

Procurement Methods Guidelines

NSW Construction
Leadership Group

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Introduction

The Construction Leadership Group (CLG), representing NSW Government infrastructure delivery agencies, is committed to procuring and delivering projects more collaboratively, as outlined in the **NSW Government Action Plan**.

Choosing the most appropriate contract model for the delivery of a project is critical to achieving the project's objectives on terms which represent value for money. A range of factors must be taken into consideration collectively as part of a thorough procurement options analysis to ensure that the scope of work can be awarded to a capable counterparty, with a fair allocation of risks, supported by the right contract model. Having the right skills and behaviours on both sides to deliver the intended project outcomes is also critical.

These **Procurement Methods Guidelines** aim to provide guidance on commonly used contract models for infrastructure delivery, through a description of each type, when it may be appropriate to select a particular model, the benefits and risks associated with each model and the capability required from each of the Contractor and the Client to successfully deliver under the model. For some procurement methods, examples demonstrate where the models have been applied on NSW Government projects.

The models and features of each are not intended to be exhaustive. While some models are commonly considered more “collaborative” than other “traditional” models, it is important to remember that genuine collaboration and achieving best project outcomes can be achieved under any contract model. This is possible when the contract governance is structured in a way which promotes a culture of trust and when risk is allocated to the best party able to mitigate and manage that risk.

This Guidance was first published for consultation as Construction Procurement Methods Guidelines in February 2019. Since that time, the CLG has considered written submissions from 15 industry organisations, as well as extensive consultation across NSW

Government agencies. Ongoing and regular engagement with industry and stakeholders is essential to understand prevailing market conditions and other contextual factors, which may mean that decisions about the appropriate contract model differ over time for ostensibly similar projects.

This Guidance considers the following core delivery models used by NSW Government:

- › Early Contractor Involvement
- › Delivery Partner
- › Managing Contractor
- › Construct Only
- › Design & Construct
- › Incentivised Target Cost
- › Alliance
- › Private Public Partnership

This Guidance seeks to define key features of these core models, as well as considering variants where the nature, scope or circumstances (including complexity or size) of a project means that the core model needs to be adjusted.

An infrastructure project or program may also be delivered under a contract model, for example, a Design & Construct delivery model, which follows a collaborative procurement approach such as an Early Contractor Involvement process.

The list of Client and Contractor capabilities to successfully deliver under each model is also not intended to be exhaustive.

Additionally, NSW Government will be increasingly looking for Contractor capability in Building Information Modelling (BIM) and digital engineering across all projects, irrespective of the chosen delivery model. A culture of proactive project management,

and exemplary leadership behaviour, which demonstrate a strong commitment to resolving issues—however minor or significant, is also required of Clients and Contractors.

Optimising Outcomes

In addition to understanding the technical requirements and specific risks of a project, Clients should also consider the extent to which the proposed delivery model will optimise the following outcomes:

- › Alignment with the project objectives
- › Whole of life benefits
- › Whole of project costs, including costs of risks retained by the Government
- › Alignment with Client capability and capacity
- › Alignment with market capacity, capability and interest
- › Budget certainty
- › Scope certainty
- › Timeframes, including procurement timeframes and ability to meet the Government's requirements such as commencement and completion dates
- › Flexibility to allow changes over time, including changes to scope, as well as additional projects in a program, phases or additional stages
- › Opportunity for innovation in design and construction methodology
- › Delivery of social or local procurement outcomes
- › Appropriate distribution of spend throughout the construction sector/contractor tiers.

Clients and Contractors should also consider whether procurement on a program basis under a Framework Agreement may deliver optimal outcomes on a project. This method of procurement may offer benefits on projects where work packages are relatively standalone, small in size, based on known scopes of programmed work activities, to be undertaken on a regular basis and where there is a pipeline of work. The development of a Framework Agreement involves the establishment of a panel of capable contractors through a competitive tender process. The Framework Agreement is managed by the Client with the contractors on the panel requested to undertake works based on pre-agreed rates, with adjustments to scope and budget for works as appropriate, enabling the Client to instruct work quickly and efficiently.

Interactive Tendering

Market feedback is an important part of the process of identifying, allocating, mitigating and managing project risks. The CLG recognises that not all risks are capable of being fully assessed, priced, managed or absorbed by the private sector, and that such risks (in particular, unknown site conditions and utilities risks), must be managed collaboratively. Some delivery models are traditionally more conducive to risk sharing than others (e.g. alliancing), however all models can achieve a fair risk allocation.

Regardless, the CLG strongly encourages agencies to conduct procurement processes which are interactive (refer the **Interactive Tendering Guidelines**) and encourage early and ongoing discussions during tendering processes about risk, the above outcomes, and any other areas where value for public money and industry sustainability could most readily be improved.

Case Study: Collaborative Contractor Client procurement process

The Collaborative Contractor Client (CCC) procurement process was used on the procurement of the Rozelle Interchange Project. It was a highly collaborative approach during the procurement phase which allowed the intensive sharing of knowledge between the client and shortlisted contractors in order to identify opportunities and risks, as well as promote the submission of optimised tender solutions. The result was better value for money and improved outcomes for the people of NSW.

