against a range of attributes:

Model	Alliances			P3	DB
	Alliance	Delivery Partner	Managing Contractor	DBFOM/DBOM/DBM	Design Build / D&C Contract with cooperation obligations
<b>Contract structure</b>	Owner, designer and key contractors and suppliers enter into a single multi-party agreement	Owner engages Delivery Partner. Owner separately engages design and construction contractors (or Delivery Partner engages as agent for Owner)	Owner engages managing contractor. Managing contractor must subcontract all design and construction work to others (with close owner control)	Owner engages Project Company (SPV) to Design, Build, Finance, Operate and Maintain works. Project Agreement between Owner and Project Company governs performance. Project Company may elect to self-perform the works.	Owner engages D&C contractor. D&C contractor may subcontract work to others
<b>Quality</b>	All participants collectively responsible for defects. The cost and time pain of defect rectification is shared via gainshare/painshare regime	Each separate contractor responsible for their own defects (but defects may mean more time + cost- affecting DP gainshare payment)	Managing Contractor responsible for defects	Project Company responsible for defects. Manages quality through a Quality Management System specified by the Project Agreement.	D&C contractor responsible for defects

	Alliances			P3	DB
Model	Alliance	Delivery Partner	Managing Contractor	DBFOM/DBOM/DBM	Design Build / D&C Contract with cooperation obligations
<b>Cost</b>	Reimbursement of direct costs + fixed price fee + gainshare/painshare payment linked to KPIs	Reimbursement of direct costs + fixed price fee+ gainshare/ painshare payment linked to KPIs	Reimbursement of subcontract costs + fixed price fee	Fixed price lump sum	Generally fixed price lump sum
<b>Time</b>	Target date for completion is supported by gainshare/painshare payment linked to time KPI	Soft (best endeavours) obligation to complete on time, supported by gainshare/painshare payment linked to time KPI	Soft (best endeavours) obligation to complete on time	Hard obligations to complete on time. Penalty regime in place.	Hard obligation to complete on time
<b>Fit for purpose warranty</b>	No warranty from participants, but the pain of defects is shared via gainshare/painshare regime	Warranty to exercise due care and skill	Fit for purpose warranty	Project Company retains maintenance responsibilities beyond typical warranty periods.	Fit for purpose warranty
<b>Liability</b>	No blame no disputes. Painshare is usually capped at loss of fee	Traditional liability framework. Painshare of Delivery Partners is usually capped at loss of fee.	Traditional liability framework	Traditional liability framework	Traditional liability framework
<b>Self-performance</b>	Participants may self-perform construction work	No self-performance of construction work	No self-performance of construction work	Project Company may elect to self-perform work.	D&C contractor can self-perform construction work
<b>Project control</b>	Joint control of all decisions	Owner controls most project decisions, including selection of subcontractors	Owner controls most project decisions, including selection of subcontractors	Through Project Agreement Owner controls most project decisions.	Owner controls most project decisions
<b>Risk allocation</b>	Shared risks typically 50/50	Shared risk of portfolio management, but construction risk with each package	Fixed allocation of risk through 100% transfer to supplier including construction risk	Fixed allocation of risk through transfer to Project Company including construction risk.	Fixed allocation of risk through 100% transfer to supplier including construction risk
<b>Dispute / litigation potential</b>	Lower potential with shared risk and no sue provisions	Lower potential with shared risk and no sue provisions	Medium potential	Higher potential	Higher potential
<b>Pre-delivery support</b>	Can be adapted to include planning approvals and use for professional services only	Ideally suited including business case and procurement support	Limited	Limited	Limited
<b>Multiple packages / Overlapping phases</b>	Progressive alliances suited for both multiple package and overlapping phases	Maximum flexibility including different delivery models for each package	Limited	Limited	Limited
<b>Accelerated delivery</b>	Use of overlapping phases allows acceleration, further acceleration available through progressive alliances	Delivery partner can accelerate pre-delivery phases and reduce procurement durations	Limited	Limited	Limited

The proper allocation of risk on complex projects can be tied to its success. The following figure generally illustrates the balance of risk under a range of delivery models.



Source: National Alliance Contracting Guidelines (Australian) - Guide to Alliance Contracting

When selecting the delivery model for large complex projects, an Owner must consider a multitude of factors which can influence the successful delivery. The following table provides a comparison of delivery models against a range of typical evaluation criteria:

Large Complex Infrastructure Projects						
Evaluation Criteria	Delivery Priority	DB/D&C	DBM	P3	Franchisee	Alliance
Risk transfer	High	√√	√√	√√√	√√	√√√
Time	High	√	√√	√√√	√√	√√
Price and budget certainty	High	√	√	√√√	√	√√
Financing	If required	√	√	√√√	√	√
Innovation and incentive	Medium	√	√	√√	√	√√√
Flexibility and control	Medium	√	√√	√	√√	√√√
Market interest and appetite	Medium	√√	√√√	√√	√√	√√√

# What Opportunities Does Alliancing Delivery Offer?

Alliance delivery models offer a range of opportunities and benefits to all the parties in the Alliance as follows:

- Aligned objectives and incentives;
- Access to a broader range of skills and experience than from single suppliers;
- A true partnership between participants as an integrated project team;
- Shared risk / rewards;
- Focus on solving problems collaboratively rather than adversarial;
- Whole of lifecycle considerations influencing capital investment decisions;
- Best for project decision-making;
- Expectation of good faith and trust using an open-book approach to project costs and finances;
- Legacy beyond the typical scope, i.e. betterment of community facilities, cultural recognition, upskilling local resources and lower tiered suppliers/contractors, etc.;
- Pushing traditional delivery to achieve high performance.

