Appendix S
Procurement Options Assessment

February 2018

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Glossary

BOOT	Build, Own, Operate and Transfer
D&C	Design & Construction
DBOM	Design, Build, Operate and Maintain
DTF	Department of Treasury and Finance of the State of Victoria
EOI	Expression of Interest
EWL	East West Link
FWY	Freeway
GFC	Global Financial Crisis
HWY	Highway
IA	Infrastructure Australia
IA guidelines	Infrastructure Australia's National Public Private Partnership Policy and Guidelines
ITS	Intelligent Transport Systems
KPI	Key performance indicator
NEL	North East Link
NELA	North East Link Authority
O&M	Operation & Maintenance
PPP	Public Private Partnership
Project	North East Link Project
Rd	Road
RFP	Request for Proposal
TBM	Tunnel Boring Machine
VfM	Value for Money

Executive Summary

Methodology

This Appendix assesses and recommends a preferred packaging and procurement option for North East Link project. Packaging refers to the elements of the project scope that are to be 'packaged' or bundled together in one contractual suite. Procurement option refers to the potential contractual models used to engage the private sector in the project.

The evaluation methodology used to assess packaging and procurement options is consistent with relevant Department of Treasury and Finance (DTF) and Infrastructure Australia's National Public Private Partnership (PPP) Policy and Guidelines, and incorporates key findings from market sounding interviews.

Market sounding feedback

A market sounding process was undertaken to inform the business case. The primary focus of the market sounding was on gathering feedback to inform the packaging and procurement of the project. Key feedback from this process identified:

- The project is likely too large to be let as one construction package
- Even if split into logical packages, joint ventures of more than two large constructors are likely to be needed
- There is limited appetite for bidding on greenfield unproven toll revenues, and therefore there is a general preference for the State to retain toll revenues for at least the initial period.

Recommended packaging option

Packaging is an important element of the procurement strategy as it determines which elements of overall scope are logically and optimally 'packaged' together. Once package options have been determined it is then possible to assess the optimal procurement approaches for these options. In complex projects like this, this is iterative.

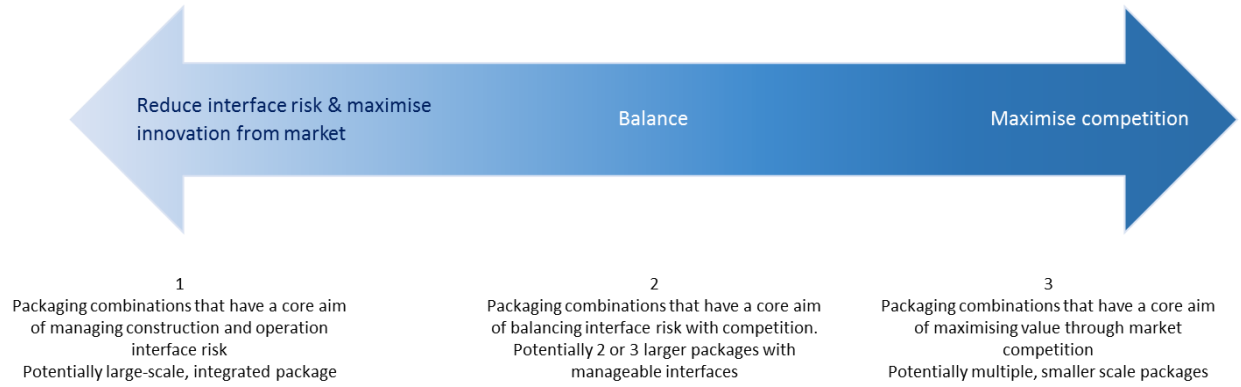
In considering the project scope and the feedback from the market on optimal construction package size in dollar terms, there are two overarching objectives for packaging which are in tension:

- Greater competition should achieve better value for money; but
- A single or fewer construction package(s), an integrated design solution and "whole of project" operations and maintenance view better mitigate interface risks and are more likely to achieve an integrated and innovative solution.

Fully satisfying one characteristic, requires trade-offs to the other.

Three potential packaging solutions were identified as follows:

Figure 1 Potential packaging solutions



1
Packaging combinations that have a core aim of managing construction and operation interface risk
Potentially large-scale, integrated package

2
Packaging combinations that have a core aim of balancing interface risk with competition.
Potentially 2 or 3 larger packages with manageable interfaces

3
Packaging combinations that have a core aim of maximising value through market competition
Potentially multiple, smaller scale packages

A 'Reference Packaging Strategy' has been identified that seeks to balance the trade-off between these two characteristics. The Reference Packaging Strategy comprises two to three construction packages that will be further tested (including through market sounding) to ensure adequate competition and appropriate incentives. This testing will also consider how the Reference Packaging Strategy might best integrate design and incentivise a 'whole of project' operations and maintenance view.

Because the most significant technical risk is geotechnical and tunnelling risk, the Reference Packaging Strategy includes a Primary Package consisting of the tunnelled section and Secondary Package(s) that can be contracted and constructed separately. How design, operations and maintenance responsibilities are split is considered further below in the procurement section.

The key factors for recommending the Reference Packaging Strategy are:

- Economies of scale can still be achieved given the size of the construction packages
- The size and scale of construction packaging is very large and will need to attract a range of local and international participants
- There is some opportunity for innovation given the size of the packages
- May enable efficient use of critical or in-demand skill sets and create synergies and economies of scales across disciplines.

Given the current elevated construction market environment, the ability to achieve improved value for money through a competitive market process is still anticipated to outweigh the potential risk associated with dividing the project scope elements into more appropriately sized packages.

The final packaging strategy will be informed by:

- Further scope refinement to prepare a reference design for planning and environmental approvals
- Further iteration with the procurement strategy particularly with respect to design, operations and maintenance responsibilities
- Further feedback from the market in the next stage of market sounding including the markets ability to absorb and compete for construction packages of the proposed size.

Recommended procurement option

A range of procurement models for the primary package were assessed against the procurement assessment criteria developed for the project. The procurement options assessment recommended a design, build, finance, operate and maintain **Availability PPP model** which contains the Primary Package. A key caveat to this recommendation is that the Primary Package needs to be of a size which is capable of competing consortia being capable of providing fixed price construction contracts for.

The key factors for recommending an Availability PPP model with an appropriately sized Primary Package include:

- **Risk Transfer / Price and Budget Certainty** – Whole-of-life models such as PPPs offer comparative advantages over D&C and alliance models predominantly in relation to ability to transfer more risk to the private sector and achieve certainty over cost outcomes.
- **Market Interest** – Market sounding Stage 1(A) demonstrated strong market interest and expected competition for an Availability PPP (of a suitable size). However, an Economic PPP suffered from low market interest in valuing (and significant sharing of) unproven toll revenues which was considered to drive a low degree of competition.
- **Valuing Toll Revenue** – the market sounding and financial analysis for the project identified a lower prospect of achieving good value for money by selling up-front toll revenues to the PPP vehicle, given the PPP market's view of traffic risk and its potential to consequently discount potential toll revenue in the construction and ramp up phases of the project and the uncertainties given longer term macro-economic, network and policy risks are their potential impacts on toll revenue.
- **The value of Toll Revenue would not fully finance the package** – in many Economic PPPs, where the toll revenues are sold as part of the package, the net present value (NPV) of the revenue stream has exceeded the construction costs, and PPP bidders have competed on the size of the net "cheque" paid to government. Here the NPV is less, making the economic model more complex to structure.
- **Operational Performance** – PPPs offer strong operational performance regimes with commercial incentives via KPI and abatement regimes.
- **Innovation** – A focus on longer term / 'whole-of-life' contracting delivers private sector innovation in terms of how best to maintain and operate the asset over the term in the most cost effective and efficient manner – while still meeting performance criteria.
- **Meeting timelines** – Overall, it has been found that projects procured via D&C or alliance models are likely to be completed later than whole-of-life models relative to budget.
- **Flexibility** – By virtue of the fact that the State retains toll revenue risk, it offers greater flexibility for the State to amend toll pricing in the future in response to demand, network and technology change. This characteristic offers greater support of the State's Tolling Principles for the Project.

Packaging the Project into two or three construction packages requires a framework that considers the desire for an integrated design solution, management of design and construction interfaces and 'whole of road' operational and maintenance integration.

A preliminary assessment was undertaken on potential frameworks to address the implementation of the Primary Package within an Availability PPP with other Secondary Package(s) that may be delivered in a more traditional, non-privately financed manner. The potential delivery framework for North East Link will be further explored and defined as part of developing the commercial framework for the procurement phase.

Commercial considerations

NELA is considering a range of potential measures for better aligning incentives and interests of an Availability PPP Co with the State's where the State retains toll revenues. For the State, more traffic means more revenue, but for Availability PPP Co more traffic means more operations and maintenance costs. NELA will continue to develop these measures leading up to procurement.

A preliminary scoping analysis was undertaken into how responsibilities for tolling related infrastructure, operations and maintenance scope might be split between the Availability PPP and the State Tolling Entity. Under the preferred approach, the State will retain initial toll revenue risk and reward and establish separate a State Tolling Entity to receive toll revenues. Creating a State Tolling Entity will enable the State to consider monetisation / divestment options in the future (once toll revenues have matured post-ramp up) as well as giving more flexibility as to setting toll levels.

1 Background

1.1 Purpose

This Appendix outlines the methodology that was used to assess the packaging and procurement options for the North East Link project. The Appendix presents the analysis undertaken by the North East Link Authority (NELA) to provide a recommendation on the most suitable procurement option for each of the Project components (the packages).

1.2 Approach to assessing procurement options

NELA's approach to assessing procurement options is consistent with the Department of Treasury and Finance guidelines (DTF) and Infrastructure Australia's National Public Private Partnership Policy and Guidelines (IA guidelines). The initial step undertaken was to determine the State's overall Project Objectives and the specific Procurement Objectives. Both lists of objectives were developed and evaluated through a series of workshops with key project stakeholders who considered the project's strengths, weaknesses, opportunities and threats in the context of the current market.

The following Procurement Objectives were used as a basis for the State to select the most appropriate procurement options:

- Optimise market participation and competition to drive value for money
- Optimise transport network integration by being able to accommodate future changes in technology, the transport network and operating policies
- Appropriate budget certainty to the State
- Optimise the management, allocation and pricing of risk between all parties to the project
- Meet the State's timeframes for delivery of the project
- Maximise the operational performance of the North East Link.

A tailored approach (aligned to the DTF and IA guidelines) was developed to identify the procurement criteria that would lead to the recommended procurement model.

The procurement options assessment was also informed by the industry, via the project's market sounding process which commenced in August 2017. The primary focus of this market sounding was on gathering feedback to inform the packaging and procurement of the project.

1.3 Key considerations for the Procurement Analysis

The following key characteristics have informed the packaging and procurement options:

Market sounding and experience in current infrastructure projects being delivered across Australia identify that at $13.4B (nominal) construction costs, the Project is a significant transport project that is larger in scale than the market is likely to be comfortable in contracting for as a whole.

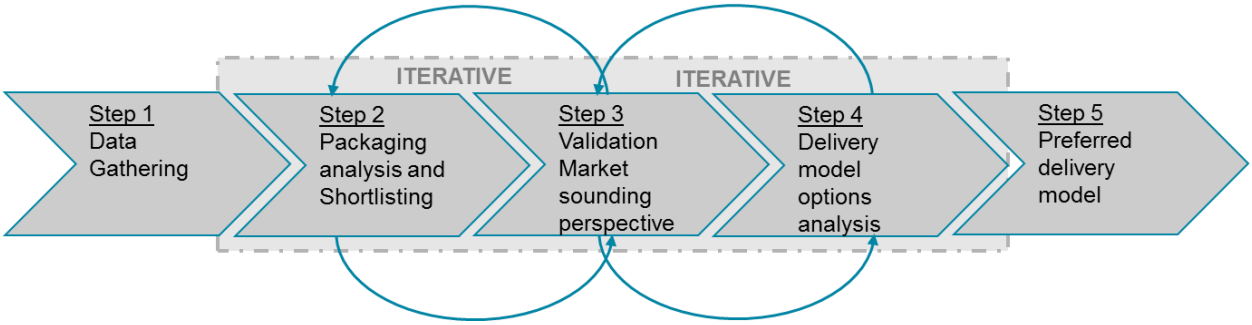
- The key technical risk facing the project is geotechnical and tunnelling risk through some of Melbourne's most diverse geological conditions. All tunnelling projects delivered in Australia in recent times have sought to allocate the design, construction and operations risk associated with tunnel construction to the private sector; the party best able to manage this risk.
- The road will be tolled. The State should consider how and when to derive best value from the toll revenue stream.
- Given the substantial impact of future network development, transport policy and exogenous macro-economic factors on traffic volumes and traffic revenues there is a substantial question over whether the State or the private sector is the party best able to manage and absorb traffic revenue related risk.
- Victoria's two current toll roads (CityLink and EastLink) are privately financed Economic PPP toll roads, where the private sector has bid for greenfield toll revenues. Peninsula Link is under an Availability PPP structure. East West Link was planned to be an Availability PPP structure with a State owned toll entity. Despite the financial success of Victoria's two toll roads, in recent years there have been a number of high profile financial failures of these traditional toll road projects, including the Cross City Tunnel and Lane Cove Tunnel in Sydney and Clem7 and Airport Link in Brisbane.
- Following these failures and the Global Financial Crisis (GFC), the market appetite for bidding for greenfield toll revenues as part of a PPP was significantly limited. However the market sounding undertaken for the project has shown that the appetite for toll revenues as part of a PPP has increased (from post GFC levels) but remains limited to a few established toll road investors / operators.
- Accordingly, the procurement options considered have been developed in the context of a PPP market with a much more limited appetite for greenfield toll revenues than it has had historically.

2 Packaging and procurement options assessment

2.1 Overview of the assessment framework

The procurement options assessment framework adopted is consistent with DTF and IA guidelines for identifying and assessing likely packaging and procurement options. Figure 2 below presents the methodology.

Figure 2 Methodology for developing preferred packaging and procurement delivery model



Key steps of the methodology are:

Step 1 – **Data Gathering**: Identify and gather key data and information regarding the project, including objectives, characteristics, risks and market perspectives.

Step 2 – **Packaging Options Assessment**: Identify the broad range of works required to meet the project objectives, analyse and assess packaging options for procurement.

Step 3 – **Procurement Options Assessment**: Identify the broad range of procurement models available for the project. Analyse and assess procurement models that most effectively meet NELA's project and procurement objectives.

Iteration between Steps 3 and 2 occurs at this stage as necessary to reconfirm assumptions at each stage.

Step 4 – **Validation Market Sounding Perspective**: Test packaging and procurement considerations with the market.

Iteration between Steps 4, 3 and 2 occurs at this stage as necessary to reconfirm or reassess assumptions at each stage.

Step 5 – **Preferred Delivery Model**: Recommend a preferred set of packaging and procurement options and confirm next steps for on-going development.

2.2 Data gathering (Step 1)

NELA gathered and considered key data relevant to the packaging and procurement assessment, including:

2.2.1 Project objectives

The Project supports business and jobs growth in communities across Melbourne's north, east and south-east, improves cross-city connectivity and helps address critical traffic, freight and amenity issues. Project Objectives and Guiding Principles reflecting this focus have been established, as outlined in the table below.

Table 1 North East Link Project Objectives and Guiding Principles

Project Objectives			
Objective 1	Objective 2	Objective 3	Objective 4
Improve business access and growth in Melbourne's North, East and South-East	Improve household access and growth in Melbourne's North, East and South-East	Improve freight and supply chain efficiency and industrial growth across the North, East and South-East	Improve access, amenity and safety for communities in the North-East

Guiding Principles			
Guiding principle 1	Guiding principle 2	Guiding principle 3	Guiding principle 4
Minimise impacts on communities	Minimise impacts on environmental and cultural assets	Minimise impacts during the construction phase	Optimise the efficient use of resources

2.2.2 Project characteristics

The following are some key characteristics:

- A continuous road reservation does not exist between M80 and the Eastern Freeway.
- Steep natural grades exist throughout Melbourne's north-east and are therefore reflected in elements of the concept design.
- Acquisition of some property is anticipated, and may affect commercial, industrial and residential properties. Government owned land may also be affected.
- The project will require integration with the M80 and Eastern Freeway. This will include upgrade and widening to both the M80 and Eastern Freeway to accommodate interchange. In addition, the Eastern Freeway will be upgraded to enable additional capacity and modernised to include Managed Motorway systems[1] and collector distributors[2] to manage traffic and provide greater throughput.
- Arterial roads adjacent to the project will require upgrades to support interchanges. This typically involves additional through lanes, turning lanes and corridor improvements to allow traffic to move safely and efficiently between the wider road network and the project.
- Enhancement of walking and cycling routes will form part of the broader project. This may include routes adjacent to the project's corridor or those that may cross it to minimise severance. There are also opportunities for better utilisation of pedestrian and cycling traffic as a result.
- The use of tunnelling will be critical to environmentally sensitive areas, including the crossing of the Yarra River. A minimum tunnel length has been identified to protect these areas, the greater part of which will be constructed via TBM to control groundwater impact and geotechnical risk.
- Major utilities easements are affected by the proposed works and will require protection or relocation.

The project has been developed to concept design stage to provide a solution for the purposes of the Business Case assessment. Further development of this design will be undertaken by NELA to prepare a Reference Design for planning approvals. A critical factor in ensuring success will be the continued development of the solution to address key project risks, minimise impacts to the environment and local communities and to respond to stakeholder feedback during this time. Innovation from the private sector is anticipated to contribute much to ensuring the Project Objectives and Guiding Principles for the project are met.

2.2.3 Key project risks

Through a series of workshops held with NELA, its advisors and key stakeholders, the key risks were identified and quantified (where possible). This information is critical to inform the different procurement options and delivery packages that would best mitigate the risks. The table below summarises some of the key risks. For further detail regarding project risk please refer to Chapter 13 of the Business Case.