The procurement period was highly interactive. The market responded with critical risks that could not be dealt with effectively under the proposed contract form. The Client and potential contractors then worked together to:

- › define the scope of uncertain risks;
- › assess whether further investigations or technical changes were appropriate to mitigate project-specific risks; and
- › negotiate and agree on a contractual mechanism to address those risks.

Throughout the contract negotiation phase, the Client maintained control over the acceptable commercial arrangements to manage or share the risk. Under the CCC procurement approach, the Client and market participants would identify such risks and proposed a solution to manage the time and cost impacts of the risk occurring. For example, a lump sum D&C Contract model may contain a target cost mechanism for specific risk element(s).

Included in this Guidance are case studies on the application of some of the procurement methods to NSW Government projects. This provides an opportunity to share lessons learned and illustrate best practices. The first case study above demonstrates the value of a highly interactive and collaborative procurement process which can apply to any contract delivery model.

Terminology

Client

The agency responsible for sourcing, quotations, negotiations, planning, coordinating, tenders, etc. for the project, and who procures the design and construction of the project. The Client may be the agency for whose benefit the construction project is carried out, or another agency (e.g. Infrastructure NSW) acting on behalf of the responsible agency.

Contractor

The party who is contracted by NSW Government to deliver the project scope.

Subcontractor

A party engaged by the Contractor to perform specific work/task(s) as part of the overall contract execution.

Early Contractor Involvement

Description

Key Features

- › Client develops a functional brief which informs a concept or schematic design, and a pre-tender cost estimate for construction.
- › During procurement, Contractors bid a fixed price to develop schematic and/or detailed design during the design phase (also referred to as the ECI phase).
- › During the ECI phase, the successful Contractor develops a target lump sum price to deliver the project, based on their bid preliminaries, margins and overheads associated with delivering the project, and supported by trade/subcontractor pricing. The Client owns the design and intellectual property developed during the ECI phase.
- › If the Client considers the proposed target lump sum offer and project solutions are:
 1. acceptable, the Contractor is awarded the contract to deliver the project; or
 2. unacceptable, the design developed during the ECI phase is tendered in the market.
- › The delivery contract may include a value sharing mechanism to reward Contractor innovation and/or the project being delivered under the target lump sum price. Any value sharing mechanism must drive appropriate behaviour, incentivise the Contractor and be fair to the Client.
- › The cost of tendering is lower than other models because the single Contractor is paid a fee for participating in the ECI phase.

Variations to the model

- › The description of the ECI process above is referred to as a 'Single ECI' process. Under a 'Dual' or 'Competitive' ECI process, two or more Contractors are engaged during the ECI phase to undertake the project development work and prepare the price for the delivery phase. One of those Contractors is then selected to deliver the project, following an evaluation of the target lump sum offer and project solutions.

Conditions for use

- › Client can develop the schematic design and pre-tender cost estimate with enough certainty to assess the target lump sum offer.
- › Where there is an aggressive program, e.g. time for design development is limited or early completion is required.
- › There is limited design management capability in the market.
- › Greenfield or brownfield projects where risks can be better investigated and then priced.
- › Contractor is best placed to manage detailed design engagement with the Client and take risk on final design.
- › Client can manage the program risk associated with a second market process if the target lump sum offer and/or project solution is not acceptable.

Contractor capability

- › Design management and design finalisation.
- › Strong stakeholder engagement so that innovation and value sharing is collaborative and transparent.
- › Cost planning and management.
- › Preparedness for Client to own design, including Contractor intellectual property developed during the ECI phase.
- › Construction management, including constructability advice and access to the subcontractor market.

Client capability

- › Initial design management and design procurement.
- › Strong stakeholder engagement so that innovation and value sharing is collaborative and transparent.
- › Development of a pre-tender cost estimate for construction.
- › Contract management, particularly if the target lump sum offer and/or project solution is not acceptable and a second market process required.

Benefits

- › Facilitates innovation early in the project.
- › Collaboration between the Contractor and Client on design may lead to better overall design outcomes (e.g. resolution of design and other risks), resolution of constructability issues, effective risk management and risk sharing.
- › Encourages integration of design and construction teams.
- › Where the final design is developed and owned by the Contractor, commercial alignment between design and constructability, particularly if (schematic) design team is novated to the Contractor.
- › Contractor has more time and better ability to understand the project, can faster mobilise for the delivery phase, and better interpret the project scope in the delivery phase.
- › Client can maintain competitive tension through the Dual/Competitive ECI process.
- › Design development and procurement processes can overlap to achieve time savings.

Risks

- › The ECI process is a resource intensive one, which requires senior resourcing, particularly in the early stages. An even higher level of client input is required for a Dual/Competitive ECI process.
- › A high level of Client input is required to ensure the project solution and agreed delivery phase price represents value for money.
- › If the Client does not accept the Contractor's lump sum price offer or project solution, retendering the project in the market may result in project delays and increased costs.
- › Over-engineering or inefficient design may occur if there are no requirements in place to challenge and contest pricing and programming.
- › Lack of competitiveness in pricing the delivery phase may lead to increased costs and difficulty demonstrating value for money.
- › Client-initiated variations in the delivery phase are costly, reducing flexibility.
- › A Contractor's staff turnover can have a greater impact on this model compared to other models.

Case Study: Early Contractor Involvement

An Early Contractor Involvement (ECI) process was used for the procurement of the Central Acute Services Building (CASB) as part of the Westmead Hospital Redevelopment. The rationale for this procurement method was to promote innovation and collaboration between the Principal and the Contractor. It established an early relationship, essential for projects of this longevity.