*“For me, the highlight of the project has been the unique teamwork culture created at Origin Alliance and the way everyone has worked together as a team to deal with the significant challenges we’ve had to overcome instead of working in silos. Another key difference for me on this project has been the attention to detail, particularly from a safety perspective. Given this was a high-risk profile job, the level of attention that was paid to ensuring everyone was able to work safely was second to none.”*

Derek Millar, Project Manager, QLD Department of Transport and Main Roads, Australia

Ipswich Motorway Project Dinmore to Goodna

# How Can Owners Facilitate Alliance Contracting?

*“It is essential that as Owners, the participating individuals understand and are comfortable working in a peer-to-peer as opposed to master – slave environment. While the nature of relationships in New Zealand infrastructure delivery is largely collaborative, Waka Kotahi is deliberate in its nomination of personnel for alliances and where necessary, provides the initial coaching and support.”*

Peter Spies, Chief Advisor Engineering, Waka Kotahi, New Zealand

Waterview Connection

Kaikōura Earthquake – Response, recovery and rebuild

## What Are Current Issues, Constraints, Obstacles Impacting Alliance Contracting?

Owners have encountered a range of issues, constraints, and obstacles impacting the successful use of Alliance Contracting. Typical obstacles and commonly adopted mitigation measures are summarized in the following table:

Potential Obstacle	Mitigation Approach
<i>Lack of experience using Alliance Contracting</i>	It is natural to be concerned about using something for the first time when you don't have any previous experience of it. Other owners have addressed this by employing people with experience in Alliance Contracting, either by hiring staff, or using consultants or alliance coaches. Reaching out to other Owners who have successfully used Alliance Contracting is also a good way to share experiences and lessons learned. Researching guidelines and papers such as this is also useful to build experience. Many owners have tried using an Alliance Delivery model on a single project to develop experience before using it more widely. Retaining a range of delivery models including alliance is a good approach to managing portfolio risk.
<i>Acceptance of shared risk</i>	The traditional approach of transferring risk completely to a supplier under a contract is very common. It is also common to have contractual claims and disputes on traditional contracts including on risks that had apparently been transferred. Experience has shown that working together to manage risks is the best way to mitigate the time, cost and reputational impacts. While the default under an Alliance is all non-excluded risks are shared, various tools have been used to provide clarity including Risk Allocation Tables, which define shared and owner retained risks. Some owners adopt a Variation Benchmarking Register (VBR) approach which is jointly developed during the establishment of an Alliance and document examples of typical risks and how they will be allocated and why. This is then used by the Project Alliance Board (PAB)/Alliance Leadership Team (ALT) to determine if a risk is shared or subject to a variation.



Potential Obstacle	Mitigation Approach
<i>Lack of acceptance by funders/political representatives</i>	Building confidence with funders and political representatives that alliances deliver projects successfully can be an obstacle. This can be addressed through effective communication including outlining poor outcomes of more traditional models, provision of case studies showing successful project delivery and user benefits. It is always easier to just use whatever has been used before. However, this leads to the same outcomes which can continue to be unsatisfactory to all involved and the end users.
<i>Can my people cope in an Alliance?</i>	Many people thrive in the collaborative environment of a well-functioning Alliance. It can be a significant change especially for those who have only worked in more adversarial environments. Good coaching and support from others with Alliance experience help to foster acceptance. Some indeed struggle to revert to more traditional delivery models when the Alliance is completed. There will typically be some people who struggle in an Alliance environment, but that does not mean they are poor performers, just that they do not fit in such a model and are best to be sensitively moved to a project better suited to them.
<i>Demonstrating Value for Money (VfM)</i>	Demonstrating VfM was an obstacle to earlier pure alliances. This has been addressed using independent estimators to prepare parallel estimates to the Alliance team or Consortium, which are then exchanged and reconciled. This allows the VfM to be demonstrated across the whole of life rather than only on the capital spend/build. Benchmarking has also been used to assist with VfM. Some owners have subsequently adopted competitive alliances to assist in demonstrating VfM through direct competitive tension.
<i>Legislative boundaries</i>	Some jurisdictions have laws that inhibit the use of alliances. The alliance model has inherent characteristics that may be contrary to some legal requirements. For example, some jurisdictions may require Owners to ensure price certainty for taxpayers as part of their project development requirements. While Alliance Contracting contains a provision to both incentivize value and low-cost delivery, it also incurs liability for Owners to cover uncapped direct cost overruns. This may inhibit the use of collaborative contracting as a standard form of delivery.
<i>Reduced interest in Competitive Alliances</i>	Over time, there has been a tendency for the tender phase of competitive alliances to take a Design & Construct approach with a focus on just meeting minimum requirements to achieve a low tender price. This has typically resulted in TOC overruns and all participants sharing pain (low quality and low returns). A variant of the competitive alliance has been developed as hybrid alliance, where the owner sets a minimum threshold price. Selection is then based on quality assessment and tangible risk adjustments subject to the tenderer being on or below the threshold. The Owner needs to take care of establishing a realistic threshold, avoiding both successive budget reductions or a soft target.

Constraints experienced and associated approaches are further summarized below:

Constraints	Approach
<i>Costs to establish and operate an alliance</i>	Alliances require substantial organizational commitment including empowered senior executives/managers to tender, establish and deliver throughout the project lifecycle. The commitment of those resources, their training and coaching create an overhead cost that needs a project of sufficient size to justify the investment and benefit created.
<i>Finding people with alliance experience</i>	Many successful alliances have started with only a few people who had previous alliance experience. While it helps to have some of the Leadership and Governance teams with previous experience, the use of alliance coaches can create an effective alliance culture. Ultimately, the selection of people who are open communicators and welcome collaboration and constructive challenge is more important. Some people are suited to this delivery mode while others aren't—which is fine, as people are different.
<i>Ability to demonstrate Value for Money</i>	Government treasury departments can be skeptical about Alliance Delivery demonstrating Value for Money. A “pure alliance” approach selects a single team to establish the “target outturn cost” (TOC) for a project, that, whilst it is subject to open book scrutiny and audit, does lack the usual element of competition. The move to “dual TOC alliances” has obviously introduced some competition, but, as noted earlier, these forms of alliances have often struggled to meet targets and find Owners more likely to have to contribute over and above the TOC. While there is much post-completion evidence around alliances delivering better lifelong Value for Money outcomes than other more adversarial methods, no two projects are the same, so often treasury departments struggle with comparisons. As a result, projects that may be good candidates for Alliance Delivery agreements, may not be approved, and are rather delivered through more traditional methods.
<i>Size, scale and complexity</i>	Alliances are best suited to projects where the solution is not clear or not developed, and where significant design and construction expertise is needed to help determine the best solution. They are often complex, large, with accelerated delivery expectations. Not all projects fit the criteria.
<i>Design &amp; Construction market readiness</i>	For decades, the use of Public-Private Partnerships and Design-Builds has been an Owner’s primary tool to deliver major infrastructure programs. These models are transactional, and relationships and/or obligations are governed by long commercial agreements. Furthermore, transparency between parties is not forthcoming, and at times detrimental to a party’s individual success in a project. Alternatively, for an alliance to be effective, all parties have to endorse the principles of transparency and trust. In a design and construction market that has been conditioned to the contrary, the success of the alliance model will largely rest on a cultural shift of a designer’s and constructor’s organization, which could both take time and money (training) to achieve.
<i>Insurance availability</i>	Linked to the no blame, shared risk, no sue approach in an alliance is the need for project-specific insurance jointly covering all participants. The insurance and re-insurance markets have tightened up over recent years, partly driven by increasing claims with payouts outstripping premiums in some markets. This issue is affecting most delivery models that require project-specific insurance. Contract works and public liability cover are still generally available but may need to access global markets to get full take-up and will at times see the need to trade off between premiums and deductibles. Project-specific professional indemnity insurance has been more challenging recently at acceptable terms and premium levels. Some owners with larger asset portfolios have elected to underwrite Professional Indemnity Insurance themselves in order to get the benefits of alliances overall.