[1] Managed Motorway systems include Lane Use Management Signs, ramp metering, Variable Message Signs, CCTV and in-pavement detection, managed by an overarching operational system that controls traffic performance.

[2] Collector distributors are an operational road design measure that separates traffic on a motorway through the provision of a separate carriageway for traffic entering and exiting the freeway, enabling longer-distance traffic to avoid weaving and merging traffic and therefore increasing traffic throughput.

Table 2 Key Risks

Category	Risks
Land acquisition	The risk that land acquisition-related cost forecasts agreed to at financial close cannot be met The risk that land acquisition is not sufficient to allow optimal project design, deliver the preferred scope or meet project timelines agreed at financial close
Planning and environmental approvals	The risk that the necessary planning, environmental and statutory approvals are not obtained in accordance with the timeframe or form agreed at financial close, or do not meet project requirements, potentially resulting in incremental costs and/or timing delays to the project The risk that approvals are delayed or revoked, (for example, legal challenges are raised against granted or pending approvals) potentially resulting in increased costs
Community and stakeholder impact risks	The risk of local community / stakeholder opposition to the project, its scope or preferred construction options, may lead to additional stakeholder communications resources being required and delays to project timelines
Market capacity and competition risk	The risk that there is heightened demand in the construction market leading to increased costs The risk of insufficient resources being available in the market to adequately support the project
Scope specification risks	The risk that specification of the project's scope requires amendment due to changes in the State's requirements, potentially resulting in additional scope and increased costs The risk of omitting costs related to complementary and enabling works required to achieve the project's outcomes The risk that the detailed and/or final design does not adequately address the State's project scope requirements, potentially resulting in additional scope and increased costs
Industrial relations risk	The risk that industrial action or an industrial relations event occurs (may be due to an act or omission by contractor), that potentially affects labour costs and productivity
Interface risk (transport users)	The risk that there are overly complex interfaces between project construction activities and transport users (road traffic) beyond allowances and those planned, including occupations – potentially causing unexpected project costs
Detailed design development risk	The risk of cost and scope increases resulting from detailed design development solution
TBM failure risk	The risk of failure / damage to TBM requiring mobilisation of a second TBM
Change in law risk	The risk that changes to law adversely impact the project, potentially leading to increased costs
Latent defect risk (tunnel structures)	The risk of defects in earlier design or construction of tunnel structures becoming apparent during the O&M term, potentially leading to increased O&M costs
Latent defect risk (elevated structures)	The risk of defects in earlier design or construction of elevated structures becoming apparent during the maintenance term
Traffic risk (volume or mix) – maintenance	The risk that traffic levels are higher than, or vehicle mix is different to, what was anticipated at financial close, thus resulting in increased routine O&M costs
Traffic risk (volume or mix) – noise walls	The risk that traffic levels are higher or vehicle mix is different to what was anticipated at financial close, thus resulting in increased road noise beyond regulatory limits, which is not sufficiently mitigated by existing noise walls, potentially resulting in increased costs to rectify.
Toll revenue risk / reward	The risk of inaccuracies in forecasting traffic volumes and the risk that underlying assumptions regarding future macro-economic factors that support the long-term traffic growth forecasts are inaccurate, leading to the risk (reward) that actual toll revenues are lower (higher) than forecast, which results in an unanticipated funding gap or unrealised revenue uplift throughout the operating term.
Benefits realisation risk	The risk that actual travel time savings and other benefits expected in the business case do not arise

2.2.4 Market perspectives

One of NELA's key procurement objectives is optimising market participation and 'right sizing' competition to drive value for money. To support this objective, market sounding for the project commenced in August 2017. Phase 1(A) of the market sounding focussed on the PPP market and its purpose was to inform NELA of the market's perspectives on key commercial, procurement and packaging issues to inform the Business Case. As part of this process, NELA sought feedback from participants on a range of topics including:

- Market capacity and the potential of current activity in the infrastructure market to impact on the ability to finance, procure and deliver the project.
- Market appetite for the project in the current infrastructure delivery environment and/or Melbourne toll road market and the potential to understand any issues that may impact on the interest in the project.
- Commercial and risk issues which may influence the way the project is structured from a commercial perspective.
- Financial issues and how they are viewed, including the implications for the capacity of the private sector to raise debt and equity funding for the project.
- Other project issues that relate to experience on other projects currently in delivery and any emerging innovations that may influence tolling strategy or operation of the road in the future.

The findings of the market sounding were vital to informing NELA's positions regarding toll revenue value optimisation, responsibilities for toll revenues, packaging and procurement. This is consistent with the first procurement objective which seeks to optimise market participation and maximise competition. Conclusions from the market sounding exercise as they relate to procurement are presented in 2.2.4 of this Appendix.

2.2.5 Cost analysis and funding

The implications of different procurement options will be influenced by the project's cost and its potential funding sources (both from public (Government) and private (road users) perspectives) and market appetite for these options. As shown in the financial analysis presented in the Business Case, the project will need to be funded from a mix of road user tolls, value capture sources (if available) and funding sources from Government. It is important to note that the economic benefits (primarily travel time savings, safety considerations and vehicle operating costs) accrue regardless of whether the road is tolled or not, and irrespective of the mix of funding between users, beneficiaries and Government / taxpayers.

Chapter 9 of the business case further details costs and funding.

2.3 Packaging options assessment (Step 2)

Packaging is an important element of the procurement strategy as it determines how the overall scope is best 'packaged' together for delivery. Once appropriate packages have been determined, it is then possible to assess the optimal procurement approach. It is particularly relevant for a very large, complex project like North East Link which requires consideration of its size and operational requirements; Is it too big to deliver as one construction package (fixed price or otherwise)? What interfaces might be created if it is delivered as separate packages? How do you ensure an integrated, end-to-end functional design solution that brings the best of innovation? How might you incentivise a "whole of road" operation and maintenance view?

2.3.1 Approach

As discussed previously, developing procurement strategy is iterative. A Reference Packaging Solution has been identified for the procurement options assessment and further testing with the market in the next phase of the market sounding process. This next phase of the market sounding process will aim to ensure assumptions made in determining the Reference Packaging Solution are robust and continue to align with the ability and appetite of the market to deliver the project.

Following receipt of the next phase of market sounding feedback and further development of a Reference Design to inform the planning approvals for the project a final packaging solution will be confirmed.

In accordance with the DTF Procurement Strategy Guidelines, step 2 considers project bundling or packaging. A four-phase methodology was used to determine the reference packaging solution:

- **Phase 1 Identify value drivers**: The first phase involves identifying the key attributes in how the project is packaged and presented to market which drive achieving value for money. The value drivers are used to support how the package solution options are assessed and compared.
- **Phase 2 Define project scope elements**: The project includes a number of components with different characteristics and geographical constraints. The second phase defines a series of project scope elements that, combined together, form North East Link between the M80/Plenty Road interchange and Eastern Freeway. The project scope elements represent a series of defined geographical or work-type characteristic components. The project scope elements are then used as the basis of identifying package options to enable the packaging assessment.
- **Phase 3 Identify package options**: Following the definition and categorisation of the project scope elements, the project scope elements were grouped into sensible and deliverable packaging solutions that can be compared against one another. Factors that were considered in developing packaging solutions include potential design, construction and operational interface risks, geographic location, package size and technical disciplines necessary to undertake the works.
- **Phase 4 Packaging assessment**: This phase assesses the potential packaging options against the value drivers to assess how each of the package options has the ability to deliver value for money and address risk in the delivery of the project. The assessment enables selection of a Reference Packaging Solution to take forward for procurement assessment and further market sounding to inform a final packaging solution that achieves adequate competition and appropriate incentives to determine the appropriate scope, incentives and interface points

2.3.2 Phase 1 Identify value drivers

The following value drivers have been developed to assist in the identification and assessment of packaging options. The value drivers represent potential package features that can drive strong outcomes against the procurement objectives.

In contemplating these value drivers and the key considerations for packaging outlined in Section 2.3.3, there are two overarching characteristics that will drive packaging solutions that are in tension:

- Greater competition should achieve better value for money; but
- A single or fewer packages better mitigates interface risk and achieving an integrated and innovative solution in the construction and operation of the link.

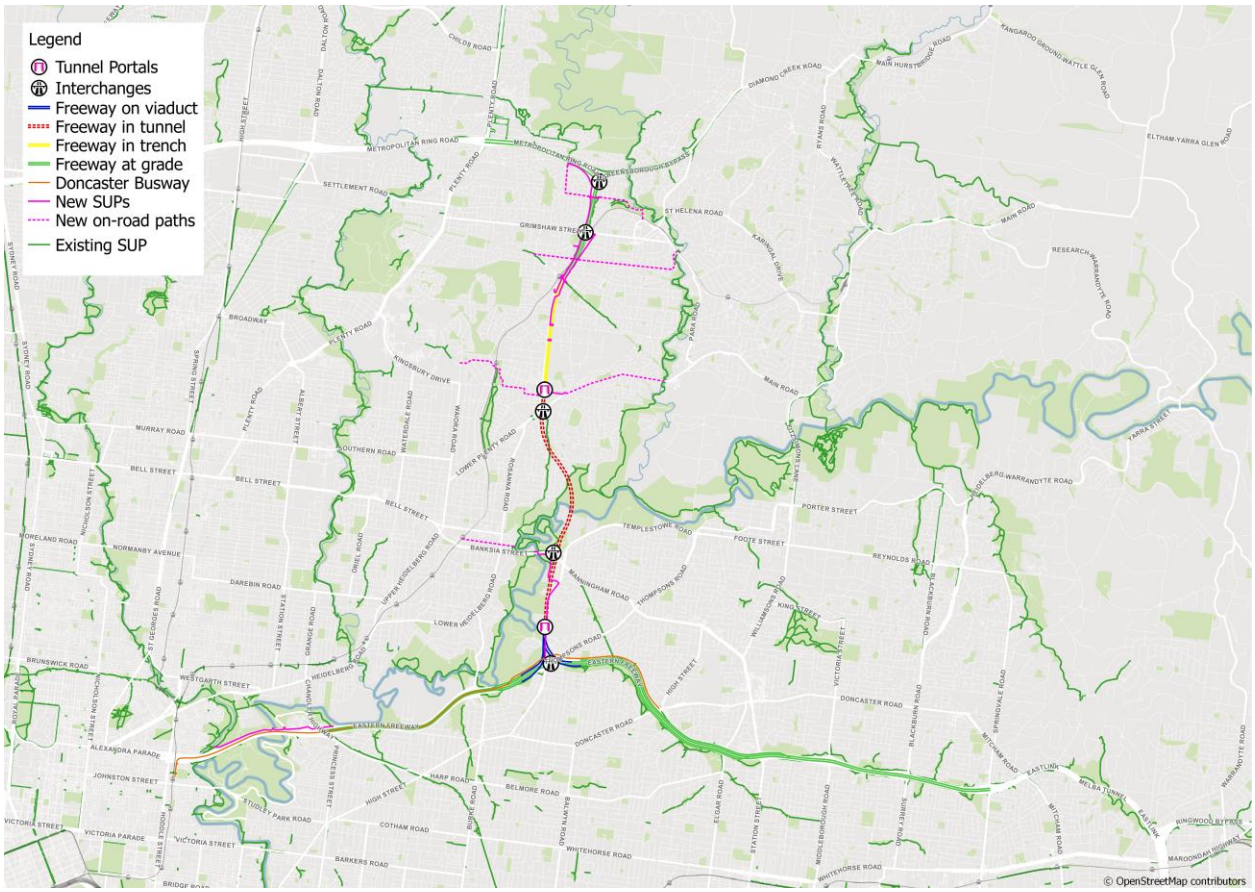
Table 3 Packaging assessment criteria

Overarching characteristic	Value drivers	Description
Optimise competition	Size and scale	The extent to which the package is of sufficient value to be attractive to the market and provide opportunities for economies of scale; aiming to reduce design and construction cost and reduce industry bid costs.
	Market capacity	The extent to which the very large scale may limit the market's ability to provide a competitive process and therefore deliver a competitive outcome.
	Innovation	The extent to which the packaging approach creates or reduces opportunities for innovation in design, construction and/or a whole-of-life focus.
Manage interface risk	Deliverability	The extent to which packaging considerations would support the required project timetable.
	Geography	The extent to which elements are located to provide efficiency or synergy (e.g. in delivery).
	Functional interdependence	The extent to which elements have inherent functional interdependencies that need to be managed through construction and operations, therefore limiting packaging consideration without introducing major interface risk.
	Risk profile	The extent to which the proposed packaging solutions support an optimum risk transfer.
	Operations	The extent to which the operating performance of the project's assets comprising the package is comparable.
	Technical requirements	The extent to which the elements have similar or consistent technical / skills / capabilities requirements that would provide value in keeping together or risk in splitting them apart.
Other considerations	Independent project benefits	The extent to which elements of the works can achieve project benefits (e.g. improved access outcomes) independently and could be delivered on a 'stand-alone' basis.

2.3.3 Phase 2 Define project scope elements

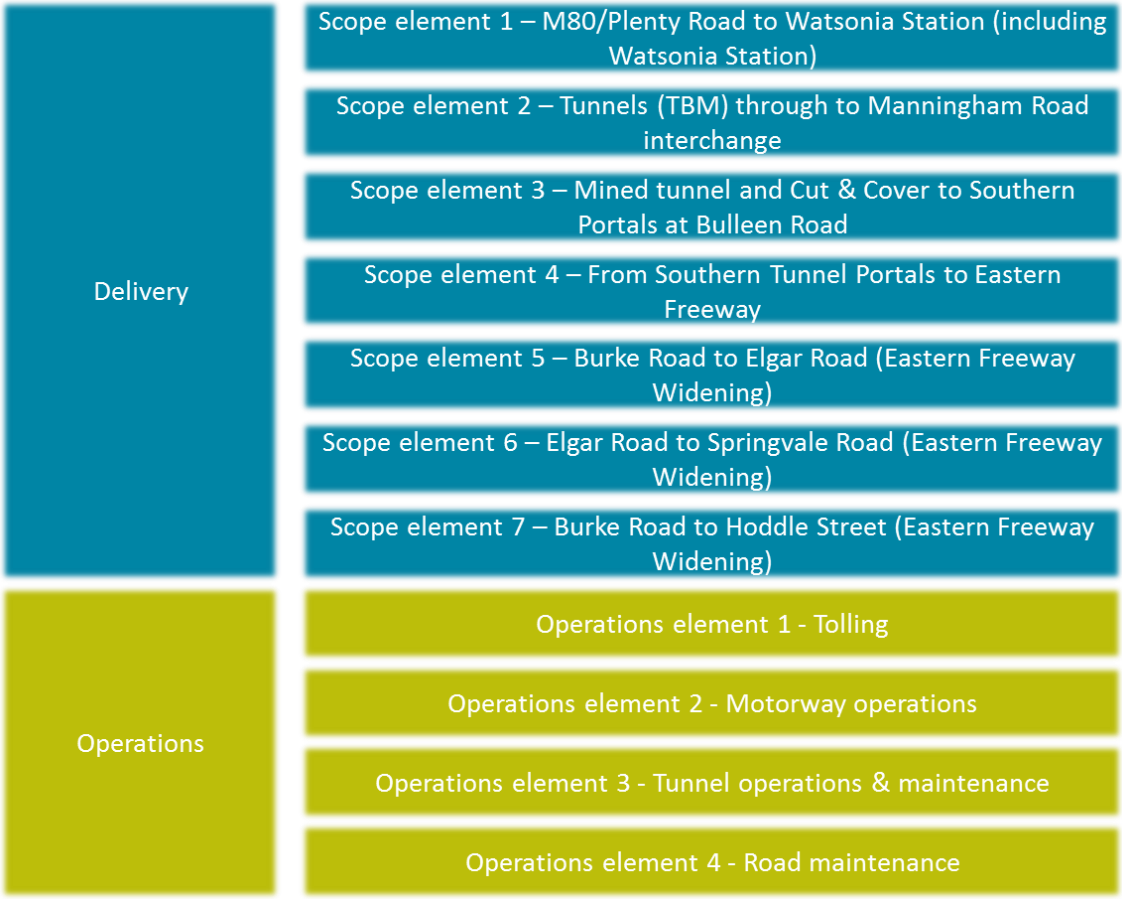
The overall scope of the North East Link is presented in Figure 3, showing the geographical location, interchanges with the existing road network and potential work type along the length of the route.

Figure 3 North East Link project scope



The scope of the project considers both construction scope and operations scope. These can be separated into four discrete operations elements and five discrete construction scope elements (excluding tolling system implementation), as shown in Figure 4.

Figure 4 Operations and Construction scope



Construction packaging considerations

There are a number of key considerations in identifying construction packaging solutions for the project, as follows:

- There are five interchanges where the project connects to the existing road network.
- Each interchange is a key design and construction control, as they govern the vertical and horizontal design for the rest of the project. Separating these into different packages can potentially limit opportunities for innovation in an integrated functional design solution for the whole link.
- Given their proximity to the potential tunnel portals, the design at the interchanges of Lower Plenty Road and Manningham Road are key controls in setting tunnel portal locations.
- The transition from an anticipated Tunnel Boring Machine (TBM) based tunnel construction to cut and cover or mined tunnel is a key design and construction control as it governs the depth and grade of the road at these locations and requires a significantly different construction technique.
- The transition from tunnel to surface road, cutting or viaduct is also a key design and construction control; whilst a minimum tunnel length has been determined to mitigate impacts on environmentally sensitive areas, further design and investigation work is required to determine the optimal tunnel length that responds to community impacts and constructability considerations.
- Ability to locate tunnel launch sites and spoil haul routes for tunnelling operations is a key construction control.