The process also allowed the Contractor to gain a better understanding of what was a complex contaminated brownfield site with dilapidated site infrastructure. The Contractor's understanding of the history of design and input into the final design was essential to provide solutions to the challenges that would arise during delivery.

The ECI outcome was considered extremely successful and the project was delivered ahead of contract program and on budget in a COVID-19 environment.

The key learnings from this procurement method were:

- › Early Contractor Involvement can provide opportunities to maximise value for money and improve outcomes for users.
- › Review the ECI duration to ensure adequate design development can be undertaken during this period.
- › Review of interface design during the ECI is critical to ensure sufficient design/understanding of the requirements and the project's various interfaces.



Delivery Partner

Description

Key Features

- › The Delivery Partner supplements or replaces the Client's internal capabilities, providing all aspects of project and program management.
- › The process of procuring Contractors (and suppliers) is overseen and managed by the Delivery Partner, however, the Client (or Delivery Partner acting as the Client's agent) engages the Contractors directly.
- › Construction services from Contractors are competitively tendered. The Delivery Partner is generally precluded from performing construction services (unless agreed by the Client), and in some instances the Delivery Partner provides the design services.
- › Program is agreed after the Delivery Partner contract is awarded (following design and scope definition) and involves a 'best endeavours' obligation to achieve completion on time.
- › The Delivery Partner fee typically includes:
 - A competitively tendered fixed fee for the management function (indirect costs).
 - Actual costs (salaries and overheads) reimbursed on an open-book basis.
 - Gain share/pain share regime to drive performance outcomes, with the pain share capped at the Delivery Partner's fee.
 - Incentive for on time completion.

Variations to the model

- › The Delivery Partner model can be adapted to suit the Client's capacity and capability. For example, the Delivery Partner and Client teams can be integrated to achieve a longer-term uplift in Client capability.
- › Alternatively, the Delivery Partner team can act in a more standalone capacity as an Engineering, Procurement, Construction, Management (EPCM) contractor subject to Client governance.
- › Emerging variations of the Delivery Partner model involve commercial opportunities (e.g. property development and/or equity investment) and longer term returns in exchange for risk transfer.

Conditions for use

- › Scope is insufficiently defined.
- › There is a known pipeline or program of projects.
- › The Client does not have the necessary depth of skills, resources and/or procedures/tools to procure and deliver the project/program.

Delivery Partner capability

- › Specific skills and resources necessary to act as an extension to the Client, typically for management, procurement, engineering and construction, and/or maintenance functions.
- › The model works best when all the Delivery Partner functions are sourced from the same service provider for consistency in systems and processes.

Client capability

- › Expert level understanding of supplier and subcontractor procurement and contract management.
- › Ability to contract administer the Delivery Partner agreement and achieve value for money.
- › Ability of Client the manage scope creep and 'gold plating'.

Benefits

- › Access to private sector capacity and capability.
- › Efficient and potentially cost-effective contracting method for large project works with multiple interfaces and challenging time constraints.
- › Procurement and construction can commence through early procurement and prioritising of critical packages while design is still being procured. This enhances flexibility and efficient time management.
- › Opportunity to achieve synergies and efficiencies across interfaces, which enables the Delivery Partner to use different levers to mitigate and/or remedy issues, e.g. delays to program.
- › Resources can be reallocated throughout the project to areas where they are most required, further enhancing flexibility and efficient time management.

Risks

- › No cost or program certainty at the start of the project.
- › Client retains direct cost (supply chain) risk.
- › Client retains design, construction and completion risk and has less control over execution (which sits with the Delivery Partner).
- › Competitively tendered fixed fee for Delivery Partner services and associated risks may not align incentives and outcomes.
- › Quality outcomes may be compromised if the Delivery Partner prioritises time and cost targets (over quality outcomes).
- › The criticality in the Client appointing a Delivery Partner with suitable capability and resources, may necessitate a high management fee to attract a capable Delivery Partner, thereby driving up delivery costs.
- › Very high interdependency amongst various participants may increase the possibility of disruption of project work.

Managing Contractor

Description

- › Client prepares concept design and procures a Managing Contractor through a competitive process to:
 - Design the project with client input during the cost estimate preparation.
 - Manage the design process (with responsibility for final design and constructability).
 - Coordinate the production of construction documentation.
 - Manage the delivery of the project.
- › The tender assessment is based on preliminaries, and design and management fee.
- › Typically involves a two-stage contractual arrangement:
 - If the Client and Managing Contractor are unable to agree on the cost, the contract comes to an end and the Client may retender the project.
 - If the Client accepts the Managing Contractor's cost, the next stage of construction documentation, delivery and commissioning occurs.
- › The subcontract trade packages are competitively tendered by the Managing Contractor on an open book basis and only the actual cost is paid by the Client, up to an agreed cap.
- › The selection of Subcontractors is carried out in close consultation between the Managing Contractor and the Client. The Client has the right to reject any subcontractors considered unacceptable.
- › A reasonable amount of flexibility to make changes to the scope, sequencing or timing of the works is usually accepted by the Managing Contractor, subject to any pre-agreed commitments or arrangement with the Client.
- › Typical payment mechanism includes:
 - Lump sum management fee which represents the Managing Contractor's offsite overheads and profit, and the preliminaries to be undertaken or provided by the Managing Contractor.
 - Reimbursement of Subcontractor, consultant and material costs on an open-book basis.
 - Target cost with a gain share/pain share regime (optional).
- › 'Best endeavours' obligation to achieve completion on time.
- › Cost of tendering for Contractors is lower compared to Design & Construct model because there is no upfront tender design involved. Typical costs are also deferred until after the contract is awarded and the Managing Contractor incurs costs to develop the design and program and select Subcontractors.