### Alliance Insurances

During the Alliance Development Phase, the Non-Owner Participants (NOPs) and the Owner will agree on the appropriate insurance regime for the alliance. The Owner would typically procure insurances for Professional Indemnity, Material Damage (Contract Works), and General Liability (Public Liability) to cover all parties, including subcontractors/sub-consultants, with the cost being incorporated as a direct cost to the project. The level of insurance cover to address the whole scope, excess/deductible, amount of insurance and its duration will be an influencing factor to the cost of taking out and maintain the policy. The proposed insurance policies are made available for NOPs' review and agreement prior to their execution.

The NOPs are typically requested to provide their existing (corporate) insurances to cover Construction and Equipment Insurance (Contractor NOPs only), Workers' Compensation Insurance, and Motor Vehicle Insurance. The insurance policies must meet the requirements of a long-term credit rating standard. As indicated in the table above, Alliance projects are not immune to insurance availability constraints. As with other procurement models, the Project Specific Professional Indemnity Insurance market for Alliance Contracting is also contracting.

### Misconceptions/Evolution of Risk/Reward in Alliance Contracting

Under a project alliance, risks and responsibilities are shared and collectively managed, rather than allocated to individual parties. Once the performance targets are developed and agreed to by the participants, all participants collectively own and manage the risks/rewards that may occur. This is a fundamental shift in risk allocation from traditional procurement models, which requires all participants in the project alliance to change their behaviour and their culture. In our experience, this evolution of the risk/reward allocation has led to misconceptions on the application of the shared risk model.

Common misconceptions about the risk/reward mechanism in Alliance Contracting include:

- It's just unlimited charge up—while the limb 1 is uncapped, the cost does not include any margin nor corporate overhead. Once a Target Outturn Cost (TOC) is exceeded, the margin and corporate overhead are progressively lost, and any additional work results in a zero margin.
- There is a margin in limb 1—The limb 1 is usually independently audited to validate the expenses are calculated at cost.

*“I have said it many times before, but in terms of community consultation, this project has been a huge success and a model on how to engage with community. In my view, it has been the best project in Australia demonstrating that a consultative approach with the community can be done – in fact it has been a key part of the success of the overall project.”*

Mr Bernie Ripoll, Local Federal Member of Parliament for Oxley, Australia

*Ipswich Motorway Project Dinmore to Goodna*

- Overruns are self-funding—while the Non-Owner Participants are sharing the pain in an overrun, an Owner should retain a contingency for their share of a potential overrun.
- In an overrun, the Alliance Leadership Team (ALT), sometimes also called Project Alliance Board (PAB), will just grant adjustment events to the TOC to reduce the overrun—ALT decisions need to be unanimous, so an Owner can easily veto any unjustified adjustment events.

### **Use of Public Funds and Value for Money**

Public value can be a difficult concept to define. Since value is subjective perceptions of value will be influenced by a variety of factors such as the accessibility and benefit derived by an individual or community of the service or infrastructure to be provided. With public value, there is often a strong emphasis placed on issues such as distributional equity and due process. Therefore, value for money alone does not necessarily mean that public value has been achieved. The creation of public value should be judged by both the economical provision of the service and the enhanced benefit derived from the delivery or access of the public to the services.

As costs are only one component of value, the creation of public value will inevitably be judged in the light of the changes to a service compared to what was in place prior to those changes. Any improvements to the service will be included in the judgment on whether the public value has been achieved.

Given the subjective nature of value, public opinion inevitably shifts through various stages in the development, delivery, and ultimate use of an infrastructure project. Under most delivery models, there is a broad yet detailed consultation process prior to the delivery of a project. The consultation process is generally a linear process that may involve public meetings; information sent directly to residents in the area around the project; information sent to the relevant stakeholders such as local councils and business groups including a series of consultations often resulting in a wide number of diverse issues raised from an equally diverse number of individuals and groups.

While you can gauge a variety of opinions from stakeholders during a consultation process, often they do not collectively represent a homogenous public opinion. Once a project is launched, it often becomes simpler to gauge a more uniform public opinion, as the project then generally gets judged on whether it is delivering the intended service.

The alliance process can, with greater success than traditional delivery models, bring together the concept of public funds and value for money to achieve public value. Firstly, the alliance model does not have to follow a linear planning process with a predetermined set of delivery requirements and constraints before delivery. Having the opportunity to engage with stakeholders during the delivery process and accommodating as far as practicable changing circumstances or views during delivery provides a much higher chance to satisfy public opinion. Secondly, the alliance models financial Key Performance Indicators (KPIs), and, in some cases, the competitive alliance bidding processes provide a level of demonstration of financial value. Combining the flexibility of the alliance stakeholder process to better satisfy public opinion and the ability to demonstrate financial value gives the Alliance mode an advantage over traditional delivery models in both achieving and demonstrating public value.

### **How Does an Owner Deal with Stakeholders in an Alliance Contracting Environment?**

Like any project, the Owner has a critical role in establishing the project purpose, objectives and outcomes to be achieved. Managing stakeholders remains the same.

However, alliance procurement does provide for more ability to test solutions as they develop through the procurement process with stakeholders and respond to any feedback. The alliance process usually brings together design and construction skills to help the owner develop solutions and then test with stakeholders the proposed solution including cost and time impact.