- The PPP market sounding undertaken for the project identifies that a design and construction package size exceeding $5-6 billion is likely to be beyond the limits of constructors with significant balance sheets and challenging even where they form joint ventures of more than two constructors. This inevitably introduces greater commercial complexity for the State, and raises potential issues in ensuring adequate competition and realising security for a package of this size.
- The critical path for delivery of the project flows through planning and environmental approvals, land acquisition and tunnel construction.
- The reference design and planning environmental approvals processes are likely to result in changes to the concept design prepared for the business case.
- Given the stage of the current concept design and the challenges in optimising the ultimate design to minimise impacts on communities and meet the operational requirements of a rapidly changing transport future, an innovative, end-to-end functional design solution is critical to achieving the project objectives, minimising impacts and optimising the operational performance of the link.

The interface between each of the construction scope elements is located at key interchanges or changes of work type. Table 4 provides a description of the identified scope elements.

Table 4 Project scope elements

Project scope element	Description
Scope element 1 Plenty Rd (M80 Ring Road) to Lower Plenty Road (including Watsonia Station)	Free flow connections from M80 through the Greensborough Bypass and interchange at Grimshaw Street, providing access to Watsonia Station. With bus priority to be provided on Grimshaw Street overpass. Transitioning south of Watsonia Station into an open trough east of existing Greensborough Road and through vacant Simpsons Barracks land before entering the Lower Plenty Road interchange / Northern Tunnel Portal.
Scope element 2 Tunnels (TBM) through to Manningham Road interchange	The tunnel (TBM) will dive under the Yarra River and Banyule Flats to the underground Manningham Road interchange. Includes Manningham Road Interchange.
Scope element 3 Mined tunnel and Cut & Cover to Southern Portals at Bulleen Road	Mined tunnel and Cut & Cover prior to the Southern Portal at Bulleen Road.
Scope element 4 From Southern Tunnel Portals to Eastern Freeway	Viaduct structures from Southern Tunnel Portals connecting with the Eastern Freeway and realignment of Bulleen Road onto structure.
Scope element 5 Burke Road and Elgar Road (Eastern Freeway Widening)	Upgrade and widening to the Eastern Freeway between Burke Road (in the west) and Elgar Rd (in the east). Includes Doncaster Busway.
Scope element 6 Elgar Road to Springvale Road (Eastern Freeway Widening)	Upgrade and widening to the Eastern Freeway between Elgar Road and Springvale Road to facilitate interface with North East Link. Includes Doncaster Busway.
Scope element 7 Burke Road to Hoddle Street (Eastern Freeway Widening)	Upgrade and widening to the Eastern Freeway between Burke Road and Hoddle Street to facilitate interface with North East Link. Includes Doncaster Busway.

Note: The project scope elements are based on the concept design developed for the purposes of informing the business case. Should the project proceed past the Business Case stage, the State will undertake more exhaustive consideration of all aspects in refining the project scope and developing a reference design. This will potentially involve further optioneering of the design options and construction methods within the preferred corridor to inform the project approvals.

Tolling System

The tolling system (tolling equipment and software) will be directly influenced by the procurement model chosen and is not part of the packaging analysis. A more detailed discussion of tolling systems procurement is outlined in Section 3.3.

Intelligent Transport Systems

The project end-to-end ITS commissioning will be required to be undertaken by one party. ITS assets (including Freeway Management Systems) and the underlying telecommunications infrastructure supporting them operate in an integrated manner across the network. Therefore these assets are expected to be operated, managed and maintained centrally by one party, whilst the civil infrastructure can be delivered separately, depending on the packaging scenario selected.

The project scope elements also include a number of the complementary projects discussed in Chapter 6. These include:

- The implementation of the Bus Rapid Transit scope as part of scope element 7
- Shared User Paths running north-south along the North East Link between Eastern Freeway and M80 and east-west along the Eastern Freeway between Hoddle Street and Bulleen Road, which are incorporated in each of the geographic scope elements listed above.

There are portions of some project scope elements or other identified complementary projects that could potentially be delivered as early works package(s), however this is not considered as part of this assessment and will be further examined by the Project team as the Reference Design is developed.

Operations considerations

There are a number of key considerations in identifying operational solutions for the project, as follows:

- VicRoads has an overarching policy titled *Operational Control of the Motorway Network* that seeks to provide an integrated approach to managing motorway operations across the network.
- Overarching operation of the freeway network can be separated from day-to-day operational requirements such as incident response.
- The upgrade of the Eastern Freeway involves sections of new asset in the form of collector-distributors integrated with existing freeway assets, with the potential for upgrade of some sections of freeway pavement and structures. There may be a risk premium associated with the private sector taking over whole-of-life operational responsibility for existing assets, which may be balanced with benefits associated with a whole-of-life approach to design and construction of these sections and synergies in operation of the North East Link. This needs to be further tested with the market.
- In considering whole of life operation of a tunnel and geotechnical risk associated with its design and construction, there are considerable benefits and risk transfer to be gained by packaging tunnel design and construction with maintenance and operational responsibility.
- A minimum level of operational responsibility may be required to attract investors for some delivery models, for example iterate PPP and BOOT models.

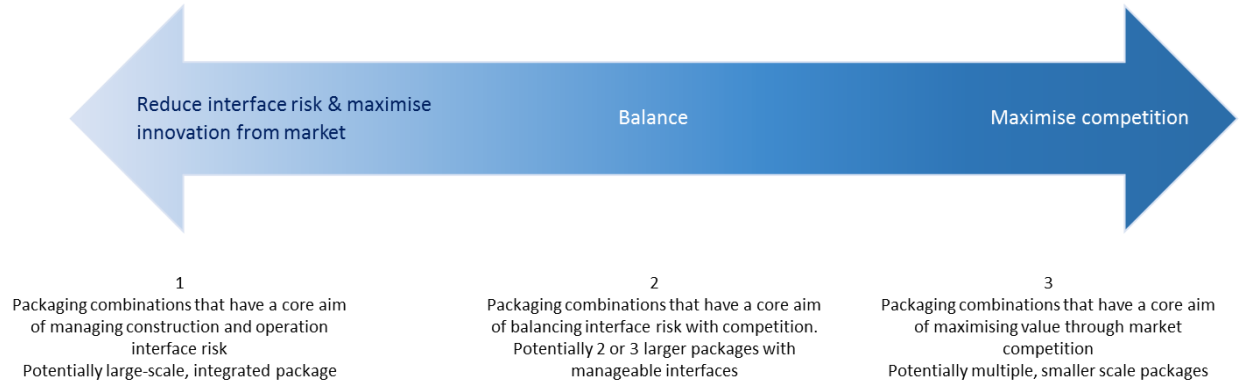
Consideration of operations is a key factor in considering the procurement model for the project, particularly for whole-of-life models such as PPP, BOOT or DBOM models, and is further discussed in Section 2.4 and Attachment D.

2.3.4 Phase 3 Identify delivery package options

There are a variety of factors that influence how the project scope elements could be packaged to maximise value to the State including the value drivers identified. However as discussed in Section 2.3.2, there are two overarching characteristics that are in tension; competition and management of interface risk. Fully satisfying one, requires trade-offs to support the other.

In determining appropriate geographical packaging solution options, the two overarching characteristics were used to identify a range of potential package solution combinations along a spectrum as illustrated in Figure 5:

Figure 5 The continuum of packaging options



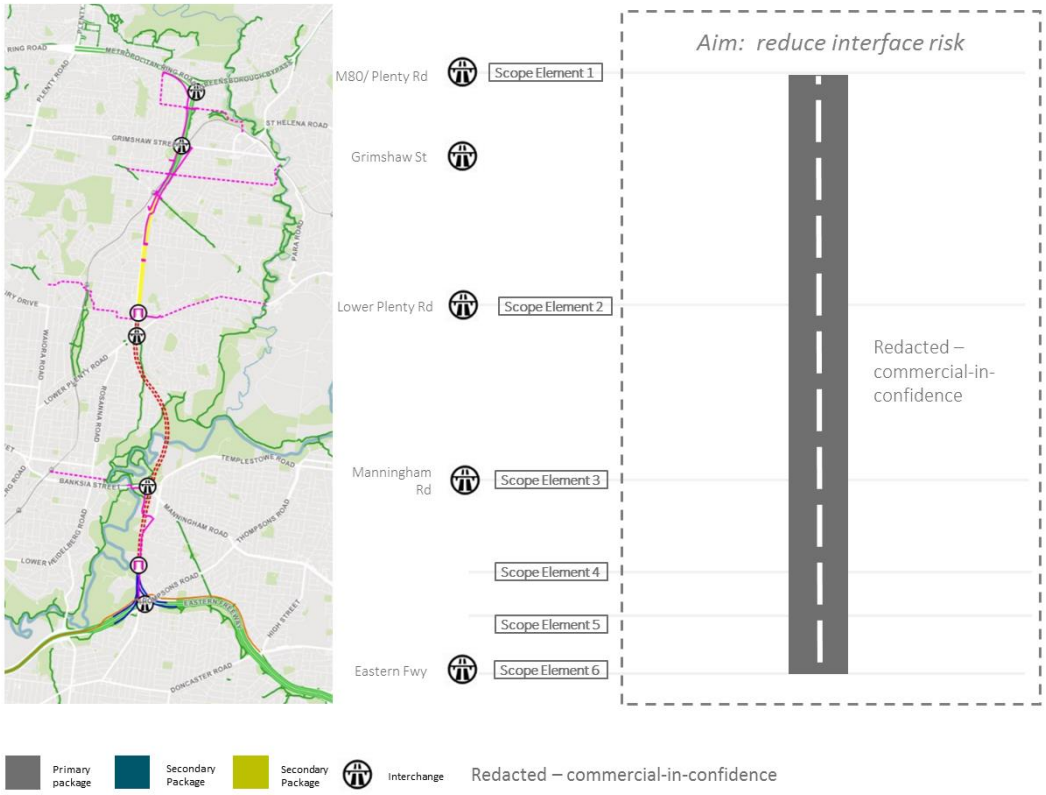
This has resulted in three groupings of package solution options as outlined below. In each of these solutions, there is a 'Primary Package' that comprises the tunnelling works and which can, dependent on procurement solution, potentially involve a longer-term operational role. Where a packaging solution option involves more than one package, a number of potential interface points have been selected based on an assessment of constructability at this point in the design development. This has resulted in a number of potential package combinations within each option that are representative of the types of packaging limits that could be applied to the current concept design. Further design development may change the location of these interface points, so they are represented here as examples of what could be achieved.

For further detail on each package solution option, including high-level estimated costs please refer to Attachment A.

Package solution option 1

The aim of this package solution option is to reduce interface risk both in construction and operations and to maximise the innovation from the market in tendering an innovative end-to-end functional solution. The general features of this type of package solution option are a very large scale integrated package, with the potential for some other minor packages at the margins where interface and innovation are of lesser consideration. The packaging combination for package solution option 1 is shown in Figure 6.

Figure 6 Potential package combinations for package solution option 1

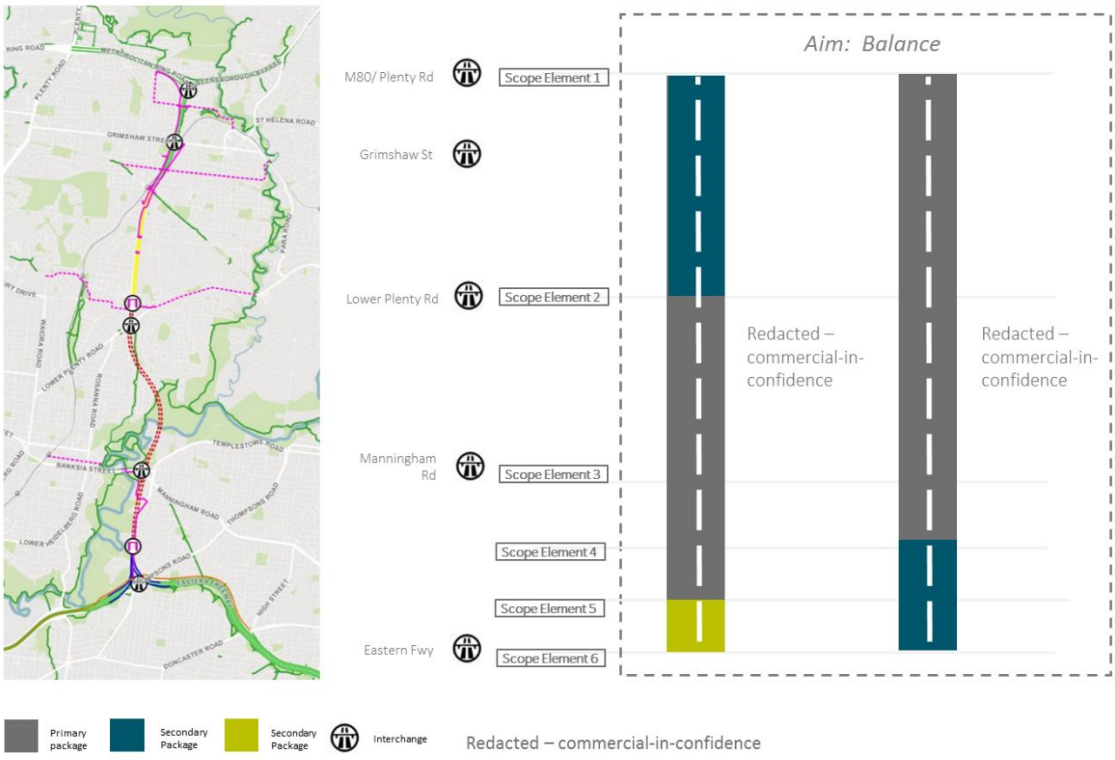


Package solution option 2

The objective of package solution option 2 is to create a balance between maximising competition and market capacity and capability through optimising size and scale, while managing interface risk and optimising interfaces for construction and operation. The general features of this type of package solution option are medium to larger scale, and between two to three packages. Key issues in identifying packaging solutions in this option are the ability to create packages of an appropriate scale, given the key design and construction controls.

Representative packaging combinations for package solution option 2 is shown in the figure below.

Figure 7 Potential package combinations for package solution option 2

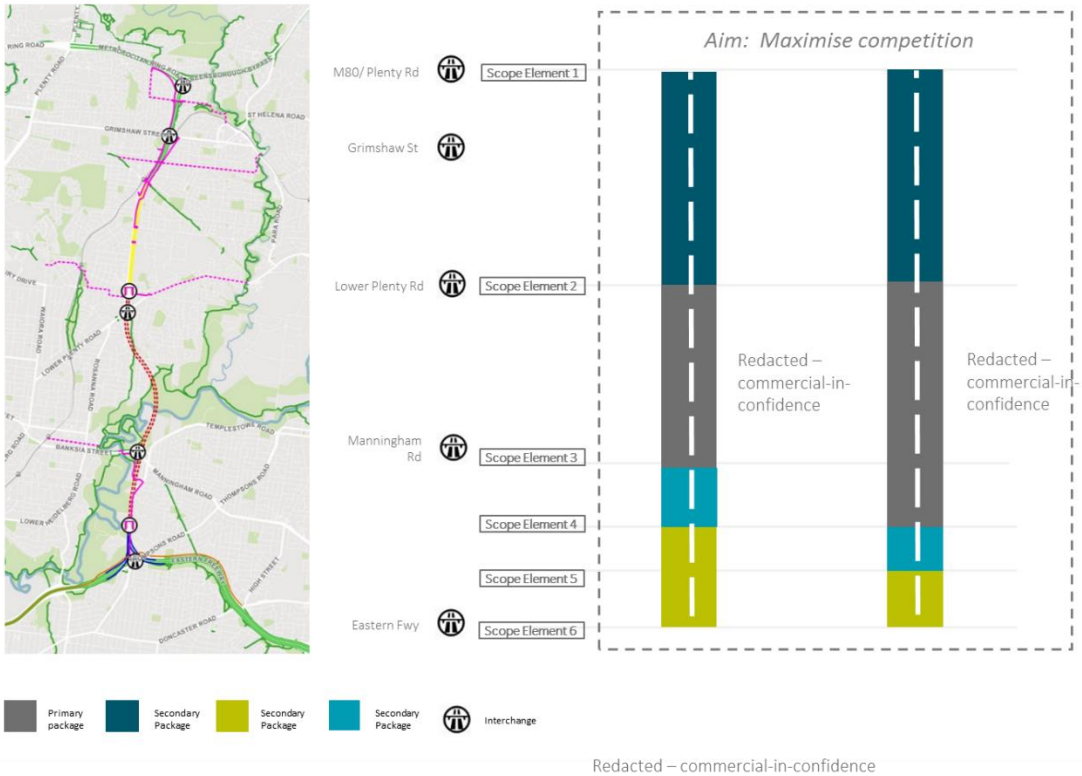


Package solution option 3

This package solution option aims to maximise competition to encourage a broad range of participants from the local and international market to ensure value for money to the State. The general features of this type of package solution are optimally sized packages that are attractive to a broad range of potential bidders.

Potential package combinations for package solution option 3 is shown in the figure below.

Figure 8 Potential package combinations for package solution option 3



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2.3.5 Phase 4 Packaging assessment

Each package solution option was assessed against the packaging value drivers to measure its ability to provide value for money to the State.

Package solution option 1

The packaging assessment for package solution option 1 is summarised in Table 5.