Conditions for use

- › Complex projects with numerous/ significant unknowns, such as undefined scope, unpredictable risks (including approvals) and unidentified constraints which cannot be resolved before it is necessary to let a contract in order to meet the project program (i.e. facilitates maximum design flexibility).
- › Significant benefits can be obtained from early involvement of the Contractor.
- › Client desires high visibility of Subcontractor pricing.
- › High level of expert Client input is available and would lead to better project outcomes.
- › Greenfield or brownfield projects where risks can be investigated and then priced.

- › Client desires innovation and constructability advice, however, retain some influence.
- › Contractor generally does not perform the works (or self-performance is limited).

Contractor capability

- › Procurement and construction management.
- › Stakeholder management.
- › Cost planning and cost management.
- › Value engineering.

Client capability

- › Scope definition.
- › Design procurement and design management.
- › Contractor management and contract administration.
- › Budget and variation management.

Benefits

- › Client flexibility on scope and ability to commence without all risks being fully investigated.
- › Greater client influence and input in design, constructability and delivery, reducing the risk that the Client's requirements will not be met.
- › Transparency of Subcontractor pricing.
- › Early engagement of Contractor encourages whole-of-life consideration, from inception to delivery and through to operation of the asset.
- › Client harnesses Contractor's management skills.

Risks

- › Limited certainty in time and cost outcome at the start of project commitment. In particular, target prices set at the outset (when scope is uncertain) may not be achievable.
- › Extensive consultative process may add to the cost and duration of the project.
- › Contract administration can be complex and requires more client resources, particularly in the early stages to establish the project scope and objectives.
- › Potentially significant scope creep, cost variations and unforeseen constructability issues.
- › There is program risk if the Client does not accept the Contractor's cost in the initial stage.
- › A high level of Client input is required to ensure that the project solution and agreed delivery phase price represents value for money.
- › Lack of competitiveness in pricing the delivery phase can increase costs and create difficulty demonstrating value for money.
- › Design development is paid on a 'cost plus' basis and the Contractor has little incentive to seek the best price and expedite progress in the early stages.
- › Contractors and supplier(s) may inflate prices.

Case Study: Managing Contractor Model

DCJ created 'Justice Infrastructure' to deliver the Prison Bed Capacity Program (PBCP) projects in 2016. Justice Infrastructure engaged a highly experienced team of major project specialists and utilised an Industry familiar GC21 form of contract with a specific focus on early contractor involvement (ECI) to procure the key infrastructure projects.

Under this strategy, the client contracts with the managing contractor, who designs the project in response to a functional brief and design scheme, and then subcontracts its design and construction obligations.

Some of the benefits of this procurement model that contributed to the successful delivery of these projects include:

- › Early engagement of the managing contractor encouraged whole-of-life involvement from inception to delivery phase.
- › Early alignment on project definition and risks enabled accelerated completion of the project.

- › Early collaboration offered the opportunity to unlock potential benefits and/or alternative delivery strategies which would not be possible under a traditional procurement method.
- › Transparency of subcontractor pricing, increased visibility between parties and led to an ability to drive significant positive impacts to whole-of-life costs in exchange for a small, upfront cost.
- › Shared responsibility allowed for a more informed understanding of project risks and potential mitigation measures in order to enable improved risk allocation and provisioning.

The use of the two-stage ECI model further facilitated a more cooperative partnering philosophy between the PBCP and the contractor, and permitted a less adversarial structure when resolving disputes. This approach has ensured projects across the three phases in the program were set up for success.



Construct Only

Description

- › Client competitively tenders the work based on detailed scope and complete design documentation (prepared to construction-ready standard). The Contractor is engaged only to construct the infrastructure.
- › Payment is usually based on a lump sum fixed price and may contain a pre-agreed schedule of rates for variations.
- › Client can undertake the design inhouse or engage a design consultant, however, in both circumstances the Client (not the Contractor) retains all risk for the design and construction documentation.
- › Cost of tendering for Contractors is lower than other models because there is no design involved.

Conditions for use

- › Scope is well-defined, standard or repetitious.
- › Client has time and capability to fully design the project to construction-ready status.
- › Client can provide the Contractor with suitable and reliable information on site conditions to enable pricing.
- › Low likelihood that scope or design will change during the construction phase.
- › Limited need for Contractor innovation.

Contractor capability

- › Construction management and delivery.

Client capability

- › Scope definition and management.
- › Identification and documentation of site conditions and utilities.
- › Control, management and coordination of detailed design and construction documentation (i.e. design management).
- › Procurement.
- › Stakeholder management.
- › Contract administration and management of both the separate design and construction contracts.