### **Can Alliance Contracting Bring More Bidders to an Owner's Project?**

An Alliance typically involves a consortium of constructors and designers to provide the depth of resources and breadth of skills to deliver the project. So, while this concentrates suppliers into fewer bidding teams, it better ensures capability and capacity to deliver. Increasingly, the adverse risk profile of some delivery models such as P3's/PPPs and Design-Build/Design & Construct is seeing supplier Boards declining pursuit of such projects, which is reducing the number of bidding teams. In a recent analysis of the risk factors associated with PPPs, contractual issues were most commonly cited as a risk for the successful delivery of a project<sup>8</sup>. There is also anecdotal evidence in some markets that bidders for major PPPs and Design-Build/Design & Construct projects are declining. Whether the decline is due to the increasing size and complexity of projects or the increased

*“A major advantage of collaborative contracting is early engagement of the whole team; everyone starts working together early in the project lifecycle which allows us to better influence project outcomes. The earlier you do it, the cheaper it is to execute.”*

8. Source: Risks in Public-Private Partnerships: A Systematic Literature Review of Risk Factors, Their Impact and Risk Mitigation Strategies, by Robert Rybnicek, Julia Plakolm & Lisa Baumgartner, April 10, 2020

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Photo courtesy Level Crossing Removal Project.

risk transfer is unclear, but some of the largest design and construction organizations in North America have taken steps to reduce or eliminate their exposure to the turnkey, lump-sum contracts.

Given the cap on downside risk and more constructive atmosphere to solve project issues, alliances typically attract good interest from bidding teams. Alliances have also seen increased use of tier-two suppliers as subcontractors or sub-alliances. On more complex alliances, the model readily allows the potential for cost reimbursement of bidders, which can be done to further enhance the attractiveness of a particular project to bidders.

In the past few years, in Australia and New Zealand, Owners' reliance on Alliance Contracting has increased in response to stimulus infrastructure spending and delivery pressures on the market. The Victorian Government in Australia recently decided to terminate the PPP procurement for the Suburban Roads Upgrade and instead deliver the work using an Alliance Contracting approach which is based on contractor past performance and bid values. The procurement model of other projects in the Melbourne area facing similar pressures is also being reconsidered.

### **What Does an Owner Need to Change for Alliance Contracting to Be Effective? How Can This Change Be Facilitated?**

Effective Alliance Contracting requires not only the adoption of the delivery model, but also a change in culture, processes, and behaviour during procurement and project delivery.

The structures, processes, and leadership within a project alliance should support the development of a peak performance alliance culture and maintain it throughout the project. A key change lies with moving from client or Owner direction to the acceptance of the Alliance Leadership Team-shared governance/decision-making along with the Alliance Management Team co-ordinating day-to-day management of project delivery.

To create this kind of environment, there must be a comprehensive program to manage the sociological aspects of the project and the psychology of the relationships, i.e., strategies that focus on people, the relationships they form, their beliefs and aspirations, their commitments, and their behaviours.

The following culture and behaviour changes will create an environment for alliance staff of the participants to be effective:

Behavioural & Culture Changes	Approach
<i>Lack of accountability</i>	Accountability gaps can often occur in traditional arrangements where accountability is allocated. In an alliance, there are no gaps and nowhere to hide.
<i>Conditional support</i>	Giving only conditional support in an alliance doesn't cut it in where objectives and outcomes are shared and aligned.
<i>Best for organization decisions</i>	With the alignment of objectives and the joint pain/gain mechanism, best for project decisions are aligned with organizational outcomes. Having an Alliance Champion at a senior level in an Owner's organization helps in the successful use of alliances for project delivery. This also requires all Project Alliance Board (PAB) members to make best for project decisions, which at times may not necessarily be best for their home organization. It's therefore important for the PAB members to communicate and get their home organization to adhere to such decisions.
<i>Master-servant relationships</i>	Alliances are based on equal peer relationships to get the best outcomes through maximizing the diversity of thought and experience.
<i>Win/Lose</i>	All participants win together or lose together.
<i>Direction without Challenge</i>	Outstanding performance is not achieved by doing it the same old way without challenge. Constructive challenge and encouraging innovation are key behaviours in an alliance. The Owner's Interface Manager (OIM) has a unique dual role as they are both in the alliance as the day-to-day link to the Owner's home organization and also have a role in issuing formal Owner's notices as provided in a Project Alliance Agreement (PAA).
<i>Management driven</i>	Separating the Governance, Leadership and Management roles in an alliance allows for focused efforts while providing a balance of short-term and strategic perspectives.
<i>Blame culture</i>	Design & Construct contracts are typically fault-based and drive a blame culture. Alliance contracts drive a shared outcome, so if there is a problem, then all parties' interests are aligned and best served by solving the problem, and not trying to establish fault or blame.
<i>Claim culture</i>	Excessive competitive procurement drives down contractor margins, so recovery of margins can start very early in projects via claims. Often, projects include dedicated resources to identify and pursue claims as a project objective. Alliances drive all parties to achieve the agreed target outturn cost for the project, without any focus on claims.
<i>Selective communications</i>	Move to an open, straight and honest approach to communication, based on best for project outcomes.
<i>It's the Contractor's responsibility</i>	The default approach that it's always the Contractor's responsibility often leads to poor or sub-optimal outcomes. The collaborative alliance approach focuses all participants' efforts through collective responsibility to generate optimal outcomes.
<i>Risk shifting</i>	Design & Construct (D&C) drives pushing risks down the contract chain, often to those who are perhaps not the most capable of managing nor accepting the risks. The competitive nature of the D&C procurement process often rewards those who accept risks they shouldn't, and it's often not until well into delivery that these risks crystallize and cause impact.

Owners who have adopted Alliance Contracting typically develop a standard Project Alliance Agreement proforma which is customized for the specific project with minimal obligations and additional legal inputs. There is a range of examples of Project Alliance Agreements that have been developed by Owners and Government Agencies.