Table 5 Packaging assessment for package solution option 1

Packaging assessment criteria	Assessment
Size and scale	• Economies of scale could be readily achieved with a package of this scale (e.g. Materials, labour, sub contracts, community consultation, and leveraging common road closures). • There is potential to attract international interest for the project due to the large size.
Market capacity	• There is at best a limited pool of significant market participants willing to joint venture to compete for a project of this size. This may impact on the ability of international entrants to find suitable local partners and affect their appetite to bid. • Given the size of the package, current market environment and level of activity, potential outcomes could include no bidders or not being able to field enough quality entrants for a competitive tender process. • The package size would require government to make significant government contributions during construction. • The package size may mean joint ventures seek to share more construction risk (e.g. cost overruns and liquidated damages) with government than typical for a PPP.
Risk profile	• Minimises interface risk and facilitates a more comprehensive risk transfer to the private sector. • However, the size has the potential to limit the ability of the market to provide security for the package size with consequent limitations on the risk allocation that may be desirable to the State.
Deliverability	• Reduces complexity in scheduling and reduces delivery risk when the majority of the program is delivered by a single party.
Geography	• Works are located in one geography that can provide flexibility in programming and synergy in delivery of work across multiple fronts.
Functional interdependence	• All elements of the project have inherent functional interdependencies that can be managed through construction and operations by one party.
Innovation	• This option provides more opportunities to apply innovation to the required end-to-end functional design solution and construction across the broader project. • Enables a whole link approach to the design of connections on the existing freeway networks and ITS design. • Facilitates a single end-to-end solution that could lead to better operations by better integrating works.
Operations	• Enables consistent and efficient operating environment because the work is mostly delivered by a single party in a large package.
Technical requirements	• Will enable efficient use of critical or in-demand skill sets and create synergies, consistency and economies of scale across specific disciplines (e.g. tunnelling, drainage, drafting resources and certain sub-contract resources such as piling rigs etc).
Independent project benefits	• There are limited opportunities to achieve project benefits independently as all elements rely on each other to provide full project benefits and enable operation of the link.

Package solution option 2

The packaging assessment for package solution option 2 is summarised in Table 6.

Table 6 Packaging assessment for package solution option 2

Value driver	Assessment
Size and scale	• Economies of scale can be achieved from the size of the packages. • Size and scale is still very large and likely to attract international participants.
Market capacity	• The main package is still very large but possibly within the size and scale that makes it attractive to a large range of local and international participants, however (dependent on limits of work) could still be considered too large, resulting in no or limited competition. • The package size would require government to make significant government contributions during construction. • The package size may mean joint ventures seek to share more construction risk (e.g. cost overruns and liquidated damages) with Government than typical for a PPP.
Risk profile	• Interfaces between project components will increase risk for both construction and for operations and result in a less than desirable risk transfer to the private sector.
Deliverability	• The packages will be delivered by multiple parties, requiring close management to ensure that program schedules align. Limits flexibility in programming, however initial programming indicates that the proposed timetable can still be achieved, but with reduced 'float'.
Geography	• Works are located in close geographic proximity to each other and still have potential to create synergies and opportunities for multiple work fronts and some flexibility in programming.
Functional interdependence	• All elements of the project have inherent functional interdependencies, meaning increased need to provide oversight and management through design and construction, potentially requiring State involvement in this interface.
Innovation	• Some opportunity for innovation given the size of the packages however there are limitations in achieving consistency across multiple packages delivered by more than one contractor, which will require an alternative approach to achieving an innovative and integrated functional design solution.
Operations	• Separate design and construction delivery by different contractors will require direct management to ensure the operating performance of the link is maintained and acceptable to a potential private sector operator.
Technical requirements	• May enable efficient use of critical or in-demand skill sets and create synergies and economies of scale across specific disciplines. However will require overarching management of critical skill sets / technical requirements to maintain consistency across the packages.
Independent project benefits	• There are limited opportunities to achieve project benefits independently as all elements rely on each other to provide full project benefits.

Package solution option 3

The packaging assessment for package solution option 3 is summarised in Table 7.

Table 7 Packaging assessment for package solution option 3

Value driver	Assessment
Size and scale	• Packages are of a large size. Attractiveness to compete for fixed price construction contracts to be further tested in the next market sounding.
Market capacity	• The smaller sizes of packages is more likely to create a competitive environment in the market, with an appropriate number and size of packages to ensure international entrants may find local partners. • The package size would require government to make significant government contributions during construction. • The package size may mean joint ventures seek to share more construction risk (e.g. cost overruns and liquidated damages) with government than typical for a PPP.
Risk profile	• Introducing multiple packages will impact on the ability to optimise risk transfer to the private sector.
Deliverability	• Separate packages attract greater risk of program delays and cost overruns due to multiple contractors working on different schedules requiring high degree of coordination.
Geography	• A higher number of geographically separate packages can reduce the ability to provide efficiency and synergy in delivery, including in flexibility to manage program delays and working on multiple fronts.
Functional interdependence	• All elements of the project have inherent functional interdependencies, meaning increased need to provide overarching oversight and management through design and construction, potentially involving a need for State involvement in this interface.
Innovation	• There are less incentives and opportunities for the market to be involved in an innovative end-to-end solution when packages are delivered by different parties. • Introduces complexities associated with applying innovative construction techniques over multiple packages when being delivered by different parties.
Operations	• Separate design and construction delivery by different contractors will require direct management to ensure the operating performance of the link is maintained and acceptable to a potential private sector operator.
Technical requirements	• Will limit efficient use of critical or in-demand skill sets and opportunities to create synergies and economies of scale across specific disciplines. Will require significant overarching management of critical skill sets / technical requirements to maintain consistency across the packages.
Independent project benefits	• There are limited opportunities to achieve project benefits independently as all elements rely on each other to provide full project benefits.

2.3.6 Reference Packaging Solution

Table 8 provides a summary of the assessment and outlines the key trade-offs and risks associated with each Package Solution option.

Table 8 Summary assessment

Package solution	Summary
Option 1	Packaging option 1 performs most strongly in relation to minimisation of interface risk and potential for innovation in an end-to-end functional design solution, however the key trade-offs for this are likely to be: • Reduced or no competition, including the potential to limit participation from international entrants • Potential to limit the ability of the market to provide security for the package size with consequent limitations on the risk allocation that may be desirable to the State. Key risks for this option: • Given the current market environment and level of activity, potential outcomes include no or not being able to field enough quality entrants for a competitive tender process • In moving forward with this option, the consequences of poor market involvement or unacceptable limitations on risk allocation may not be apparent until the market is formally engaged in a tender process, resulting in cost, time and reputational impacts for the project.
Option 2	Packaging option 2 provides better performance in relation to market competition and interface risk; however the key trade-offs for this are likely to be: • A still very large construction package with potential outcomes including no or not being able to filed enough quality entrants for a competitive tender process • Increased interface risk; both in construction and for operations associated with a potential longer-term PPP solution • Impacts on the timing and magnitude of any required up-front capital contribution • Increased requirement for pre-tender innovation and detail in the design of the link (or risk loss of overall innovation). Key risks for this option: • The ultimate design solution may result in interface locations that do not reduce the size of the packages sufficiently to reduce fully the risk of the Primary Package being too large.
Option 3	Packaging option 3 performs most strongly in relation to competition, market capacity and capability; however the key trade-offs for this competition are likely to be: • A still very large construction package (but smaller than options 1 and 2) with potential outcomes including no or not being able to field enough quality entrants for a competitive tender process • Increased interface risk; both in construction and for operations associated with a potential longer-term PPP solution • Impacts on the timing and magnitude of any required up-front capital contribution • Increased requirement for strong state-side management and resources • Increased requirement for pre-tender innovation and detail in the design of the link (or risk loss of overall innovation). Key risks for this option: • There may be a reduction in the risk allocation that can be achieved by the State • Given the nature of the project and the design and construction controls identified, it may not be possible to break the packages into the size limits sought without introducing unmanageable interface risks.

Ultimately, given the current market environment and project requirements, NELA identified that the ability to achieve improved value for money through a competitive market process is anticipated to outweigh the potential risk associated with packaging the project scope elements into either larger or smaller packages. This consideration is not unusual on major transport projects of this size (and larger) where alignment of package size with market capability and mitigation of the risk of not achieving a competitive market process are common. These projects include Melbourne Metro Rail Project, Sydney Metro Project, WestConnex and internationally on projects such as London Cross Rail.

As discussed in Section 2.3.1, a Reference Packaging Solution will form the basis of the procurement model analysis and delivery framework and will be further developed, including testing with the market to investigate its ability to attract market competition and explore further the interface risks and potential mitigants associated with this option.

Based on the packaging assessment, it is recommended that **package solution option 2** be adopted as the Reference Packaging Solution.

Further scope refinement considering the outcomes the reference design prepared for the planning and environmental approvals and testing with the market in the next stage of market sounding will be undertaken to determine the preferred package solution to be taken to market for procurement.

2.4 Procurement options assessment and market validation (Steps 3 and 4)

The selection of the most appropriate procurement delivery model is fundamental to the success of a project. A procurement analysis must identify the key criteria that provide the balance between maximising project benefits and minimising risk in delivery.

North East Link is a project of very significant size and complexity. Under the DTF Investment Lifecycle and High Value / High Risk Guidelines, given the capital expenditure involved the project is identified to have the potential to result in value for money through PPP delivery. Also consistent with the National PPP Guidelines, a project with such a large capital expenditure should trigger evaluation of PPP as a potential procurement method. This includes consideration of post-construction services that can be bundled with construction.

2.4.1 Approach

Consistent with the DTF Procurement Strategy Guidelines, steps 3 and 4 consider suitable delivery models, review the market appetite and capability for the project and undertake an analysis of procurement options for delivery.

For this process, a four phase process was used to identify the most appropriate delivery framework for the project:

- **Phase 1 Identification of procurement options assessment criteria**: The first phase involves the identification of criteria that consider how successfully each delivery option can maximise the benefits of the project and minimise the risk in delivery, including consideration of an appropriate allocation of risk. The procurement options assessment criteria are weighted in order of importance that they contribute and used to support the assessment and comparison of the procurement options.
- **Phase 2 Consider toll revenue**: The project is identified as a toll road. This involves the creation of an 'asset' in the toll revenue stream. The State needs to consider up-front how it achieves best use or best value for this 'asset'. Whether the toll revenue and associated risk in achieving that revenue is included in an Economic PPP structure or retained by the State is a key driver in selection of the most appropriate procurement model to deliver the project.
- **Phase 3 Assessment of market sounding**: A sound understanding of the appetite and capability of the market is a critical element of the assessment of procurement options. This phase considers the feedback from the market sounding undertaken for the project and identifies how this feedback informs the assessment of the procurement options.
- **Phase 4 Procurement options assessment**: This phase involves identification of potential procurement options, taking into account the toll revenue allocation outcomes, Reference Packaging Solution and key risks and characteristics. These procurement options are then evaluated against the assessment criteria to select the most appropriate delivery model.

2.4.2 Procurement Options Assessment Criteria

Table 9 presents the procurement options assessment criteria and weightings that were developed by NELA's Commercial and Legal Working Group.

Table 9 Procurement options assessment criteria

Evaluation Criteria	Description	Relative weighting
Maximise market interest	The extent to which a procurement option assists in maximising market interest amongst the appropriate market participants with the relevant skills, expertise and capacity (and therefore drive a competitive process and optimal value for money outcomes for the State).	High
Transport network integration	The extent to which a procurement option allows for sufficient flexibility to: • Manage the project assets as part of the existing transport network (including flexibility to implement operational changes to the network over time) • Optimise the technical scope of the project and future connectivity • Accommodate the technical requirements of other transport projects as required.	High
Price and budget certainty	The extent to which a procurement option allows the State to confidently predict its financial contribution to the project (i.e. certainty around capital costs / operating and maintenance expenditure associated with the project assets / quantum of public funding where required) and support competitive pricing.	High
Risk transfer	The extent to which a procurement option transfers risk across the project's lifecycle (design, construction, financing, operations, maintenance and revenue) via an effective and efficient risk allocation to the parties best able to manage and price risk.	High
Innovation	The extent to which a procurement option provides incentives for the private sector to introduce new ideas and approaches over the whole of the life of the project that meet the performance expectations and generate additional value to the State and users (through cost savings, optimising toll revenues, additional sources of revenues, enhanced user experience, innovative technical solutions) and meet the project's guiding principles (i.e. minimising impacts on communities, environmental and cultural assets and optimising the use of resources).	Moderate
Time	The extent to which the procurement model allows the project to be delivered early to enable benefits realisation and efficient funding; and the extent to which the procurement model is able to support achieving an optimum time certainty for the State in relation to construction completion and commencement of operations.	High
Operational performance	The extent to which a procurement option drives operational performance via incentives and risk allocation.	Moderate
Simplicity	The degree to which an option helps minimise the need to implement overly complex and/or unprecedented (domestic or international) commercial structures and the extent to which it allows for genuine transparency over the true cost of the bid and fair comparison of bidder proposals.	Moderate

2.4.3 Toll Revenues

It should be noted that toll revenues are not relevant to the economic cost benefit analysis of a toll road. The economic benefits which justify investing in a road, tolled or free, include travel time, safety and vehicle operating cost savings. Tolling has an indirect impact on an economic evaluation through the tolls impact on traffic volumes and this on travel time and other savings.

A road can be paid for by users or taxpayers or both. In economic terms tolls are a form of "transfer" between road users and taxpayers who would have otherwise funded the road.

Two risk factors when a road is tolled are:

- **Economic benefits realisation risk** – lower (higher) traffic volumes imply lower (higher) than expected **economic** benefits being realised
- **Financial risk** – in the context of a State owned Toll Co lower (higher) toll revenues means lower (higher) share of "user pays" and conversely higher (lower) than expected taxpayer funding of the road.[3]

The economic risk exists for both tolled and free roads. The financial risk is a unique feature of toll roads.

As identified in 2.4.1 above, the toll revenue stream creates a valuable financial asset for the State, a key consideration of which is how to derive the best value for this asset.

Risk factors relating to the toll revenue stream

Risks to toll revenues broadly are a function of the following key sub-risks:

- **Traffic Forecasting Risk**: The risk of inaccuracy in forecasting traffic volumes (and to a lesser extent vehicle mix) over the short (ramp-up) to medium term. As noted in the project examples above, toll revenue forecasting risk is particularly high in the ramp-up phase during the first 12-24 months of operation where actual traffic volumes ranged from 23% to 45% lower than the private sector's forecasts in the first year of operations.
- **Macro-economic Risks**: The risk that underlying assumptions regarding future macro-economic factors that support the long-term traffic growth forecasts are inaccurate. Long-term macro-economic factors include population and economic growth rates, individual's propensity to use road versus public transport, land use changes affecting where people are travelling from and to, future technology changes (i.e. automated vehicles, ride-sharing take up), and vehicle capital and operating costs (petrol / oil prices) that may materially impact traffic volumes.
- **Future Network and Policy Risks**: The risk that underlying assumptions regarding future network or policy settings are inaccurate. Factors include future physical changes / additions to the arterial, freeway and tollway road network (such as the E6), future transport policy / regulatory change and future competing infrastructure investment decisions that may materially impact traffic volumes.

The most material risks are the macroeconomic risks, which are largely exogenous, and future network and policy risks, within the control of the State.

[3] In an economic PPP the toll revenues are sold up front. The State receives a certain value and the Economic PPP Co then bears the financial risks and rewards of tolls being less (or more) than expected. The structure effectively locks in the relevant taxpayer benefit or exposure when the revenue is sold.

Models for selling the toll revenue stream as part of a PPP

This section presents an analysis of different models for allocating, between the State and the private sector, the risk associated with achieving an expected or steady state level of toll revenue for the project. This analysis includes considering the outcomes of Stage 1(A), PPP focussed market sounding undertaken to inform the procurement strategy and the implications for value for money and the procurement of the project.

2.4.3.1 Toll revenue allocation options

As North East Link will be tolled, the State can use, including through sale or monetisation, the revenue stream to fund a proportion of the project's cost. The State therefore has an inherent objective to optimise the value it receives for toll revenues. Tolling is also a policy choice about how much of the cost of the road users should pay compared to taxpayers (and potentially other beneficiaries through value capture).

The State may choose to retain the toll revenue stream, or it may choose to sell the funding stream (either when proven or unproven and in total or in part) to a private party(ies). The State can sell proven cashflow after the road has been built to third parties not involved in the Availability PPP (or other structure used for construction) or it can sell or share unproven cashflows up-front as part of an Economic PPP. The value of the toll revenue stream depends upon the perceived riskiness of the flows and each party's understanding of the expected risks over time A detailed discussion on the toll revenue risks and rewards can be found in Attachment C.

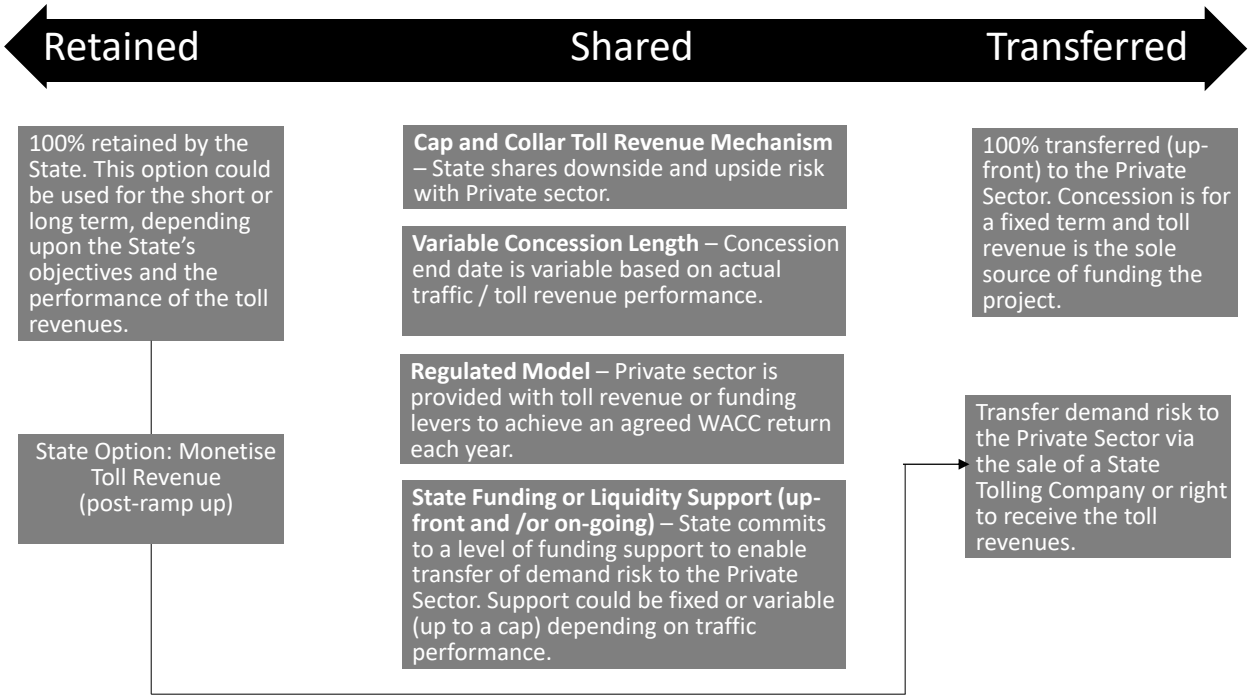
The ability for a bidder for an Economic PPP to maximise its value of the toll revenue potential of North East Link will depend upon its understanding of the factors contributing to the toll revenues described above and its ability to manage them through effective design, construction, operation and maintenance. The depth and breadth of the PPP bidding market and its willingness to compete for rights to receive the toll revenue will also be a key factor in maximising the value of the toll revenue stream. In any event, the bidder with the best understanding of the toll revenues may not be the one with the best value construction and design. Bidders have limited influence over macroeconomic risks and next to none over future network and policy risks.