Benefits

- › Broad range of Contractors able to tender (depending on project scale).
- › Client has full control of the design and project outcome.
- › Efficiencies through economies of scale where multiple identical projects are being delivered.
- › High level of construction price certainty (subject to the quality of construction documentation and client variations).
- › Project timeframes are known.

Risks

- › Client retains risks relating to design/ integration and constructability (including structure, services and functionality).
- › Time and price certainty may be illusory if design and construction documentation is incomplete, inadequate or uncoordinated, or if the Client requires (even minor) variations for the project to be delivered. For this reason, the Client should also budget for adequate design and construction contingency.

Design & Construct

Description

Key Features

- › Client engages a design consultant to prepare a concept or schematic design that is provided to tenderers to develop as part of the tender process to inform the tender price and program.
- › Contractor is engaged to complete the detailed design and construct the project. The Contractor may engage Subcontractors, including a Design Subcontractor.
- › Contractor is responsible for (and assumes risk for) design and constructability.
- › Contractor bids a program that becomes the agreed baseline for the project.
- › Payment can include a combination of lump sum fixed price, schedule of rates, cost reimbursement, and target cost with a sharing of savings and overruns.
- › Cost of tendering for Contractors may be higher than other models due to the cost of design, higher due diligence costs and/or abandoned design costs for unsuccessful tenderers.

Variations to the model

- › The D&C model can vary according to the extent of design undertaken by the Client.
 - › The Client's control over the design reduces as design is documented by the Contractor. For example, the Client has minimal control over design where the Client completes to concept design and the Contractor is responsible for design development and construction documentation.
 - › Alternatively, where the Client provides full project scope and designs to 100% schematic and 70% detailed design, the Client retains greater control over the preliminary design and the Contractor is responsible for design finalisation. Design can be undertaken by the client inhouse, by a design consultant or by a contractor inhouse.
- › Varying approaches to this model include:
 1. **Design Finalisation & Construct**— Construction documentation is developed to about 85% by the Client and is finalised by the Contractor.
 2. **Design, Novate & Construct**—Client has a design contract with a consultant which is novated to the Contractor. For this to occur successfully, the design contract must be appropriate, and the scope and design obligations (e.g. fit for purpose warranty) must be aligned to the Design & Construct contract.
 3. **Design Development and Construct**— Client's works brief includes a design which is typically developed to at least concept level as well as performance requirements. Tenders are called for detailed design development and construction, usually on a lump sum basis. Suitable where the Client wishes to have more control over the significant aspects of the design.
 4. **Design, Construct and Maintain**— Suitable where the Client wishes to engage a Contractor to undertake the maintenance of the completed facilities. There can be better value for money through packaging ongoing maintenance of the built asset into the contract. The contract can be inflexible to change because design and output specifications must be defined before contract close. A change to the design initiated by the Client will result in a change to the capital cost, and possibly the ongoing maintenance costs.
 - › Regardless of the model variations, there must be a clear demarcation of responsibility and clarity of expectations to manage the Client's involvement in the design of the project and responsibility for the preliminary design prepared by the Client.

Conditions for use

- › Less complex projects with minimal risk of change in design or construction processes.
- › Client can develop concept/schematic design.
- › Opportunity for innovation in design.
- › More specialised projects where delivery solution and/or constructability has a greater dependency on design (i.e. where design and construction interface risk is high) Full project scope is defined and documented prior to tender.
- › Contractor is best placed to manage design engagement with the Client and take risk on design. The Client should be transparent on the status of the design at tender stage, including possible risk items for consideration by the Contractor in tendering.
- › Greenfield or brownfield projects where the risk can be assessed and priced.

Contractor capability

- › Design development, management and finalisation.
- › Stakeholder management.
- › Construction management including constructability.
- › Design and services coordination—particularly engagement with D&C services subcontractors.

Client capability

- › Scope definition.
- › Design procurement and design management.
- › Variation/budget management.
- › Contract management and administration.

Benefits

- › Construction phase may be fast-tracked as the construction tender can commence immediately once the project brief and tender designs are defined and drafted.
- › The tendering process encourages tenderers to offer alternative and innovative design concepts which may result in capital or whole of life cost savings to the Client and better constructability.
- › Reduced likelihood of significant variations or unforeseen constructability issues arising between concept and detailed design.
- › Price certainty as most often are fixed price, fixed time contracts.
- › Single point of responsibility over the life of the project for design and construction issues, and clarity on risk allocation.
- › The Contractor's full expertise, including integration of design and construction experience can be designed into the project during the detailed design phase (whereas schematic design may preclude some innovation). This drives construction innovation, as well as design and construction efficiencies.
- › The Contractor's control over the design process and input to the constructability should provide improved cost and time outcomes.

- › After contract award, the Contractor can commence early works before finalisation of the complete design which may accelerate the program.
- › Where design is developed/owned by the Contractor, there is commercial alignment between design and construction, particularly if (schematic) design team is novated to the Contractor.
- › Price and risk certainty are greater with time and procurement risk taken by the Contractor.