The processes for procurement and project delivery also need to change based on Alliance Contracting Principles including:

- Joint management of risk: Managing a participant's own risk still leaves the participant exposed to all other Alliance's risks, so it is better to collectively manage and mitigate risk. A proactive approach to risk and opportunity leaving risks for others to manage increases your own exposure in an Alliance, so a proactive approach to identifying risks and mitigation measures is promoted along with the pursuit of opportunities.
- Resources: Each participant provides best-in-class resources rather than only providing the best available resources.
- Innovation: Promoting innovation and outstanding performance rather than adopting previous methodologies and processes.
- Information Sharing: By openly sharing information during procurement and delivery, a wider pool of experience and skills is applied to problem-solving. Open book transactions are a foundation in Alliance Contracts rather than cost book transactions.
- For Owners inexperienced with alliance delivery, appointing a coach or advisor can be extremely valuable. Some of the areas an alliance coach may be able to help include:
  - Helping to define clear project purpose, objectives, and outcomes to be achieved.
  - Helping with development of procurement program and process.
  - Planning of market engagement or market sounding to establish interest and enable good teams to form early in the process.
  - Identification of key people for key roles within the client organization.
  - Helping to establish KRA & KPI's to help drive project success.
  - Expression of interest and tender evaluation.
  - Development of behaviour-based scenarios to test high-performance potential.

*“Collaborative contracting is the way of the future, and a fantastic way to do business for major infrastructure projects. We encourage owners across the industry to learn more and try it for themselves.”*

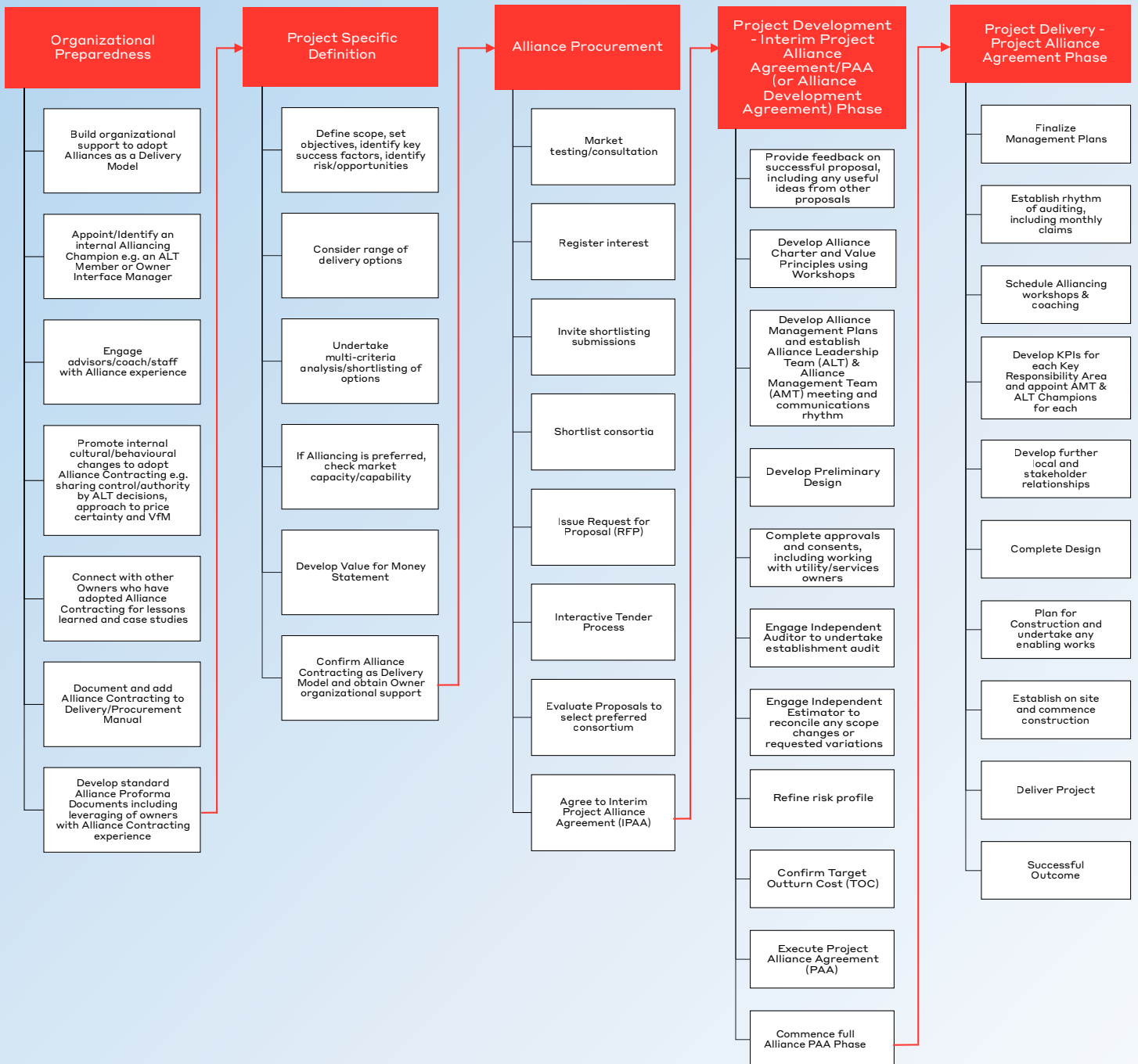
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Once the alliance is established, the Alliance Leadership Team (ALT) and Alliance Management Team (AMT) are responsible to develop and implement strategies to ensure a peak performance project is developed and sustained. This is a complex task requiring special skills in leadership, project management, and human behaviour. Relying on the aid of an alliance coach or advisor makes the task more manageable for all.



# Roadmap

As we conclude our piece on Alliance Contracting, we would like to leave you with a roadmap to implementation which succinctly summarizes key elements presented in this paper and can be used as an Owner's quick reference guide to a successful Alliance Contract implementation.



WSP  
*in action*





The design solution focuses on minimizing environmental impacts while maximizing access to the surrounding areas. Future works are planned that will improve accessibility to the beach from Carrum Station, including cycle paths, upgrades to the local recreation facilities and sports clubs. The project at Mentone and Cheltenham will include more than three kilometres of walking and cycling paths connecting two new stations, better lighting and accessibility, landscaping, new open space and parking.