Bid consortia for an Economic PPP are likely to include road operators such as Transurban and Cintra, construction companies and financial investors. In bidding for Economic PPPs, construction companies are mindful of the risks of bidding in a consortia which might have the best value design and construction but lose to someone with a much more robust value of toll revenues. Financial investors will be mindful of information asymmetries.

How the State wants to achieve value for the toll revenues needs to be determined before the procurement options can be assessed, as there is an inherent relationship between the preferred approach for toll revenue allocation and core asset / services delivery.

The range of toll revenue risk and reward allocation options that has been considered is presented in Figure 9.

Figure 9 Toll Revenue Risk Sharing Options Spectrum



Most of Australia's as well as Victoria's existing toll roads (CityLink and EastLink) are the traditional greenfield toll road model, known as Build, Own, Operate, Transfer (BOOT) or Economic PPP models. However, there have been a number of high profile failures (including Cross City Tunnel, Lane Cove Tunnel, Clem 7 and Airport Link). As a result, and since the Global Financial Crisis (GFC), the market appetite for accepting toll revenue risk and reward on greenfield projects has been significantly limited. Peninsula Link and East West Link were structured on an availability basis as a result.

NELA considered a range of toll revenue risk and reward allocation options based on the Toll Revenue Risk and Reward Sharing Options Spectrum presented in Figure 9. The key features of each option are further described in Table 10, with potential examples and precedents to illustrate the option.

Table 10 Toll Revenue Risk and Reward allocation options considered

Toll Revenue Allocation Option	Key Features	Precedent
State Retains Toll Revenue (Long-Term)	• State retains toll revenues / demand risk over the long-term / indefinitely and separately procures design, construction and maintenance of North East Link. • Examples of procurement models in which the State retains toll revenue risk and reward and the private sector constructs or constructs and operates/maintains include Design and Construction, Alliance, DBOM (Design, Build, Operate and Transfer) and Availability PPP. • Other examples of models in which the State retains toll revenue risk and most of the design and construction exposure include construct only, construction management, managing contractor and early contractor involvement.	Early NSW and QLD toll roads Silverwater Road Extension, NSW Peninsula Link, Vic
	Availability payment plus a traffic volume fee within a PPP • Under this approach the State would retain toll revenues during the concession term, and longer-term should it wish. However the majority of other project risks (i.e. construction) would be transferred to the private sector in a PPP procurement. In an availability payment only PPP the private sector takes the risk that volumes are greater (or less) than expected and maintenance costs are earlier (or later), impacting returns. It is potentially better value for money for the PPP to receive both a fixed availability payment and a variable payment which is reflective of the maintenance and variable costs. This can also reduce any perverse incentive for the PPP to discourage traffic to save maintenance costs. Any variable payments would be expected to be a small proportion of the overall toll revenues collected by the State. • Aquasure, the Victorian desalination PPP company, collects both an availability fee whether it produces water or not and a small volume-based fee when it does produce water. The ultimate charges to water users is a regulated return blending many different costs, mostly outside of the desalination plant so there is only a very small, indirect nexus between the variable charges paid to Aquasure and the variable charges paid by water users. • The Norwegian E-39 includes availability payments, O&M payments, safety payments and traffic payments. • The M25 is a 30-year DBFO availability payments concession. Availability risk is transferred to the private sector through the P3 payment mechanism. Demand risk was retained by the Highways Agency, although the private partner controls the operation and maintenance of the toll collection. Financial and exploitation risks were shared. The payment mechanism includes adjustments for lane availability, route performance, condition, safety performance, critical incident and proactive management.	
State retains toll revenues during Ramp-Up only	• The State retains toll revenue risk during the 'Ramp-Up' phase of the operations (typically 2 -3 years) before seeking to sell / monetise the toll revenue rights via a privatisation / sale process or issuance of revenue linked instruments (bond etc.) typically to institutional or financial investors. The private sector investors take all risk on toll revenues after the sale process is concluded. State separately procures design, construction, operations and maintenance of the North East Link (which is likely to be concession promoters and construction firms).	Proposed optionality for the East West Link Legacy Way Tunnel (Northern Link)

Toll Revenue Allocation Option	Key Features	Precedent
State Underwrites Toll Revenue (Range of Approaches)	**Cap and Collar Toll Revenue Mechanism** • Under this approach the State would retain a share of toll revenue risk and reward, retaining all (or the majority of the risk below the collar) but sharing the full reward above the cap for the full concession term, however the majority of other project risks (i.e. construction) would be transferred to the private sector. The private sector would be required to collect tolls and share a portion of tolls above the cap. The State would be required to provide funding below the collar (i.e. full risk). This essentially guarantees a PPP company with a base set of revenue. Key variables under this option include which party forecasts the base case traffic and the relationship between that base case and the cap and collar. • The Incheon International Airport Expressway (South Korea) provides a case study of the cap and collar mechanism. The South Korean Government introduced the Minimum Revenue Guarantee (MRG), amidst volatile market conditions in the late 1990s, to promote private sector investment in toll roads by guaranteeing stable revenue returns. The MRG had similar properties to a cap and collar mechanism, and guaranteed an agreed percentage (c. 80% to 90% initially and 65% to 75% subsequently) of projected toll revenue. However, the scheme was later abolished as forecast revenue fell short of projections and government struggled to maintain and justify the subsidy that had been awarded under the MRG.	Incheon International Airport Expressway
	Variable Concession Length • Under this approach the private sector would size its Concession Term on the basis of a base traffic profile and achievement of a target equity return (IRR). The duration of the concession term would be variable pending achievement of the PPP company's equity IRR. • Arguably users pay for the cost of the road, but no more, and it possibly reduces the risk of private sector concessionaire insolvency	Santiago–Valparaíso Expressway
	Regulated Utility Model • Toll pricing is regulated (and toll price changes agreed) such that the PPP company can fund its efficient operating and maintenance obligations while continuing an ability to achieve an appropriate long-term regulated financial return reflecting its cost of capital. The extent of risk transfer to the concessionaire is a function of the frequency and basis of toll price variations and its ability to achieve efficient operations. Hence toll revenue risk and reward is effectively shared between the concessionaire and road users (not the State -– however it is possible that the private sector might still require certain financial undertakings from the State).	This model has not been tested for a toll road in Australia. Closest example is Thames Tideway Tunnel.
	State Funding or Liquidity Support • The State provides short-term (generally during a pre-defined ramp up phase) financial support to the project if needed as a result of lower than expected traffic volumes and therefore shares in toll revenue risk (but **not** reward) for a pre-defined ramp up phase. Where any such support is drawn upon, it is combined with a longer term mechanism for the State to recover its funding.	European experience

Toll Revenue Allocation Option	Key Features	Precedent
	State 'Equity' Sell Down (Post Ramp Up) • Under this model (most notably reflecting NSW's approach to recycling capital on the WestConnex project), the State established a corporate entity with State capital investment and external finance to procure the works and retain toll revenue risk during the construction and ramp-up phase of the project before selling down its equity position, effectively transferring toll revenue risk to the private sector, once reliable traffic data has been established. • It should be noted that the NSW Government is now selling down at least 51% of its equity at an earlier stage of the project than originally planned. • This model (which specifically references WestConnex) is noted in this assessment, however, is not considered an appropriate model for the North East Link project, due to the long timeframe that is required to deliver the project over a number of different stages and the reliance on toll revenue from established brownfield roads to support project financing, neither of which is the case for the North East Link project. Hence, WestConnex has significantly different characteristics and risk profile than the North East Link project.	European experience WestConnex
State sells Toll Revenue	• Under this model, the State sells toll revenues to the private sector for the full length of the concession. The private sector party raises finance against the stream to fully or partially design, finance, operate and maintains the road link.	CityLink / EastLink West Gate Tunnel

These toll revenue risk and reward allocation options, and the private sector's appetite for accepting and potential to value this risk were tested with the market during the market sounding process. Key perspectives from this process as they relate to toll revenue risk and reward are described below.

2.4.3.2 Market Sounding Perspectives on Toll Revenue Allocation

Whilst the feedback from Stage 1(A) of the market sounding is discussed in Section 2.4.4, this section discusses in detail the feedback from the PPP market relating to toll revenue allocation.

The value of the future toll revenue stream is likely to be optimised when it has been substantially de-risked. It can be forecast with considerable accuracy because it has an established traffic history - and when there is a number of investors willing to compete for the toll revenue. It is also likely to be optimised when it is sold to the deepest possible pool of investors.

Toll revenues and allocation were tested in depth during the PPP market sounding, which revealed the following:

- There is some, but limited appetite in the market for taking greenfield unproven toll revenues – that is, accepting this risk prior to construction and operation of the project. Therefore there is a general preference for the State to retain toll revenues for at least the initial period.
- Participants identified a number of issues that could constrain their interest in participating in the project if toll revenue were to be sold as part of a PPP bid including:
  - the level of information provided during procurement on which the market can determine and reasonably price its risk exposure – particularly in relation to traffic modelling
  - a very limited number of traffic forecasters in the market to enable multiple bidders to forecast the traffic demand for the project and hence the toll revenue potential
  - existing toll road operator incumbency where existing operators are perceived to have significant advantages through a stable customer base, knowledge of the network and ability to size and offset toll revenue risk and reward through existing mechanisms in their contracts such as interoperability charges.

  These issues mean that the majority of the PPP market does not consider it has access to the same quality and depth of traffic information (historic and forecast) compared to existing toll road operators in order to offer a competitive toll revenue valuation.
- If toll revenue risk was to be transferred, participants in the market sounding requested the State provide full network data and modelling outputs (with the expectation that the market could place a degree of reliance upon those outputs which would effectively transfer some risk back to the State).
- Participants also noted the uncertainty relating to potential systemic changes to the way roads are used in the future which may also constrain their ability to offer a competitive toll revenue valuation compared to existing, larger toll road operators. Potential systemic changes include network pricing and technology, network development (land use/socioeconomic forecasts) and user charging policy. It is noted that the systemic changes are more within government control than the private sector.
- Participants considered that raising fully committed financing would be challenging under an Economic PPP as the debt capacity of the market is likely to be limited given apprehension amongst financiers (including Australian banks) and equity investors in financing projects with greenfield traffic toll revenue risk and reward (noting again the limited number of traffic forecasters available in the market to provide advice on which they can place reliance). Under an Economic PPP, financiers rely solely on the toll revenues generated by the project for the repayment of financing (return of an on capital). Therefore the appetite for financiers to lend to a project will depend on their confidence in the traffic and toll revenue forecast to generate a minimum required return to service the financing.
- The market for long term fixed financing is emerging but remains shallow and likely to be prohibitively more expensive and/or unavailable under an approach that transfers toll revenue risk and reward to the private sector.

In relation to the toll revenue risk and reward sharing options discussed above and described in Table 10 the market feedback noted the following:

- Some participants were generally open to a degree of toll revenue risk and reward sharing, under terms where the State mitigated the key risks noted above and offered a degree of investment return protection, particularly for debt investors.
- Some participants provided the specific views on some of the potential toll revenue risk sharing options described as follows:
  - **Cap and Collar Toll Revenue Mechanism**: Generally, participants commented that a revenue floor is required to insulate debt providers from exposure to toll revenue risk (particularly in early years during 'ramp up'). One participant noted that this model was still a function of the greenfield traffic profile and the traffic forecasting limitations inherent in obtaining such a profile.
  - **Variable Concession Length**: This model was supported by a few participants. One participant noted that this model does not address the risk that a PPP company could be in financial difficulty or insolvent if traffic volumes do not materialise as forecast (in the early years). They suggested a sunset date on the concession and a cash settlement to ensure a minimum equity return which is payable on the sunset date.
  - **Regulated Utility Model**: One participant commented that this model is not suited to a greenfield toll road as it does not address the concerns regarding traffic forecasts for a new road and would only be sustainable where actual traffic levels are very close to base case forecasts.
  - **State 'Equity' Sell Down (Post Ramp Up)**: Some participants favoured this model however they also noted key differences between the WestConnex model that used this approach compared to the North East Link project in that WestConnex has a level of 'brownfield' traffic and toll revenue data, as the adjoining road network is already tolled so a level of confidence in potential revenues can be provided through assessment of behaviour on these adjacent links. There were also a few participants who did not believe this model provided value for money outcomes for the State.

In summary, the market sounding indicates that there remains limited appetite in the private sector for bidding on greenfield toll revenues as part of a design and construct concession for the project, but for a small number of existing toll road investors/operators (domestic and international).

While a greater proportion of the market were open to toll revenue risk sharing options, with a particular preference for a 'Cap and Collar' toll revenue sharing mechanism, the likelihood of the State optimising value from the private sector under this approach could still be constrained by the ability to maximise competition and a lack of traffic forecasting capability in the sector. The utility of the Cap and Collar mechanism is further weakened because the toll revenues do not fully fund construction and the need to introduce Government funding during construction or at completion undermines the incentives the Cap and Collar mechanism is trying to introduce.

2.4.3.3 Valuing Toll Revenue

In the private sector valuing the potential toll revenue likely to be generated by a toll road over a typical period of 30 to 40 years (the most common concession period for toll roads), there are a number of factors that are considered. When investing in a toll road the market will make assumptions on the return on investment, based on their confidence in the forecasts that inform the toll revenue over the life of the investment, and place a risk premium on the forecasts that reflect that confidence.

Redacted - commercial-in-confidence

2.4.3.4 Preferred toll revenue risk allocation

The market sounding and financial analysis for the project strongly suggests that the State retaining toll revenues (at least initially) represents a superior value for money solution, particularly when compared to revenue risk sharing models where the risk is transferred on a greenfield basis at financial close.

Monetising proven toll revenues after the road is open to a large group of potential institutional investors is likely to achieve better value for money than asking a narrower field of PPP bidders to value unproven toll revenues and make assumptions as to likely future network and transport policies as part of a PPP bid where construction costs are a dominant competitive factor. Of the limited range of investors who would compete to value greenfield toll revenues upfront, each is expected to apply a significant discount or risk premium to unproven revenues.

Given that the up-front value of the forecast toll revenues is materially below the estimated construction cost, any economic toll road structure would require significant State contribution during construction or a mixed toll revenue and availability payment stream to fund the project. In any event the party who is able to bid the best value for the construction and operation aspects may well not be the party who can pay best value for the toll revenues

In addition, revenue risk sharing approaches have not been used in the Australian market and would introduce further complexity into the procurement process and contract management task for the State.

A further advantage to the State retaining toll revenue risk is that it offers greater flexibility to manage tolling structures in the future in response to demand and broader user-charging policies. For example, the State may seek to amend toll pricing on the project to optimise traffic performance on the broader road network.

2.4.3.5 Management of risk associated with retaining toll revenues

Whilst retaining toll revenues for a time has the greatest potential to maximise the value of the asset to government, by retaining toll revenue the State remains exposed to the variability of actual toll revenues received being different than forecast which results in offsetting variability in the taxpayer funding required for the balance of funding requirement. The potential increase in value expected to be created by transferring toll revenue risk post ramp-up, could be partly offset by poor traffic performance up to the point of transfer (and vice versa).

To mitigate its own traffic forecasting risk, the State has access to sophisticated traffic forecasting capabilities, both internal to Transport for Victoria and externally via its independent traffic forecasters. In addition, the State also has broader transport network behaviour information and data that can further support forecasting, and as such is in a position to be able to forecast the potential traffic on the North East Link more accurately than the broader market.

2.4.4 Market Sounding

The following section provides a summary of the market sounding feedback for the balance of procurement related issues. The report on market sounding outcomes is contained in Table 11Attachment B.

Phase 1 of the market sounding process was conducted by NELA through extending invitations to 22 domestic and international constructors, toll road operators and financial sponsors and debt and equity providers that were able to provide a representative cross section of the market.

Participants were selected on the basis that they provided significant local and global insight through previous experience in complex tunnelling and/or toll road projects and specialised knowledge of domestic and international economic and financial markets.

The intent of the market sounding process was to seek feedback from a wide range of potential PPP participants in the market with the purpose of informing the development of the procurement strategy and commercial structure. The process informed the State regarding key project issues of primary concern to the market, enabling the State to consider how to approach these issues on a 'best-for-project' basis.

The complete market sounding process consists of three stages. Each stage is run separately, enabling new market entrants to engage with NELA during this process. The purpose of each stage is described in Table 11.

Table 11 Market sounding process

Stages	Purpose
Stage 1	**Inform NELA and test approach/theories** The purpose of Stage 1 is to inform NELA of project issues identified by the targeted market participants in relation to procurement; including market appetite and risk, financial appetite and capability. Stage 1 initially proposed to be undertaken in two parts (1A and 1B) to enable a staged approach as more information becomes available. However, the concurrent timing of the initial market sounding exercise and project options assessment meant stage 1 did not require two parts.
Stage 2	**Promoting the project** The purpose of Stage 2 is to generate greater interest amongst a wide range of market participants and engage them in the procurement process.
Stage 3	**Informing execution** The purpose of Stage 3 is to convert the market engagement to involvement in the Expression of Interest (EOI) and Request for Proposal (RFP) and confirm any final outstanding issues for the market prior to commencement of RFP.