Risks

- › Client may pay a premium to transfer design risks to the Contractor. Contract price will include a risk premium to reflect risk transfer from the Client to the Contractor (in particular, unknown site conditions and utility risks).
- › Contractor has greater control over the design outcome, so it is difficult for the Client to exert significant ownership/control over the design process or changes during construction.
- › Client providing overly prescriptive specifications may discourage innovation in design.
- › Contractor may be less focused on lifecycle costs and considerations including quality. Unless the tender evaluation provides alternative guidance, the project is typically designed and constructed by the Contractor at the lowest cost to meet the minimum requirements set out in the works brief and performance specifications.
- › The risk identification and allocation between the parties must be clearly defined at the outset to facilitate a more collaborative approach to project delivery.
- › There is a higher likelihood of Contractors proposing/making subsequent changes to design to maintain/increase contract profitability.

Case Study: Nowra Bridge Project

The \$342 million Nowra Bridge project provides a new crossing over the Shoalhaven River to replace the 1881 Whipple Truss bridge. The project also includes upgrades to over 1.7 kilometres of the Princes Highway to provide three lanes in each direction and upgrades to the intersections of Bolong, Illaroo and Bridge roads.

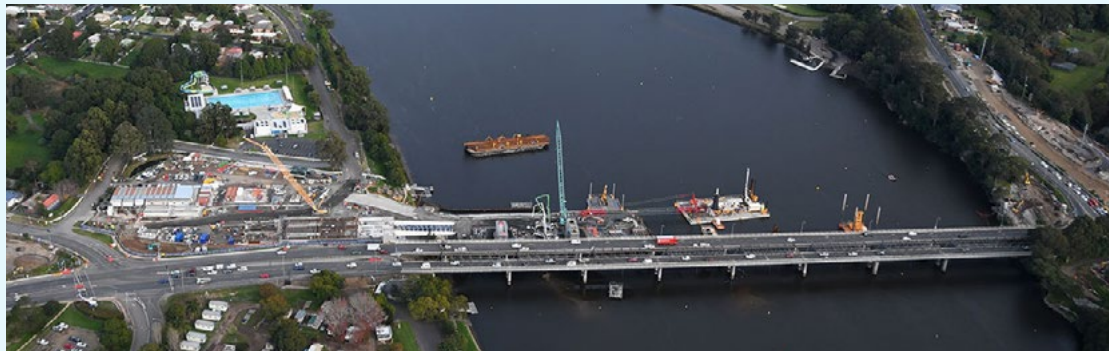
Of the potential delivery options, Design and Construct was the preferred delivery method for the following reasons:

- › Allowed commencement of construction significantly earlier than a Construct Only and in a similar timeframe to an Alliance.
- › Likely to result in the lowest whole of life costs to Roads and Maritime Services (now Transport for NSW).

- › To drive innovation in the bridge structure's drainage design and traffic management solutions.
- › Potential to achieve the greatest value for money outcomes for Roads and Maritime and the NSW Government.

Due to challenging site conditions, traditional Construct Only delivery methods would not suit each tenderer's approach to the project.

The Design and Construct Delivery method was selected as it would seek the most cost-efficient methodologies for the works from industry by enabling flexibility in design options from contractors, while also allowing works to be delivered as soon as possible.



Incentivised Target Cost

Description

- › Involves complete transparency and extensive collaboration between the Contractor and the Client, and interface contractor(s) involved in any dependent projects.
- › The target cost is based on shared risk allocation and includes:
 - lump sum components (including management fee) where there is more scope certainty and/or the Contractor is best placed to manage the risk; and
 - actual (or reimbursable) cost components (including contingencies) where there is less scope certainty and/or the Client is best placed to manage the risk.
- › The target cost excludes costs which are unknown at the time of procurement (referred to as 'known unknowns') and may include project specific risks such as unknown specified utilities or additional packages to be incorporated into the contract later. These costs are determined by the Client and paid on an actual basis.
- › Contract incentives may include:
 - Gain share/pain share mechanism where the contract price differs to the target cost.
 - Early completion payments if completion dates are paramount to the Client, e.g. to facilitate another project.
 - Payment for meeting key performance indicators (stretch non-cost benchmarks) e.g. customer service outcomes.
 - Liquidated damages and delay indemnity to cover the Client's potential costs associated with poor performance or delay (including knock-on effects on other projects).

Conditions for use

- › Client wants to align reimbursement and performance in a transparent and collaborative way, but with some allocation of risk to the Contractor.
- › Projects with complex interfaces, many stakeholders and non-standard deliverables.
- › There is some uncertainty on technical inputs and risks at time of award.
- › Greenfield or brownfield projects where the risk cannot be efficiently transferred to the Contractor.

Contractor capability

- › Design management and finalisation, however, preparedness for Client to own the design (including the Contractor's Intellectual Property).
- › Strong stakeholder engagement and collaboration.
- › Construction management.
- › Customer service and user experience.

Client capability

- › Scope definition.
- › Technical skills to develop a reference design.
- › Cost planning skills to develop the pre-tender target cost.
- › Strong contract management ability, including ongoing market testing.
- › Extensive contract management to ensure value for money.

Benefits

- › Allows for innovation.
- › Extensive, highly interactive tender and delivery period.
- › More cost certainty than other collaborative contracting models, such as an Alliance.
- › Ability to deal with complex interfaces.
- › The commercial model aligns reimbursement and performance with a focus on delivering project objectives and win/win outcomes.
- › Encourages active and equitable risk transfer based on a clear understanding and allocation of risk during the tender process.