### Outcomes for the Community

Outcomes of the level crossing removals include:

- Separation of trains from road traffic with level crossings removed in Cheltenham, Mentone, Edithvale, Chelsea, Bonbeach, Carrum and Seaford
- Reduced congestion
- Improved safety for drivers, cyclists and pedestrians
- More direct local road networks, improving traffic flow and travel times
- Making it safer and easier for locals to access the things they love about their area, including public transport, local shops, the beach and open spaces
- More than 14.5 kilometres of new shared-use path including three kilometres between Cheltenham and Mentone and more than 11 kilometres from Edithvale to Frankston
- Revitalization of Carrum village and four new community open spaces including a new village green, foreshore park and more than 80,000 trees and shrubs planted.
- Seaford will benefit from six kilometres of new shared use path, new playground and community open space and more than 200,000 trees and shrubs planted
- More than 540 square metres of new community open space on a 'heritage deck' over the rail line at Mentone, incorporating the State heritage-listed former station buildings and linking to the re-landscaped station gardens
- New stations at Cheltenham, Mentone, Edithvale, Chelsea, Bonbeach and Carrum
- A new purpose-built train storage facility near Kananook Station in Seaford providing storage for six trains. The site is large enough to allow for more train storage or a train maintenance facility in the future as network demand increases.
- Upgrading more than 30 kilometres of overhead wiring, replacing 60 per cent of old signalling equipment with a modern computer-based system and building three new substations to improve the performance and reliability of Frankston line services.



*Photos courtesy Level Crossing Removal Project*



## Case Study

# Ipswich Motorway Project Dinmore to Goodna

### Location

Ipswich, Qld, Australia

### Client

Department of Transport and Main

### Date

2008-2012

### Alliance

Origin Alliance, which comprised Queensland's Department of Transport and Main Roads, Abigroup Contractors, SMEC Australia, Seymour Whyte, Fulton Hogan, and WSP

## Description

The Ipswich Motorway Upgrade – Dinmore to Goodna (D2G) Project, an infrastructure initiative funded by the Australian Federal Government to provide a safer, more reliable and sustainable transport solution for the Western Corridor as well as south-east Queensland's wider transport network, was one of the most complex and challenging road infrastructure projects ever built in south-east Queensland.

The official commissioning of the D2G Project followed three years of construction by Origin Alliance. At its peak, the project employed more than 1000 people and was the largest road construction alliance in Australia.

It was commissioned under budget and six months ahead of time, despite its many construction challenges including the impacts of the devastating January 2011 floods.

Key features involved widening eight kilometres of the motorway from four lanes to six (three lanes each way, with room for four in the future) as well as building of an extensive network of new service roads designed to improve local access. It also included construction of 25 km of shared pedestrian and cyclist facilities, 26 new bridges (five of which are new shared pedestrian/cyclist facilities to make crossing the motorway easy and safe as well as provide improved access for the wider community), and upgraded interchanges at the Cunningham and Warrego Highways as well as at Redbank.

A key challenge was constructing the project in a very constrained, busy corridor used by more than 90,000 vehicles every day.

This AU\$1.95B project was granted multiple awards, including the 2011 Gold Award, in the Transport & Civil Category by Consult Australia Awards in Excellence, the 2013 Prime Minister's Award for Excellence in Public Sector Management and the 2014 Merit Award by the International Federation of Consulting Engineers (FIDIC), to name a few. In 2012, the project was granted the Highly Commended mention by the Alliancing Association of Australia Excellence Awards, in the Project and Long-Term Category.

## The Alliance

As part of the Alliance, WSP delivered the following services:

- Planning, design and documentation in an integrated design team with SMEC.
- All aspects of project design, including:
  - road alignment
  - drainage
  - earthworks and pavement
  - structures, including bridges, noise barriers and retaining walls
  - signage
  - traffic signals and lighting
  - public utility plant (PUP) relocation
  - temporary works to accommodate traffic staging.
- Other specialist design activities, including:
  - traffic analysis for the temporary and permanent works
  - design of the intelligent transport systems for the motorway
  - providing geotechnical engineering services through the design and construction.

WSP worked closely with design, construction and consultation teams within the Alliance to ensure seamless integration of its traffic modelling results into the project. Our team used the layered levels of traffic and transport modelling suites to identify best-practice design within the motorway corridor, key motorway interchanges and parallel service roads.

## Outcomes for the Community

While developing the design, the design team pursued opportunities for better project outcomes and reduced risk. When completed in early 2012, the project provided a more reliable traffic flow on the motorway, improved road safety, increased motorway capacity and an improved connectivity for the community through a network of local roads and shared pedestrian and cyclist paths and bridges.





## Case Study

# Waterview Connection

### Location

Auckland, New Zealand

### Client

New Zealand Transport Agency (NZTA)

### Date

2011-2017

### Alliance

NZ Transport Agency, Fletcher Construction, McConnell Dowell Constructors, Obayashi Corporation, WSP, Beca Infrastructure, and Tonkin & Taylor

## Description

Waterview Connection, New Zealand's largest roading project was officially opened to traffic on Sunday, 2 July 2017. It is the first major project over NZ\$1B to be built in Auckland and is the biggest and most complex venture the city has undertaken to date.

The Waterview Tunnel completes the missing link in Auckland's motorway network, providing a direct route from the airport to the city.

WSP was a design partner on the Well-Connected Alliance which oversaw delivery of the 4.8 km three-lane motorway, 2.4 km twin tunnels, motorway interchange and community amenities.

The Waterview Connection will create a direct motorway route from the CBD to the State Highway 20 and the airport, reducing traffic on local roads and cutting travel time between the two points by over 15 minutes. Given the strategic importance of the Western Ring Route, the motorway has been identified as one of New Zealand's seven Roads of National Significance.

The Well-Connected Alliance comprises NZ Transport Agency, Fletcher Construction, McConnell Dowell Constructors, Obayashi Corporation, WSP, Beca Infrastructure, and Tonkin & Taylor.

Construction of the physical works began in January 2012 with bored tunnel excavation occurring between Q4 2013 and Q4 2015 followed by tunnel and building fit-out and commissioning.

## The Alliance

As a full partner in the Alliance, we provided design management; tunnel, fire and life safety, geotechnical, mechanical and electrical systems detailed design services; and design support and certification during construction.

As part of the Alliance we developed innovative design solution to turn the tunnel boring machine around 180 degrees in a confined space, resulting in significant time and cost savings. Our team also developed an innovative fire and life safety system, streamlined the city's building consents approvals and navigated Auckland's challenging geotechnical conditions.

The alliance will continue to manage and maintain the network until 2027.

## Outcomes for the Community

During the design phase, the Alliance established a value for money (VfM) team made up of experienced design, construction and client representatives. While the focus for the project was on delivering the tendered design to programme, the VfM team provided a strategic challenge forum and explored opportunities for improving outcomes. In the first twelve months from inception, the VfM team reviewed 125 opportunities, and achieved significant (~NZ\$45M) cost and programme savings for design and construction of temporary and permanent works.