2.4.4.1 Considerations for the procurement options assessment

In addition to informing toll revenue allocation as outlined in Section 2.4.3, Stage 1(A) of the market sounding also revealed the following in relation key issues relevant to procurement:

- **Market capacity**: While there are several large scale projects currently being procured and in the planning stage in the Australian market, participants suggested that the timing and scale of the project would allow NELA to tender the project scope work elements of North East Link competitively potentially under one package depending on its final value and contribution by the State. However, it is noted that competitiveness will vary with the degree of toll revenue risk transferred to the private operator (noting less toll revenue risk is preferred by the majority of the market). In assessing procurement options, NELA will favour options that leverage capacity in the market to generate an appropriate level of competitive tension.
- **Market appetite**: There exists substantial appetite for the project noting international participants did raise particular concerns in relation to their ability to partner with local developers and the clarity of evaluation / bidding criteria. Furthermore, all participants expressed concerns regarding the perceived advantages of incumbent operators in the market; however noting that these concerns are mitigated to the extent toll revenue risk is retained by the State. In assessing procurement options and planning for procurement, NELA will actively promote involvement of international participants in order to drive competition.
- **Financial**: In general terms, the majority of participants indicated that raising finance (both debt and equity) will be constrained under toll revenue risk-sharing models. In assessing procurement options, NELA will favour options that maximise competition and value for money across construction, operations and financing (where required).
- **Procurement process**: Participants were generally comfortable with the proposed timeframes and shared valuable lessons learned from previous experiences that may enhance the attractiveness of the project, including having an interactive process with the appropriate level of interaction at each stage, having access to the appropriate State personnel that can provide timely decisions, having an honest bid feedback process and having certainty that the project documents (released at the Request for Proposal stage) will reflect reasonably final positions. NELA will ensure that this feedback is incorporated into any subsequent procurement process.

2.4.5 Procurement Options Assessment – Primary Package

2.4.5.1 Introduction

Following identification of the Reference Packaging option, development of procurement assessment criteria, consideration of toll revenue risk sharing models and stage 1(A) market sounding feedback, the next phase in the procurement assessment approach entails assessment of available procurement models for the Primary Package of North East Link. On selection of the preferred procurement model for the Primary Package, consideration of the secondary packages is outlined in Section 2.5.

A long list of procurement options for the Primary Package of North East Link was selected for further consideration.

The following sections present the analysis and recommendations behind the long list and short listed procurement options for the project scope work elements of North East Link.

2.4.5.2 Procurement options selection

A long list of procurement options was considered for the delivery of North East Link. Attachment D contains a detailed summary of advantages and disadvantages of each of these potential procurement models.

Following consideration of the advantages and disadvantages of each model, the following procurement models were set aside as not suitable for delivery of the North East Link:

- Construct only
- Construction management
- Managing contractor
- Early Contractor Involvement (ECI).

Table 12 provides the rational for setting aside each of these models:

Table 12 Procurement models set aside

Procurement Model	Summary Description	Rationale for setting aside
Construct only	State is responsible for the design of the project, tenders construction works and awards them on a fixed price basis. This model allows the State to retain control of the design process and can potentially provide a degree of budget certainty to the State.	• Under this model, the State retains control of the design process and bears associated risk, potentially leading to price uncertainty as the construction final price is dependent on the completeness and accuracy of the design. • This model exposes the State to major risks (e.g. interface, design, geotechnical) that it may wish to transfer given the size and complexity of the North East Link project. • Despite packaging considerations and considering the magnitude of the project, the design risk and consequent interface with construction is considered best allocated to the private sector, with a design process likely bundled with the construction element to provide the best value for money to the State.
Construction management	Construction manager engaged to manage and coordinate construction works on behalf of the principal, and paid a fee based on a percentage of the value of the works. Similar advantages and disadvantages to the 'Construct only' model.	• For similar reasons to the Construct only model, the construction management model is recommended to be excluded. The construction manager may provide some design advice but does not accept overall design risk. • Furthermore, this model does not offer to transfer any risk to the construction manager, which is not considered beneficial to the project or likely to meet the State's Procurement Objectives.
Managing contractor	The principal prepares a project brief, including a budget estimate and estimated completion time, and the managing contractor works collaboratively with the principal to revise the project brief, then refines the design and manages documentation and project delivery, thereby accepting some delivery risk. This model is suitable for complex or high risk projects with uncertain scope of risks.	• This model exposes the State to major risks (e.g. cost overrun, commissioning, tunnelling) that the State may wish to transfer given the size and complexity of the North East Link project. Furthermore, the project's scope and risk profile is not considered to be too uncertain as to warrant consideration of this procurement model. • The project is complex, however it is not considered that its scope or risk profile is too uncertain as to warrant consideration of a Managing Contractor model.
Early Contractor Involvement (ECI)	Contractors are engaged early in the project to provide input into the design process and to have clear communication between all parties around the project and its key risks. This model is suitable for high risk projects with uncertain scope of risks.	• Refer to rationale for Managing Contractor (above).

The following procurement models were considered as potentially suitable for delivery of the project and were assessed against the procurement assessment criteria outlined in Section 2.4.2 to identify the most appropriate model for delivery of the Primary Package:

- D&C Contract with separate operations and maintenance
- Design, Build, Operate and Maintain (DBOM)
- Alliance
- Availability PPP
- Economic PPP.

2.4.5.3 Procurement assessment – Primary Package

To facilitate a qualitative assessment of the selected procurement models, the following rating system has been used to rank the procurement options:

Table 13 Procurement model assessment rating

Rating	Number	Description
✓✓✓	3	Procurement option is extremely effective in satisfying the requirements of the criterion.
✓✓	2	Procurement option is effective in satisfying the requirements of the criterion.
✓	1	Procurement option just satisfies the requirements of the criterion.
×	0	Procurement option is ineffective in satisfying the requirements of the criterion.
××	-1	Procurement option is extremely ineffective in satisfying the requirements of the criterion.

In order to score and rank each option, a weighted score is calculated by multiplying the 'Assessment Score' by the 'Importance' rating. The importance rating attracts the following weightings: High = 3, Medium = 2 and Low = 1.

Table 14 summarises the assessment of the shortlisted delivery models against the procurement criteria.

Table 14 Shortlisted delivery models assessment summary

Procurement criteria	Importance Rating	D&C	Alliance	DBOM	Availability PPP	Economic PPP
Maximise market interest	High	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓
Transport network integration	High	✓✓✓	✓✓✓	✓✓	✓✓	✓
Price and budget certainty	High	✓	×	✓	✓✓✓	✓✓✓
Risk transfer	High	✓	×	✓	✓✓✓	✓✓✓
Innovation	Moderate	✓	✓	✓✓	✓✓	✓✓✓
Time	High	✓✓	✓✓	✓✓	✓✓✓	✓✓✓
Operational performance	Moderate	✓	✓	✓✓	✓✓	✓✓✓
Simplicity	Moderate	✓✓✓	✓✓	✓✓	✓	✓
Un-weighted score		15	12	15	19	18

Procurement criteria	Importance Rating	D&C	Alliance	DBOM	Availability PPP	Economic PPP
Weighted score		40	32	39	52	47
Weighted Ranking (1 = highest preference)		**3**	**5**	**4**	**1**	**2**

Based upon this procurement options assessment, the highest ranked delivery model for the Primary Package is an Availability PPP (weighted score of 52), followed by the Economic PPP model (weighted score of 47), the D&C model with separate maintenance contract (weighted score of 40), DBOM (weighted score of 39) and the Alliance model (weighted score of 32).

Refer to Attachment E for the detailed assessment of each procurement option against the criteria.

2.5 Preferred delivery model – Primary Package (Step 5)

2.5.1 Preferred delivery model - Primary Package

Based upon the procurement options assessment for the 'reference packaging solution' the highest ranked delivery model and recommended delivery model is an Availability PPP model.

The key factors for recommending an Availability PPP model include:

- **Risk Transfer / Price and Budget Certainty** – Whole-of-life models such as PPPs offer comparative advantages over D&C and alliance models predominantly in relation to budget certainty and a robust and effective allocation of risk to the private sector. These advantages are critically important for a project of this scale, cost and complexity with specific regard to the tunnelling component of the works. From a cost perspective, the project is among the biggest infrastructure projects in Australia.

  Historically, the State has not attempted procurement of projects with this type of risk profile and cost via D&C or alliance based models. PPP models have been selected for projects that involve tunnelling risk, including CityLink, EastLink and the Metro Tunnel Project (Tunnel and Stations) as it offers the State the strongest form of risk transfer. The problems encountered by Transurban during construction of the Burnley Tunnel are well documented and delivery under the Build, Own, Operate, Transfer (BOOT) scheme (akin to a PPP) protected the State from construction cost consequences in that instance. From a contractual perspective, Alliance and D&C models offer lower levels of cost and risk protection for the State (up-front and on a whole of life basis) as they do not include the same degree of time and cost incentives that PPP models incorporate.

  In absolute terms, the whole-of-life delivery models' cost advantage compared to "traditional models" (i.e. D&C or Alliance) was found to be economically and statistically significant.[4] A detailed analysis of publicly available data for a sample of 21 whole-of-life projects and 33 traditional projects outlines that on a contracted $4.9 billion of whole-of-life projects, the net construction cost over-run was only $58 million. For $4.5 billion of traditional procurement projects, the net construction cost over-run amounted to $673 million or approximately a 14% comparative cost overrun.

[4] Infrastructure Partnership Australia, Performance of PPPs and Traditional Procurement in Australia.

The Alliance model is most suited to projects where significant construction risks are difficult to identify and therefore difficult to allocate and price up-front on an efficient basis and/or where a project's scope is not able to be clearly defined at the outset. Given the nature of this project it is considered that scope and risk (while material) can be reasonably well understood by the State and private sector; therefore, the alliance model is not considered the optimal model.

- **Benefits of third party debt and equity finance** – Utilising private finance introduces additional discipline and scrutiny of risk (for example, financier due diligence and oversight during the bid process and throughout the concession term) over the long-term compared to publicly funded models. This increased focus on risk and cost assessment coupled with a competitive and well-structured tender process should drive an improved understanding, mitigation and pricing of risk and cost to the benefit of the State. Utilising private finance also minimises and insulates the State's funding exposure to the project with respect to cost overruns. The enhanced level of financial discipline and scrutiny generated by private sector debt and equity providers within a PPP structure also drives operational performance as payments by the State are linked directly to the performance (measured via KPIs) of the Availability PPP Project Company (PPP Co).
- **Market Interest** – Market sounding Stage 1(A) demonstrated strong market interest and potential competition as an Availability PPP of the right scale. Victoria and New South Wales (NSW) are in the midst of an elevated level of construction activity which drives resource scarcity and means construction companies are being more prudent in deploying their resources and time.

  As recently as October 2017, NSW's Roads and Maritime Service decided not to progress the request for tender for the Rozelle interchange project (part of WestConnex) as it received only one response to the expression of interest, citing it was unlikely to deliver value for money for the taxpayer. As such, establishing market interest domestically and internationally for the project is critical to drive competition in cost and innovation.

  The project's scale is very large and should attract significant international interest, particularly contractors with tunnelling experience. The selected size, structure and procurement model should seek to foster the international market's interest and willingness to participate. For Victoria, this offers benefits beyond the project in terms of driving competition and innovation in the construction industry more broadly.

  The Economic PPP model suffered from low / shallow market interest in accepting (and significant sharing of) toll revenue risk which is therefore likely to result in a low degree of competition.
- **Operational Performance** – PPPs offer comparatively stronger operational performance regimes with commercial incentives via KPI and service payment abatement regimes. In order to meet performance standards over the long-term while also optimising cost, PPP contractors are required to develop detailed, long-term asset management and maintenance plans. This means PPP operators proactively manage the asset over the long-term in accordance with how it was constructed and how it must perform under the contract. It must also continue to invest in lifecycle / asset replacement throughout the contract term in order to meet asset condition hand-back requirements. This approach compares to traditional maintenance contracts that are short-term in nature, suffer from inconsistent funding allocations and are also much more 'reactive' in nature, leading to less maintenance, less often.

  Use of a 'whole of life' contracting approaches minimises the scenario where the enduring quality of the asset (and therefore its maintenance costs and operational performance) is compromised as a consequence of short-sighted construction decisions made earlier under a separate contract with different parties. D&C and Alliance contracting approaches are susceptible to these compromises.

- **Innovation** – A focus on longer term / 'whole-of-life' contracting also delivers private sector design innovation in terms of how best to maintain and operate the asset over the term in the most cost effective and efficient manner – while still meeting performance criteria.
- **Meeting Timelines** – Timing is critical for the State, not only in addressing the traffic problems identified in the Business Case but also as it relies on toll revenues as key funding source for the project. Overall, it has been found that traditionally procured projects are likely to be completed later than whole-of-life models relative to budget. For example, between the signing of the final contract and project completion, whole-of-life procured projects were found to be completed 3.4% ahead of time on average, while traditional projects were completed 23.5% percent behind the originally planned schedule (Allen Consulting Group et al. 2007).
- **Flexibility** – By virtue of the fact that the State retains toll revenue risk, it offers greater flexibility for the State to amend toll pricing in the future in response to demand, network and technology change.

2.5.2 Key considerations for an integrated delivery strategy

In identifying the preferred delivery model for the Primary Package as an Availability PPP, there are a number of subsequent considerations needed in finalising an integrated delivery strategy for North East Link:

- How the delivery of the Primary Package as an Availability PPP is aligned with delivery of the Secondary Packages both in construction and operation to provide an integrated design and operational solution and minimise interface risk
- With the State retaining the toll revenue allocation what measures can be taken to align the incentives of PPP Co in design and operation of the project when they are not otherwise exposed to toll revenue risk or reward
- How to deliver the tolling system to provide an integrated tolling solution for the project.

These issues will be further progressed as part of the pre-procurement phase of the project, including through the next stage of market sounding and are further discussed in Section 3.

3 Contractual framework and commercial considerations

3.1 Aligning performance incentives

In the absence of full alignment of interests for operating the toll road to maximise throughput and toll revenue, the party retaining toll revenue needs a contractual framework which incentivises the operating party to consider and have exposure to revenue volatility (in a positive or negative way). This is because while increased traffic for the toll collector means increased revenues, increased traffic means higher operations and maintenance expenditure for the build and operate party. Therefore the build and operate party should be incentivised not to reduce expected revenues and to minimise interruptions to revenue (e.g. during build delays, traffic incidents, lane closures for maintenance etc.).

Under an availability PPP (described in Table 10), there is the risk that the service payment abatement of the operator may not proportionally align with the potential loss of toll revenue from poor operational performance. From the State's perspective, this is a relevant consideration when assessing its approach to toll revenue on the one hand and its desire for cost and risk management in construction/operations on the other. Historically, the alignment of these risk factors has resulted in a preference for an Economic PPP approach which binds a range of investors and service providers under a single project company to achieve these combined outcomes as under this model the same party is trying to maximise revenue while operating and maintaining the road as efficiently as possible.

Under an availability PPP model, it is potentially better value for money for the PPP Co to receive both a fixed availability payment and a variable payment (including a traffic volume based fee) which is reflective of the maintenance and variable costs. This is to reduce any perverse incentive for the PPP to discourage traffic to save maintenance costs. Any variable payments would be expected to be a small proportion of the overall toll revenues collected by the State.

European countries have trialled different variants of payment mechanisms for PPP roads to try and better align the operators' incentives with Government / motorists. In the Norwegian E-65 the State collects the tolls but pays PPP Co an availability payment and traffic payments when traffic exceeds a certain level above original Government forecasts. One UK mechanism was the active management payment mechanism which comprised two elements, congestion management and safety performance adjustment. This structure is being used on the M25 London Orbital Motorway, A1 Darrington-Dishforth and the A249 Stockbury (M2) to Sheerness projects.

The party delivering the Primary Package and operating the project (i.e. Availability PPP Co) needs to be incentivised to perform in a manner that supports optimisation of toll revenue.

NELA is considering a range of potential measures for improving alignment of incentives and interests of Availability PPP Co under the preferred procurement model, these include:

- **Procurement**: Establish evaluation criteria that specifically addresses these issues.
- **Contractual drivers**: Consider the development and calibration of liquidated damages, service payment KPI and abatement regimes that emphasise lane availability, traffic management and traffic throughput maximisation.

- **Positive Contractual Incentives**: Consider financial performance incentives linked to lane availability and traffic management, which may include financial incentives that are linked to traffic performance (speed / throughput levels) and / or toll revenue. Such measures may be in place for a limited period of time, for example during early / ramp-up stages of the project.
- **Contract Administration**: Consider options for a future private owner of the Tolling Company, rights to co-administer or become counter-party to the Availability PPP contract. This offers greater control to the Tolling Company and may improve valuations of the toll revenue should the State seek to monetise it in the future.
- **Aligning Ownership Interests**: Consider options to offer a future private owner of the Tolling Company rights to purchase equity in the Availability PPP Co. This offers greater control to the Tolling Company and may improve valuations of the toll revenue should the State seek to monetise it in the future.

NELA will continue to develop these measures in the lead up to procurement, including through the next phase of market sounding.