Risks

Generally, as for a Design & Construct model, plus the following:

- › Project cost is unknown at the outset (creating difficulty to budget for), and limited cost certainty.
- › Risk that if the works are out of control, there may be little incentive for the Contractor to have the job done quickly and inexpensively.
- › Scope creep, as Contractor may deliberately incur higher cost in order to increase profit.
- › The Owner has greater risk exposure than in Design & Construct contract (but less than an Alliance).
- › Comparatively long tender period to allow the tenderers to develop their project solution and target cost.

Alliance

Description

- › Client (**Owner**) works collaboratively with private sector party(s) (**Non-Owner Participant—NOP**) to deliver major capital assets, sharing risks and rewards.
- › Owner develops a functional brief which informs a concept or schematic design and a pre-tender cost estimate for construction.
- › Owner and NOP(s) jointly manage risk and opportunity, and unanimously agree on all contract decisions, through transparent decision-making processes.
- › Guided by a codified process, Owner and NOP(s) work together in good faith, act with integrity and decisions made unanimously on a ‘best for project’ basis, rather than a ‘best for individual participant’ basis.
- › Integrated governance structure and project team optimise project and alliance outcomes.
- › Payment mechanism usually involves:
 - Joint development of a target outturn cost (TOC) between the participants.
 - Owner reimbursing the NOP costs on an open-book basis, including agreed overheads and profit margin.
 - Owner and NOP(s) sharing the burden/benefit of cost and time performance, via an apportionment of the ‘pain’ and ‘gain’ with respect to achievement against the TOC and other non-cost performance criteria for the works.
- › A pure alliance model contains limitations on legal rights to litigate arising from breach of contract, mistakes and negligence, with a ‘no blame, no disputes’ philosophy.

Conditions for use

- › Project value typically exceeds \$250 million as the cost of establishment, governance and administration is relatively high compared to other contracting models.
- › Project has risks and scope that cannot be adequately defined in the business case or during subsequent work before tendering.
- › Investigative works to quantify risks and design outcomes are not feasible during the planning phase of the project and will be most effectively/efficiently managed during construction works.
- › High need for real time Owner input into scope management and value add to construction outcomes.
- › Project must start as early as possible, and before risks can be fully identified. This requires careful consideration to ensure ‘artificial’ time constraints are not used to reduce efforts to identify/investigate project risks and issues.
- › Owner has the knowledge, skills and capacity and dedicated resources allocated to the alliance team, to influence and actively participate in the development and delivery of the project.
- › Project involves complex stakeholder environment and interface issues.

Contractor capability

- › Willingness to comply with a project alliance agreement consistent with the proposed alliance principles, behaviours and commercial framework arrangements.
- › Physical capability to deliver projects of the nature, size, scale and complexity of the respective projects.

Client capability

- › Enough internal resources to procure and deliver the alliance contract, of the same or higher capability than those normally made available to procure and deliver a design and construct contract.
- › Superior project delivery knowledge, capability and delegation to make real time financial and technical decisions.
- › Significant executive level experience and capability in complex commercial arrangements.
- › Cost planning and management.

Benefits

- › Enhanced performance through incentive targets.
- › Collective decision-making leading to less disputes.
- › Potential superior scope outcomes where initial investigative works were limited.
- › Early commencement and completion.
- › Potential innovation leading to improved service and lower cost outcomes.
- › Capitalise on joint knowledge, systems, innovation and risk management, and maximise Client input.
- › Risks are shared, goals are aligned and there are minimal variations.

Risks

- › Risks are shared.
- › Limited legal recourse by either party.
- › Remuneration framework may inadvertently incentivise the NOP to deliver sub-optimal outcomes (e.g. scope creep leading to time and cost overruns) because all agreed NOP costs are reimbursed if the risk cap is exceeded.
- › Success heavily relies on the strength and maturity of relationships and leadership by all parties to facilitate unanimous agreement of project decisions.
- › Project cost is unknown at the outset (creating difficulty to budget for), and limited cost certainty.
- › Requires greater Owner participation than other models.

Case Study: Novo Rail Program Alliance

The Novo Rail Program Alliance was created in 2008 and extended for an additional 5 years in 2013. The Alliance has delivered in excess of 50 rail projects (junctions, traction supply, stabling, traction substation and other works) with a combined value exceeding \$1.5B.

The Request for Proposal (RFP) identified the following reasons for selecting the program alliance model:

- › It was the optimum delivery model to achieve a 'step change' in the signalling, electrical and project management capacity of industry in a time effective manner
- › It was the model that is most likely to achieve the current and future network development program targets sought by Government
- › The characteristics of the program of projects accord with the characteristics typically suited to an alliance contract structure, including:
 - brownfields based projects
 - difficult technical tasks;

- complex stakeholder issues; and
- tight deadlines

- › Similar programs in the rail industry have been successfully delivered through program alliances.

A key element of the procurement is nil price competition. The consortium was chosen on it's considered ability to perform and the commercial parameters negotiated during the selection process.

The following items are considered key learnings from the procurement process:

- › The inclusion of specialist collaborative contract consultants throughout the process can add value in all levels of the process
- › Client subject matter experts ensure commercial arrangements are properly understood
- › Best value for money can be achieved by applying the Non-Owner Participant processes and procedures as opposed to the Alliance developing its own processes and procedures.