This resulted in some the use of key innovations such as:

- using the tunnel-boring machine (TBM) launch and turn-around excavations as the permanent sump at the tunnel portals and innovation in turning the 2100 tonne TBM and back-up through 1800 within the reception box for maximum programme gain.
- optimising the steel segments and reinforcement in the tunnel segmental lining to reduce the amount of steel required
- redesigning the segment rebar cage to allow automated production
- relocating the tunnel main drain from the invert culvert to the backfill, improving the construction process and material selection
- coordinating drainage design and construction to allow removal of cement stabilisation from the tunnel backfill specification while providing a trafficable surface adequate for heavy haulage
- construction from safety, productivity and commercial perspectives, consequently changing from a suspended bracket to a separated walkway on the backfill/invert culvert.

As the opportunities associated with design diminished with completion of design, the VfM focus was then applied to construction and commissioning efficiency, productivity and methodology and innovation associated with off-boarding and asset disposal.

It was recognised that the specific tunnelling expertise and experience required to successfully deliver a motorway tunnel was outside the capability of the local territorial authority. The Alliance developed and agreed a charter with Auckland Council that achieves the legislative requirements of the Building Act through an agreed exemption process.

This process decouples the sometimes lengthy consenting process from the project's demonstration of compliance with the Building Act, and removes the associated levies for constructed works.

The project established an operations and maintenance team at commencement (in 2012), five years before project completion. This approach allowed all elements of the design and construction to be reviewed, challenged and accepted by the end users. The design verification process took advantage of the proximity of these teams by applying specific reviews at each design stage to ensure whole-of-life review and maintainability review.







Photo courtesy of Level Crossing Removal Project

## Case Study

# Caulfield to Dandenong Level Crossing Removal Project

### Location

Melbourne, Australia

### Client

Level Crossing Removal Project

### Date

2016-2018

### Alliance

Lendlease, WSP, CPB Contractors and Aurecon together with Metro Trains Melbourne and the Level Crossing Removal Project

## Description

Under the Victorian Government's initiative to improve public rail safety, the Level Crossing Removal Project (LXRP) is removing 75 of Melbourne's dangerous and congested level crossings by 2025.

The completed Caulfield to Dandenong project:

- removed nine dangerous level crossings on Melbourne's Cranbourne-Pakenham line
- rebuilt five train stations with new modern facilities (Carnegie, Murrumbeena, Hughesdale, Clayton and Noble Park)
- upgraded signalling and power along 72 km of track
- created 225,000 square metres of new public open space (about 11 MCGs' worth).

Melbourne now also has its first Metro train line capable of running high-capacity trains through the future Melbourne Metro tunnel.

## The Alliance

The project was delivered by a project Alliance consisting of Lendlease, WSP, CPB Contractors and Aurecon together with Metro Trains Melbourne and the Level Crossing Removal Project. Supporting the group included urban design and landscape architects Cox Architecture and Aspect Studios, as well as property developers, Lendlease Urban Regeneration.

WSP as part of the Alliance, delivered an innovative, robust and cost-effective tender design and subsequently appointed to deliver the detailed design and construction phase services.

The design solution focused on maximising open space and connecting communities previously divided by the railway line. The project comprised 9 km of new elevated rail, 5 new stations, over 17 km of continual pedestrian and cycle paths, and 225,000 square metres of linear park. More than 30,000 trees and shrubs have been planted in the new open spaces, and that number includes hundreds gifted to local councils and community groups for planting in nearby parks and reserves. All nine level crossing removals were completed as a rail over solution, where an elevated rail is placed above the existing corridor, eliminating the major barriers that separated communities.

## Outcomes for the Community

Removing nine level crossings greatly improved traffic flow across the Caulfield to Dandenong corridor. Traffic monitoring data taken one year after the crossings were removed showed that maximum travel times had halved at the busiest crossings.

That means motorists can now reasonably predict how long it will take to get from A to B when travelling across the rail line.

Removing level crossings also paves the way for extra train services to be added to the timetable in future, without creating unworkable traffic delays.

The 72 kilometres' worth of power and signalling upgrades completed as part of this project are also bringing reliable benefits for metropolitan and regional services.

Focussed on customer benefits, our team incorporated several innovations to deliver the best outcome for the local community. These included:

- The design considered community feedback that expressed a strong desire for more green space in the project area. The elevated railway innovation allowed direct use of the land beneath for a recreational linear park.
- Using two structures allowed light and rain to fall on the linear park below and reduced the visual bulk for park users and the community.
- The acoustic and vibration engineering on the project reduced noise levels for parts of the surrounding communities.
- A design solution that enabled construction of the new viaduct while trains were running and without needing any land acquisition.
- The use of a straddle carrier gantry system for construction, a first in Australia. This meant we could keep trains running during construction, reducing disruptions for passengers who travel on the line.

In addition to the community benefits the team also considered the long-term operational requirements. This resulted in:

- Trains operate along the railway 8m above ground level. Stations are elevated at 10m above ground level to help reduce traction power consumption as trains brake uphill into stations and accelerate downhill out of stations.
- The design uses superior componentry, previously unseen on the Melbourne network, including a Vossloh concrete track form that needs less maintenance and offers higher reliability.
- The design incorporates new architecturally designed overhead wiring systems and an innovative services distribution system throughout the corridor.
- A 17-kilometre walking and cycling path—the Djerring Trail—runs all the way along the project and connects to other key Melbourne bicycle network paths, linking sections of existing track to form a continuous route. The path features rest stops, public bike repair stations and exercise stations.



*Photos courtesy Level Crossing Removal Project*



## Case Study

# Kaikōura Earthquake – Response, recovery and rebuild

### Alliance Name

North Canterbury Transport Infrastructure Recovery (NCTIR)

### Location

Kaikōura and Canterbury, South Island, New Zealand

### Client

Waka Kotahi (NZ Transport Agency) / KiwiRail

### Date

2016 - 2020

### Alliance

Waka Kotahi, KiwiRail, Fulton Hogan, Downer, Higgins and Heb. Professional Services Sub-Alliance – WSP, Aurecon, Tonkin & Taylor Infrastructure, and Tonkin & Taylor

## Description

Just after midnight on 14 November 2016, a 7.8 magnitude earthquake struck near the town of Kaikōura in the South Island. It devastated transport networks, severed communities and caused widespread disruption and a huge emergency response. It was an extraordinary seismic event; 21 faults had ruptured almost simultaneously generating the strongest ground shaking ever recorded in New Zealand; and 7m tsunami was also triggered. The South Island itself had been permanently moved, thousands of landslides came down, and 80km of seabed was lifted out of the sea by up to 1.5m in places.