3.2 Potential delivery framework – including Secondary Package(s)

In selecting a packaging solution that separates the project into two to three packages for delivery, with an Availability PPP model for delivery of the Primary Package and longer term operation, an appropriate delivery framework for North East Link must consider the following key issues:

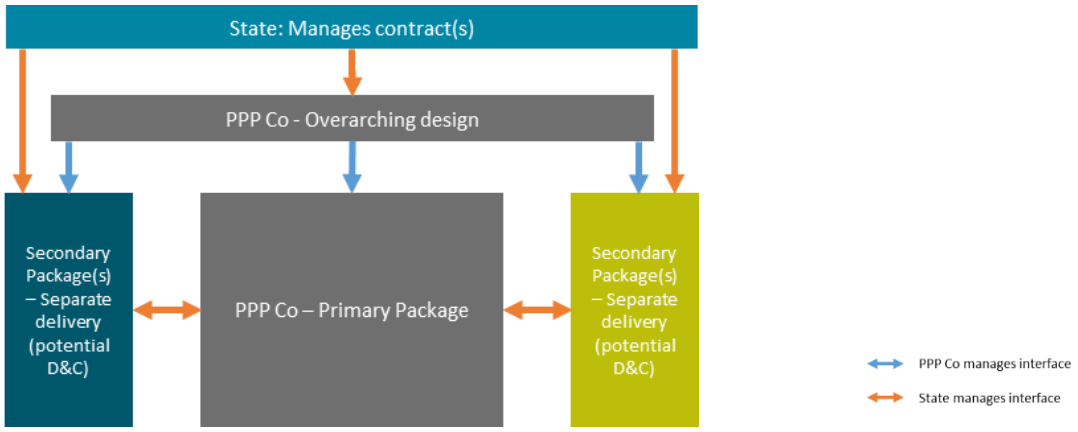
- **Integrated functional design solution**: How to implement a delivery framework that enables an integrated end-to-end functional design and operational solution and also maximises the market's ability to innovate in developing this solution is a critical success factor for the project.
- **Design and construction interfaces**: How to implement a delivery framework that mitigates interface risk associated with multiple packages and still enables innovation in the design and operational solution.
- **Operational integration**: In selecting an Availability PPP to undertake the Primary Package and the State potentially monetising the toll revenue stream at a later date, consideration is required on how to implement a delivery strategy that enables longer-term operational integration.

To address these issues, three potential delivery frameworks have been identified to address a primary package of an Availability PPP, with other packages that may be delivered in a more traditional, non-privately financed manner. A preliminary assessment has been undertaken to identify the advantages and disadvantages of each arrangement for the State.

Delivery framework option 1

In this option, the Availability PPP Co undertakes the end-to-end reference design for the project while the State manages the separate delivery packages.

Delivery framework option 1



Advantages

- This maximises innovation in the initial design.

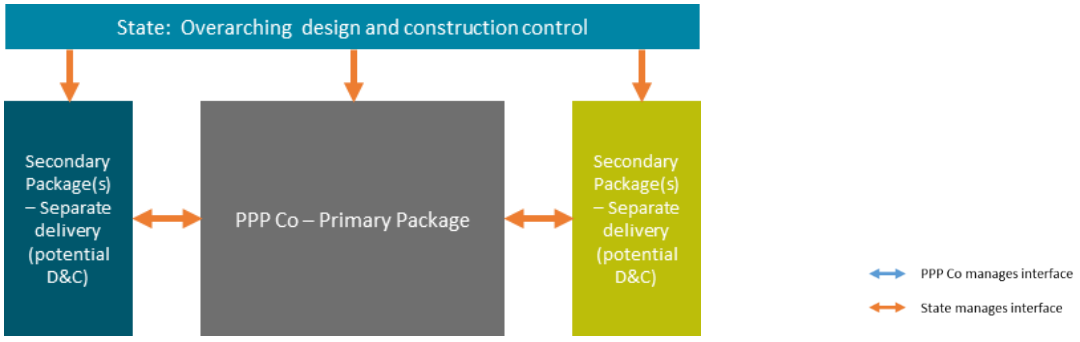
Disadvantages

- The interface risk remains with the State, which may not be the most appropriate party to manage this risk.
- The State or future Toll Co must manage operational interfaces over the life of the project.

Delivery framework option 2

Delivery framework option 2 involves PPP Co undertaking the overarching reference design as well as management of the interfaces between the separate packages and operation of the project. This is different from option 1 where the State retains control of the delivery of the Secondary Package(s) and therefore interface risk.

Delivery framework option 2



Advantages

- Maximises innovation in design and operations.
- The interface risk is shared / transferred to PPP Co.

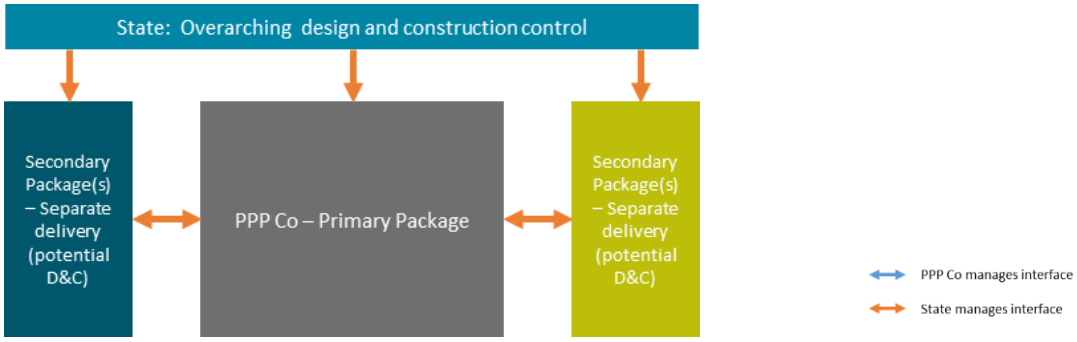
Disadvantages

- PPP Co must take over works constructed by other parties.
- Innovative delivery model that may not be fully embraced by the market, with more risk retained by the State than desirable, including completion risk and a level of interface risk.

Delivery framework option 3

This delivery framework has the State undertaking the overarching reference design as well as managing the interfaces between the separate packages. This is different from option 1 where the State retains control of the design and delivery of the Secondary Package(s) and therefore interface risk and from option 2 where PPP Co fulfils an overarching management and interface control role.

Delivery framework option 3



Advantages

- There is some room for innovation in design undertaken by the State.

Disadvantages

- This would require a delayed procurement and delivery as the State needs to spend more time developing a more detailed reference design.
- The interface risk for design, construction and operations remains with the State.
- The State or future Toll Co must manage operational interfaces over the life of the project.

An initial assessment of the advantages and disadvantages of each of these options indicates that option 2 is likely to be the most favourable of these options because it transfers responsibility for interface and a level of risk to PPP Co, which is considered to be the party best able to manage the interfaces and longer term view of operations and maintenance. However there is a risk that this model may not be acceptable to the market.

Further consideration will be undertaken of the following key issues, through analysis and market testing:

- All options introduce a level of uncertainty in relation to the pricing of the project up front, as well as the O&M period, which cannot be priced until all packages are procured.
- Ensuring delivery timelines can be achieved.
- Management of interface risks during design, construction and operation.

3.3 Delivering the tolling system

Given the long operating history of toll roads in Victoria, it is expected that a significant proportion of potential users of the project will already be customers of the existing toll road operators. As such, it is assumed that the project will be a 'roaming road' where users will not obtain an electronic tolling tag specific to the project, but will utilise their existing tags. The existing toll operators will process transactions of their customers who use the project in exchange for a roaming fee that will be paid either by the State Toll Co, or the users via the toll.

The State will need to establish a comparatively small customer interface and toll collection function to accommodate users who are not customers of existing toll operators.

Tolling scope includes not only design and construction of tolling related infrastructure but also establishment of toll collection systems, transaction processing and customer / retail interface.

NELA has undertaken preliminary scoping analysis in relation to tolling system for the project. This analysis considers varying levels of involvement of the PPP Co in the delivery of the tolling scope.

Table 15 Tolling Scope Options

Tolling Scope Option	Description
1. PPP Minimum – Separate toll entity	Availability PPP Co has the **minimum** tolling scope (D&C of tolling pits, footings and conduits only, with a minimal O&M function associated with pits and footings). The State Toll Entity is a separate entity that develops (or procures development of) all tolling systems / equipment installation (including gantries) and maintenance, toll collection / back office, communications / networks, electronic tolling signage, tech shelters maintenance and customer interface / retail function.
2. PPP Medium – Separate toll entity	Availability PPP Co has the **medium** tolling scope whereby it undertakes D&C and O&M of significant project level tolling related infrastructure, equipment, toll collection systems, electronic signage and tech shelters. The State Toll Entity is a separate entity that develops (or procures development of) a tolling related customer interface / retail function only.
3a. PPP Maximum – Separate toll entity	Availability PPP Co has the **maximum** tolling scope which includes all scope under Option 2 (above) and also performs a customer interface / retail function. The State Toll Entity does not procure works or services and simply receives toll revenue collected by Availability PPP Co.
3b. PPP Maximum – No Separate Toll Entity	Availability PPP Co has the **maximum** tolling scope which includes all scope under Option 2 (above) and also performs a customer interface / retail function. A State Toll Entity does not exist and Availability PPP Co remits toll revenues directly to the State (i.e. to an existing department or agency such as DTF).
4. PPP Maximum – State Owned Corporate Entity	Availability PPP Co has the **maximum** tolling scope. A separate NEL Co (State Owned Corporate Entity) is the Availability PPP Contract counter-party and receives Toll Revenue from Availability PPP Co. A separate NEL Co could be capitalised via equity contributions from the State Government.

In considering tolling scope options it will be critical for the State to maximise accountability and reduce interface risks associated with all toll revenue collection, billing and customer activities. Moreover, the scope option must not preclude or constrain the State's ability to monetise or divest the State Toll Entity in the future.

Option 1 offers the clearest differentiation between the scope of Availability PPP Co and the State Toll Entity while allowing the State to complete basic infrastructure works required to enable tolling (i.e. D&C of pits, conduits and footings) by mobilising Availability PPP Co. This differentiation enables strong lines of accountability and minimises potential interfaces.

Option 1 also offers flexibility regarding monetisation / divestment options in the future by establishing a clear, stand-alone entity with minimal toll collection related interfaces with Availability PPP Co (compared to other options).

For the purposes of the Business Case, NELA's preferred tolling scope option is Option 1. NELA will continue to refine its tolling scope options in conjunction with DTF throughout the pre-procurement phase.

In establishing the Availability PPP contract, the State Toll Co and the interfaces between the two, NELA and DTF will develop structures and delivery approaches that optimise value for money from a tax and accounting perspective for the State.

Attachment A – Packaging Options

A1. Redacted - commercial-in-confidence

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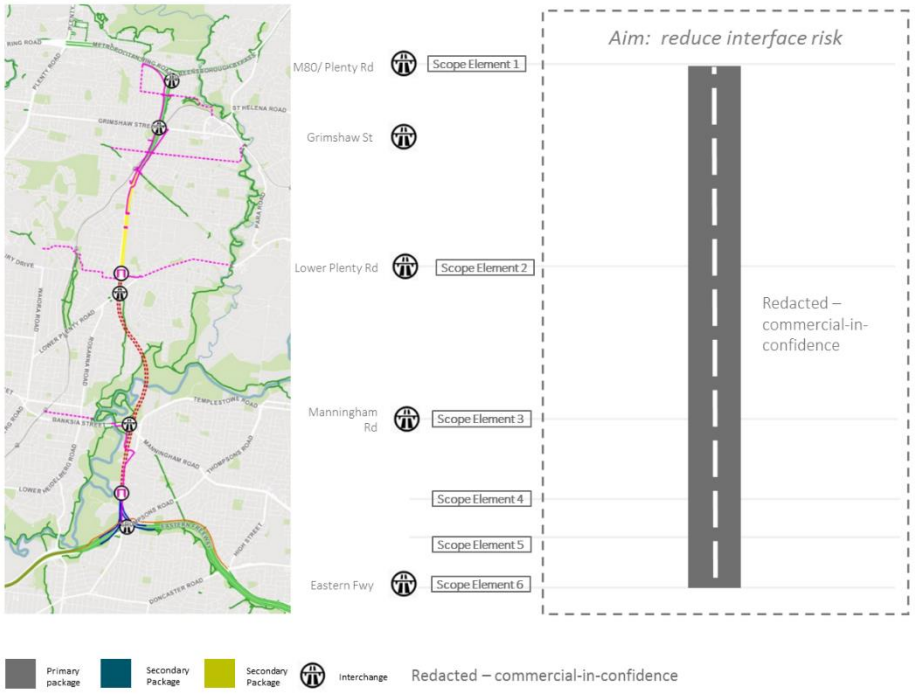
A2. Package options

This section provides a detailed description of each type of package solution.

Package solution option 1

The aim of this package solution option is to reduce interface risk both in construction and operations and to maximise the innovation from the market in tendering an innovative end-to-end functional solution. The general features of this type of package solution option are a large scale integrated package, with the potential for some other minor packages at the margins where interface and innovation are of lesser consideration.



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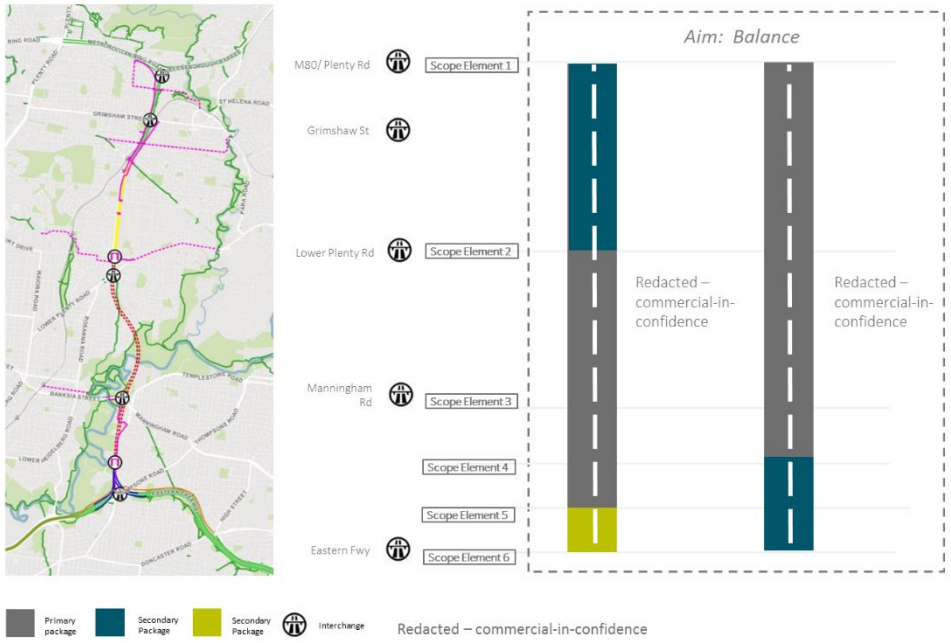
Package solution option 2

The objective of package solution option 2 is to create a balance between maximising competition and market capacity and capability through optimising size and scale, while managing interface risk and optimising interfaces for construction and operation. The general features of this type of package solution option are medium to larger scale, and between two to three packages. Key issues in identifying packaging solutions in this option are the ability to create packages of an appropriate scale, given the key design and construction controls.



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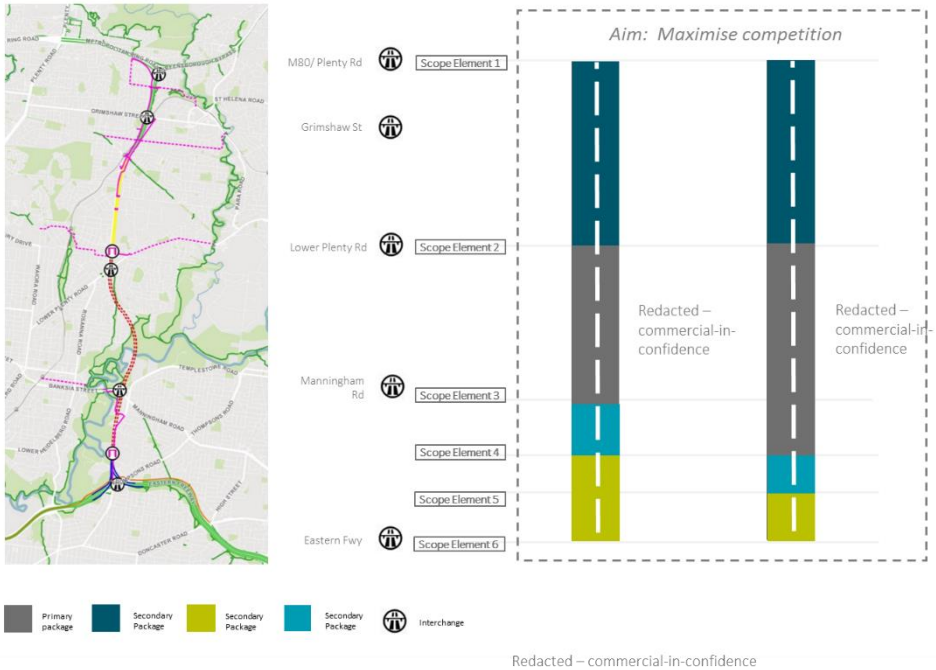
Package solution option 3

This package solution option aims to maximise competition to encourage a broad range of participants from the local and international market to ensure value for money to the State. The general features of this type of package solution are optimally sized packages that are attractive to a broad range of potential bidders.



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Attachment B – Market Sounding Report [Redacted - commercial-in-confidence]

Attachment C – Toll Revenue Risks and Rewards

Toll revenue or 'demand' risk refers to the financial risk (or reward) that toll revenues may be materially lower (or higher) than up-front forecasts that were assumed as a basis for investing in the toll road project,[5] or committing tax payer funds to partially fund the road.

When investing in a toll road, the risk premium or discount rate the private sector uses for toll revenue forecasts depends on their confidence in the assumptions underpinning the traffic forecasts. This level of confidence will vary depending on factors as outlined below.

In optimising the return to the State (and therefore the public), the State can retain, sell (now or later) or share toll revenue risk and reward either as part of the PPP or outside that structure.