Public Private Partnership (PPP)

Description

Key Features

- › PPPs can be broadly defined as long-term arrangements between the public and private sector for the delivery of service enabling public infrastructure, and related services on behalf, or in support, of Government's broader service responsibilities.
- › A PPP includes any long-term arrangement (concession) with the private sector, enabling social or economic infrastructure.
- › Typically, a PPP involves the private sector bidding consortium establishing a special purpose vehicle (i.e. Project Company) to design, build, finance, operate and maintain an asset on a whole-of-life basis for a specific period.
- › The Project Company receives service payments from the State in the case of availability PPPs (or from users in demand risk PPPs) once operation of the infrastructure has commenced and contingent on the Project Company's performance in supplying the services.

Variations to the model

- › Responsibility for operations and core services can be transferred to the private sector or retained by Government.
- › Where core services within a PPP project are provided by Government, the State procures what is known as an 'Asset PPP'.
- › Other variations of the PPP model involve the Project Company performing the following:
 - Build, Own, Operate and Transfer (BOOT)
 - Design, Build, Finance and Operate (DBFO)
 - Design, Build, Finance and Maintain (DBFM)
 - Design, Build, Operate and Maintain (DBOM).

Conditions for use

- › Projects with estimated capital value exceeding \$100 million.
- › Long term infrastructure projects which focus on an integrated whole of life solution for holistic long-term outcomes.
- › Outputs can be clearly defined and measured.
- › Scope for innovation.
- › Strong market interest.
- › Whole of life asset management is achievable and cost effective.
- › Opportunities for appropriate risk transfer.
- › Opportunities for bundling contracts.
- › Appropriate service component.

Consortium capability

- › Design management / design development & finalisation.
- › Construction management.
- › Track record in PPPs.
- › Project finance.
- › Whole-of-life management.
- › Service delivery.

Client capability

- › Scope definition.
- › Strong procurement management.
- › Project finance.
- › Variation/budget management.
- › Contract management.

Benefits

- › Better integration of design, construction and operational requirements.
- › Bringing forward infrastructure expenditure, including through delivering projects as part of a single package instead of staging capital development over the long term.
- › Multiple private sector sponsors with diverse backgrounds working together to create innovative, best-for-project solution.
- › Value for money achieved through whole-of-life-costing and appropriate risk transfer over the concession term.
- › Innovation which leads to improved service outcomes.
- › PPPs provide Government with greater budget certainty, locking down recurrent funding over the term at the time the contract is signed which can assist agencies to better manage cash flows.
- › Project Company is responsible for the upfront full integration of design and construction with operations, asset management and refurbishment costs. Investors are required to plan, design and budget upfront for maintenance over the term, resulting in:
 - more efficient design to meet performance (e.g. service delivery) specifications;
 - quality construction and finishes;
 - certainty of maintenance standards; and
 - cost certainty.
- › Due diligence by private sector investors and debt financiers over the life of a PPP project provides Government with a buffer against certain risks.
- › Rigour of debt and equity in due diligence increases certainty.
- › Private sector incentivised via equity to deliver sustained long-term outcomes.
- › One point of contact/responsibility for complex interfaces which minimises procurement and delivery complexity and ‘gap risk’ for Government.
- › Government does not pay (however some capital cost may be paid upfront) until the project is complete and operating, fully transferring delivery risk to the private sector. Some or all payment of the capital cost will be phased over the operations phase.
- › Significant risk transfer for design, construction time and lifecycle and maintenance, including interface risks between delivery phase and operations phase.
- › Reduced likelihood of ‘deal creep’ which ensures cost and time benefits for Government.
- › Potential for commercial revenues to offset Government availability payments and enhance customer experience.

Risks

- › Default of Project Company in market downturn (i.e. due to high debt ratio).
- › Comparatively high tender costs and procurement timeframes.
- › As with other delivery models, State initiated modifications (especially during the delivery phase) can compromise this budget certainty if cost and risk impacts are not properly considered.
- › Relative inflexibility to make variations post procurement (although augmentation and variation procedures exist).
- › Reduced likelihood of significant variations or constructability issues arising between concept and detailed design.
- › Price includes design / constructability risk absorbed by Project Company.

Case Study: Clarence Correctional Centre

The Clarence Correctional Centre (CCC) is located in Lavadia (approximately 12.5 kilometres southeast of Grafton) with capacity to accommodate up to 1,700 inmates.

An evaluation against each of the eight public interest criteria set out in the NSW Public Private Partnerships Guidelines 2012 (which are the same as those in the **NSW PPP Guidelines 2017**) consistently indicated the PPP delivery model was the most suitable procurement option for the CCC.

The eight public interest criteria included:

- › effectiveness in meeting government objectives
- › achieving better value for money
- › community consultation
- › consumer rights
- › accountability and transparency
- › public access
- › health and safety
- › privacy

The centre was successfully delivered as a PPP with Northern Pathways, a consortium comprising Serco,

John Laing and Macquarie Capital. The Northern Pathways consortium established special purpose entities with which to contract with the State.

The consortium was responsible for arranging the finance required for the correctional complex, design and construction of the correctional complex and associated works and operation and maintenance of the correctional complex.

The Clarence Correctional Centre officially opened on 25 June 2020.



Further information and contacts

For further Information or clarification on issues raised in the discussion paper, please contact the Infrastructure NSW Construction Leadership Group (CLG) team on **clg@infrastructure.nsw.gov.au**.