Over a million cubic metres of rock and material collapsed closing both State Highway 1 (SH1) and the Main North Line railway between Picton and Christchurch. All land access to Kaikōura was cut-off and many communities were stranded along the coastline. Over 2500 people were ultimately evacuated by air and sea.

Slips and landslides buried the railway track at 100 different locations, some sweeping the track into the sea. Track formation slumped or was uplifted by massive seismic forces, rail twisted and buckled, bridges were destroyed, and tunnels cracked.

Along SH1 more than 200 areas were affected by the earthquake, closing the most direct route between Blenheim and Christchurch and impacting the lives of residents, visitors, and businesses across New Zealand. Traffic was forced onto narrow mountain roads never designed to carry such traffic volumes.

From the outset of the emergency recovery, the strategy of Waka Kotahi NZ Transport Agency and KiwiRail (after forming the NCTIR alliance with four construction partners) was to restore the transport network in two phases. The initial emergency restoration and recovery phase required fast paced works, including temporary repairs, to enable a restricted service for freight trains and reopen SH1 to the public.

The second phase of work, currently underway, provides strategic long-term durable solutions to restore the transport networks with resilience, capability, and improvements to amenity and safety along the network

## The Alliance

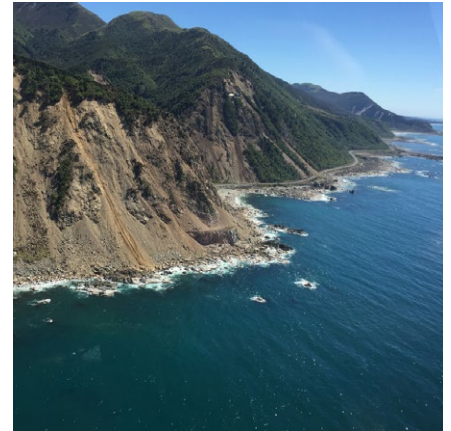
Following the earthquake, Waka Kotahi and KiwiRail immediately began assessments of their respective networks but it was apparent that a unique and collaborative response was required. The partnership between the Waka Kotahi and KiwiRail was the first time both organisations had come together in an alliance model. They quickly formed a partnership via NCTIR with four construction companies to respond to the emergency (the construction companies had been contracted to Waka Kotahi to carry out repair and reinstatement works following the earthquake). These Non-Owner Participants are Fulton Hogan, Downer, Higgins and HEB Construction. A 'collaborative contract model' was implemented with a management structure overseeing professional services, operations, client interface, network optimisation and communications. This collaborative approach meant that all levels were operating in a true partnership and were accountable to each other.

After the initial response phase, a PSSA (Professional Services Sub-Alliance) was also created of which WSP has a leading role with two others - Aurecon and Tonkin & Taylor). This approach was unique in New Zealand and focussed on the second phase of controlled delivery. NCTIR has been supported by over 350 different organisations from contractors, suppliers and sub-consultants.

The following highlights some of the key achievements to date:

1. 20 tunnels and 60 bridges replaced or repaired
2. 2.5km of seawall up to 10m high has been constructed
3. 50,000m<sup>2</sup> of rockfall protection mesh anchored
4. Over 10,000 people engaged working over 6 million hours
5. Best safety record in New Zealand for this scale of project
6. The bund at Ohau Point is the biggest in the Southern Hemisphere at just over 500m long
7. The largest and most complex archaeological input in New Zealand
8. Fastest build of a 7-span bridge in New Zealand (145m)
9. Seal handlers have moved over 16,000 seals
10. Over 200 million litres of water was used to sluice the slips an
11. A new marina and rail were opened within a year and SH1 in just over 12 months
12. Total repair and rebuild cost of \$1.2B and will be delivered within budget.

The project has already been presented with some of Engineering's highest Awards both nationally and internationally including the Institution of Civil Engineers People's Choice Award (2018) and Engineering New Zealand Supreme Award (2019).



## Outcomes for the Community

The entire coastline is of great cultural significance to Ngāi Tahu and local iwi. Much of the coastline and a significant proportion of both the marine and terrestrial environments and their inhabitants are protected under New Zealand environmental legislation. There are also threatened and at-risk species, some unique to Kaikōura. A huge amount of effort had been placed to protect both the significant cultural and environmental aspects of the project.

Kaikōura is internationally renowned for its world-class landscapes, ecosystems and tourism experiences with much of the coastline protected. Whilst the NCTIR focus was around collaboration it not only included the construction and design partners but was equally focussed on engaging closely with the community and a wide range of key stakeholders to use their unique perspectives and expertise to help shape the right solutions. Partnerships were also formed locally to support the region's social and economic recovery, with many local businesses and community members providing services to or working directly for NCTIR.

A Restoration Liaison Group (RLG) was established to help address environmental, ecological and cultural concerns and harness opportunities in parallel with the rebuild. The RLG represented the community on many matters and was fundamental in reviewing information and holding NCTIR accountable on matters of interest.

Cultural monitoring has also been a significant part of the recovery work. There are mandated representatives from Te Rūnanga o Kaikōura tasked with monitoring construction works in culturally sensitive areas.

The project has achieved 100% compliance with Environment Canterbury consent conditions since this was first measured in February 2017, demonstrating the commitment to environmental best practice.

A number of key community outcomes are highlighted below:

- Rapidly connecting isolated and severed communities
- Helping to quickly re-establish tourism (e.g. Whale Watch) for local and international visitors
- Supporting local business through utilising their services to support the project
- Supporting a high level of local employment on the project (either directly or indirectly)
- Working closely with local iwi on a wide range of sensitive issues including cultural monitoring and working with them on an extensive Cultural Artwork Package
- Constructing Safe Stopping Areas to support tourism, businesses and an enhanced journey experience
- Local school involvement and site visits
- Supporting local businesses and employing local where possible
- A huge focus on the ecology in this unique environment
- Improved customer experience of the state highway and journey reliability
- Opening passenger service for rail early
- Increased safety and resilience of the transport corridor
- Reduction in emissions with expediting the rail opening.



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