Risks to toll revenues broadly are a function of the following key sub-risks:

- **Traffic Forecasting Risk**: The risk of inaccuracy in forecasting traffic volumes (and to a lesser extent vehicle mix) over the short (ramp-up) to medium term.

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- **Macro-economic Risks**: The risk that underlying assumptions regarding future macro-economic factors that support the long-term traffic growth forecasts are inaccurate. Long-term macro-economic factors include population and economic growth rates, individuals' propensity to use road versus public transport, land use changes affecting where people are travelling from and to, future technology changes (i.e. automated vehicles, ride-sharing take up), and vehicle capital and operating costs (petrol / oil prices) that may materially impact traffic volumes.
- **Future Network and Policy Risks**: The risk that underlying assumptions regarding future network or policy settings are inaccurate. Factors include future physical changes / additions to the arterial, freeway and tollway road network (such as the E6), future transport policy / regulatory change and future competing infrastructure investment decisions that may materially impact traffic volumes.

In relation to a greenfield toll road Economic PPP project, the private sector should place a higher value on toll revenues where it has the opportunity to create an efficiently operating road through effective design, construction, operation and maintenance of the road and where they manage and operate the road. The toll revenue stream can also be used to raise private financing which eliminates or reduces the need for the State to fund construction and be exposed to construction or financial risks. In such an arrangement most of the risks and benefits of ownership of the project are transferred. The economic benefit realisation risk doesn't vary with structure and continues to be borne by the economy as a whole.

[5] The State is typically more concerned with "benefit realisation risk" - the risk that the projected economic benefits, including travel times, are not realised.

By comparison, where the State does not sell toll revenue upfront as part of an Economic PPP, it has greater flexibility to decide how the core assets and services are delivered, and can choose an appropriate asset procurement and operational model from a range of options based on a broader assessment of project characteristics. However, some of the benefits usually derived from an Economic PPP, such as the entity being incentivised to innovate in design and construction and operations to efficiently flow traffic throughput, could be eroded unless mitigated. The most material impacts on long term traffic, outlined above, are the macroeconomic risks, which are largely exogenous, and future network and policy risks, within the control of the State. The impact of differences in incentives between a well-designed Economic PPP or Availability PPP or traditionally procured road is likely to be dwarfed by these other risks. It should be noted that in an Economic PPP the bidder who places the highest value on toll revenues may simply be the one who has the most aggressive view on future macroeconomic, network and policy risks rather than the one who has designed and can operate the best performing road or the one with the best value for money underlying construction price.

Greenfield and brownfield toll road projects and toll revenue risk

There are two broad types of toll road project; **brownfield projects** where toll revenues have been fully or partially demonstrated through actual traffic behaviour on an existing tolled road or adjoining tolled roads, and **greenfield projects** where toll revenue is unproven and revenue forecasts are based on strategic transport model forecasts.

In greenfield toll road projects, a significant component of the toll revenue risk, all other things being equal, occurs in what is known as the 'ramp up period' – the period immediately after opening where it takes time for the traffic on the road to grow and stabilise. This is significant as the actual traffic behaviour during this ramp up period has significant financial implications and provides a longer-term view, after the road has been opened for a period, of more certain traffic, steady state, forecasts for the road.

When investing in a greenfield toll road, the private sector will risk adjust the projected value of toll revenue by discounting it more than they would post ramp-up when the traffic levels are more certain.

For North East Link future network enhancements on the M80 and Eastern Freeway and any new build such as the E6 or a connection between the Eastern Freeway and CityLink are likely to materially impact traffic. Both the timing and impact of these are highly uncertain.

Following the financial collapse of some toll roads for which toll revenue risk and reward was transferred, most notably Cross City Tunnel (NSW), Lane Cove Tunnel (NSW), CLEM7 (QLD) and Airport Link (QLD) and the Global Financial Crisis (GFC), the private sectors' appetite for accepting demand / toll revenue risk on greenfield toll roads significantly declined. These projects failed financially due to overly aggressive / optimistic toll revenue forecasts compared to actual toll revenues. Consequentially the project companies associated with these projects were placed into administration and subsequently sold by administrators at significant discounts to the original valuations. The taxpayer did not bear the financial risks of toll revenues not materialising, however the economy always bears the impact of economic benefits, such as aggregate travel time savings, not materialising as expected.

In response to toll road concession collapses, IA recommended greater use should be made of independent technical and commercial oversight of bidders' plans—particularly their traffic forecasts for the life of the project that are prepared during the bid phase. During the evaluation phase IA recommends greater focus needs to be placed on assessing and testing the deliverability of bidder submissions and plans, and the assumptions embedded in their financial models. Such assumptions would necessarily have to include assumptions as to the future network and transport policy. Care would need to be taken to ensure that the State does not end up "underwriting" bidders assumptions about the future network or policies.

A generally accepted commercial PPP principle is that the State will maximise value by allocating a risk to the party in the transaction structure best able to control or manage the risk (assuming it is financially able and willing to absorb the risk). The party best able to manage a risk may change through time.

One view is that toll revenue risk and reward is no exception. The party (either the State or a private operator) that is best able to understand and manage the risks over time should be able to offer the highest valuation at that point in time for accepting that toll revenue risk and reward (all other things remaining equal). However the risk changes through time. In considering this argument the relative contribution of the different incentives in design and operation of the road on traffic compared to the impacts of future macro-economic risks and network and policy risks on traffic inform the balance of who is able to best control, manage and absorb the aggregate risk. As noted above future macro-economic, network and policy risks include population and economic growth rates, land use changes impacting travel patterns, future physical changes / additions to the arterial, freeway and tollway road network, future transport policy / regulatory changes, and future competing infrastructure investment decisions.

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To value toll revenues on North East Link over this period requires the modeller to make assumptions as to the timing of these possible new roads and upgrades, what standard these will be built to and whether new roads will be tolled or not in order to assess the potential impact on traffic and toll revenues on the North East Link. Without other protections a private sector purchaser is taking the risk that these assumptions, which are outside of their control, are, or are not, met.

An alternate view is that toll revenues are a financial asset not a risk. Through this lens packaging up the cashflows in a manner to be attractive to the deepest pool of liquidity, who may be outside the project finance transaction structure, is likely to achieve the best value for any sale. Here, the State can maximise its valuation by maximising competition in the market for low volatility, GDP/ economy linked cashflows. A State owned toll company gives the State greater flexibility in obtaining value from the toll revenue stream from simply borrowing against it to more complex sale, securitisation, monetisation or unitisation structures. The State retains flexibility to package these cashflows over different time frames, for example 5 or 10 years, over which there is more confidence about the macro-economic, network and policy assumptions.

Attachment D – Procurement Models: Advantages and Disadvantages

Procurement Model Description	Advantages	Dis-advantages
Construct only		
The State is responsible for the design of the project and will either develop the design internally or engage an external consultant to develop the design documentation. A tender process is then run for the construction phase and awarded on a fixed price basis.	• State retains control of the design process. • Fixed price and time construction contracts provides a degree of budget certainty to the State.	• Exposes the State to scoping, interface and design risks (retained), leading to price uncertainty as the construction final price is dependent on the completeness and accuracy of the design. • Tunnelling representing a major and complex component of NEL project, it is assumed that the risks associated with tunnelling are sought to be transferred by the State. This model does not help achieve this desired risk allocation. • Furthermore, it is considered that the design of all the elements of NEL will be started before work is undertaken. Consequently, the design risk should be allocated to the private sector, with a design process likely bundled with the construction element to provide the best VfM to the State.
Construction management		
The principal engages a construction manager (contractor or consultant) to manage construction works on its behalf. The principal manages the scoping and engages the designer directly, as well as the trade contractors whilst these contracts are entered into by the construction manager as the principal's agent. The construction manager performs a purely management and co-ordination role (without delivery risk) and is generally paid a fee based on a percentage of the value of the works.	• State retains control of the design process. • Fixed price and time construction contracts provides a degree of budget certainty to the State.	• State retains the same exposure to risks stated in the 'Construct Only' model as the construction manager may provide some design advice but does not accept overall design risk. • Tunnelling representing a major and complex component of NEL project, it is assumed that the risks associated with tunnelling are sought to be transferred by the State. This model does not help achieve this desired risk allocation. • Furthermore, it does not offer to transfer any risk to the construction manager, which is not considered beneficial to NEL.

Procurement Model Description	Advantages	Dis-advantages
Managing contractor		
Under a managing contractor approach, the principal prepares a project brief, including a budget estimate and estimated completion time, and the managing contractor works collaboratively with the principal to revise the project brief, refines the design and manages documentation and project delivery (e.g. engaging subcontractors to deliver the works), thereby accepting some delivery risk.	• The principal can retain a substantial amount of control while a reputable professional manages the project. • Because the principal is retaining the majority of risk different components of the project can be developed at different stages. • Suitable for complex or high risk projects with uncertain scope of risks.	• Tunnelling representing a major and complex component of NEL project, it is assumed that the risks associated with tunnelling are sought to be transferred by the State. This model does not help achieve this desired risk allocation. • Furthermore, under this model, the State retains the risk of cost overrun and commissioning. • No incentive to promote a whole-of-life approach. • Given the large number of stakeholders in the Project, the managing contractor's role would be to manage these, adding another layer of complexity and margin on top of the NELA delivery team.
Early Contractor Involvement (ECI)		
ECI is composed of the following two phases: • Design development and 'Not to exceed Price' • Design and construct fixed lump sum project. Contractors are engaged early in the project to provide input into the design process and to have clear communication between all parties around the project and project risks. In parallel the 'Not to exceed Price' is developed for the delivery stage of the project. The 'Not to exceed Price' provides the advantage of being a delayed agreement. If the 'Not to exceed Price' cannot be agreed at a certain stage the State has the option of terminating the relationship and tender the project.	• High level of contractor input starting in the design development phase and the design and construction phase, typically leading to shortened delivery time. Project risk is appropriately allocated before construction commences and may provide a better Value for Money (VfM) outcome. • Provides the State with greater flexibility to retender the 'design and construction' stage to the open market if it is deemed that the earlier "Not to Exceed Price' is too high. This process may create a competitive environment and improve VfM outcomes. • The tender process tends to be less costly and time-consuming. • High degree of collaboration.	• Greater costs through the initial phase due to 'optioneering' by designer and contractor through initial idea process. • Fixed lump sums for the D&C phase may lead to risk premiums being quoted or significant exclusions, therefore reducing the project VfM. • No incentive to promote a whole-of-life approach. • While NEL is complex it is not consider its risk profile to be too uncertain as to warrant consideration of a Managing Contractor or Early Contractor Involvement model as it is considered that these models cannot offer an efficient transfer of completion and cost risk. • Relationship based contracting will be evaluated in detail using an Alliance model (short-listed)

Procurement Model Description	Advantages	Dis-advantages
Separate Design and Construct (D&C)(with separate Operation and Maintenance (O&M))		
Common form of procurement used by the public sector and funded by the State, consisting of separately procuring the D&C and O&M contracts. • D&C: The State prepares a design brief which outlines the functional and key user requirements in performance terms for the works, but is less detailed than the design documentation required for a construct only contract. The State seeks tenders for completion of the specifications, consistent with the design brief and construction of the works described in the design brief. Tenderers nominate a fixed price for design and construction works that is based on contract specifications developed by the State. • O&M: This model consists of the operation and maintenance of the assets undertaken by either the State or the private sector by means of a separate operating contract, usually short-term (5-10 years).	• Suitable where the scope is well defined and for projects with less significant unknown risks, enabling risk positions to be defined to achieve efficient risk transfer and pricing. • Potential for innovation as the contractor is involved in both the design and construct of the project. • Shortened period of time between contract 'award' and 'construction' (3 months). • Construction delay and cost overrun risk transferred.	• No focus on lifecycle approach and costs from the D&C contractor. • Risk of cost overruns and time delays is difficult to mitigate for the State as Liquidated Damages associated with a traditional D&C may not provide as much incentive for the private sector to complete the works on time and on budget as a 'service payment' mechanism does, i.e. only starting to be paid at completion of the works under a PPP model. • Limited transfer of risk during construction as funding provided progressively by the State • Limited meaningful transfer of risk with no capital at risk. • Limited opportunity to drive value over the life of the project through design innovation, and therefore limited benefit in developing a whole-of-life approach.

Procurement Model Description	Advantages	Dis-advantages
Design, Build, Operate and Maintain (DBOM)		
This model includes procurement of the project's operation and maintenance services by the contractor, for a specified period, in addition to the D&C traditional delivery. Whilst transferring responsibility for the construction, operation and maintenance of the road to the private sector, this model, relying on public funding only, allows the State to retain the legal and economic ownership of the asset.	• Suitable where private sector is better placed to manage maintenance (or O&M) risks. • Due to the combined responsibility of the private sector for upfront works and maintenance (or O&M services) over time, 5y343bimproved incentive to introduce D&C innovation compared to a traditional D&C model and encouraged effectiveness to reduce long term life cycle costs as some of the asset lifecycle risk is transferred to the contractor. • Contractor warrants design including "fitness for purpose". • There is a single point of accountability	• Limited transfer of risk during construction as funding provided progressively. • Risk of cost overruns and time delays is difficult to mitigate for the State as Liquidated Damages associated with a traditional D&C may not provide as much incentive for the private sector to complete the works on time and on budget as a 'service payment' mechanism does, i.e. only starting to be paid at completion of the works under a PPP model. • Limited meaningful transfer of risk with no capital at risk. • Tends to have longer tender periods than the previous models as it is necessary to evaluate operation and maintenance risks.

Procurement Model Description	Advantages	Dis-advantages
Alliance (D&C and/or O&M separate contracts)		
This approach involves both the State and key shareholders to share the risks and rewards of the project. It creates a 'no blame' situation and attempts to create a better approach through strong group culture. There is a need for a unanimous decision making process. Objectives of the project are jointly developed pre-construction. If the objectives are positively exceeded the additional gains are shared. Similarly if objective are not met the losses are allotted between the parties. Typically the non-owner contractors are guaranteed reimbursements of project costs under an open-book arrangement.	• Suitable for complex brownfield environments with network wide impacts on the transport network. • Suitable to projects that are not well defined, with significant risks largely unknown (such that output specifications cannot be clearly defined upfront and/or there is a high likelihood of significant scope changes) where the ability to share risk management and to incentivise cooperative collaboration is key to achieving good project outcomes as there are unpredictable risks that cannot be quantified or identified nor allocated (therefore best to manage them collectively). • Suitable to projects with a large number of stakeholder interfaces, often with competing interests. • Allows for greater collaboration ensuring both parties are present in the design process. • Maximises the ability to vary scope and requirements of the solution during design and delivery phases, enabling continuous improvement to be implemented.	• Separate tenders to be awarded for D&C and O&M, limiting whole-of-life benefits, innovation and ability to meaningfully transfer risk with no capital at risk. • Parties may act for their own interests instead of acting in good faith. • The State ultimately bears the price risk. • Requires all parties to align and commit to a culture of collaboration and openness.

Procurement Model Description	Advantages	Dis-advantages
Availability PPP		
A PPP involves a consortium of parties who are engaged to design, build, finance and operate / maintain the infrastructure necessary to provide the service required (based on State's output specifications) over a long term concession (30-40 years), at the end of which the road reverts back to the State in a pre-agreed condition. The State takes the demand/patronage risk associated with the project and pays the concessionaire for services through service payments from the commencement of the operation phase, in return for meeting a range of key performance indicators and making the road available for use by motorists. In NEL context, it may take the form of tolled road availability PPP, i.e. an indirect road tolling mechanism where the State levies tolls on road users.	• Optimised risk transfer during construction and operation. • Scope for innovation and enhanced VfM given a transfer of whole-of-life costs to the private sector grouped as a single consortium. • The contract value is known before construction begins, i.e. reduced risk of cost overrun / time delays • Creates strong incentives on the private sector for on-time and on-budget delivery. • Foreseeable and fixed set of income for the private sector, enhancing access to private finance due to the security of cash flows and increased creditworthiness of the concessionaire. Reduced risk for the concessionaire may make the project cheaper. • The State retaining the toll revenue risk under this model offers flexibility for the State to change toll prices in the future as it is not locked into private operator's toll price profile regulated by a concession deed, which improves the State's ability to manage demand across the transport network over time as volume and use change.	• State retains the toll revenue risk. The lack of exposure to toll revenue risk for the private developer and operator could mean that their commercial incentives may not be aligned to the party collecting the tolls (i.e. the State). This could create inefficient operational and contractual interfaces over time. • Can be difficult to establish when there are a large number of varied stakeholders groups creating an unmanageable environment. • Project future variations can result in higher costs for the State based on the financial arrangement and risk pricing, a PPP traditionally offering limited flexibility for future scope variations. • Subject to the size of the project, additional government funding may be required. • Requires continuous and demanding monitoring activities by the procuring agency. • Requires a significant amount of resources during the evaluation process of tenders as multiple concept designs might be developed by different proponents.

Procurement Model Description	Advantages	Dis-advantages
Economic PPP		
An economic PPP, i.e. traditional toll road PPP historically used for most Australian road projects, has the same characteristics as an availability PPP, although the private sector bears the demand / patronage risk from the commencement of operation through a direct tolling system (with the concessionaire being paid by the road users). Various hybrid models are available however, allocating differently the patronage risk over time. Concessionaire has the right to operate the toll road over a pre-determined time period before the asset is handed back to the State at the end of the concession. Requires a significant amount of resources during the evaluation process of tenders as multiple concept designs might be developed by different proponents.	• Zero cost to the State in theory, from a cash perspective, however, there may be a budget and accounting liability (noting NEL is expected to require government contributions for the project to be economic). • Private sector retains the toll revenue risk, therefore ensuring commercial incentives are aligned between toll collection and operational performance. • Optimised risk transfer during construction and operation. • Scope for innovation and enhanced VfM given a transfer of whole-of-life costs to the private sector grouped as a single consortium. • The contract value is known before construction begins, i.e. reduced risk of cost overrun / time delays • Creates strong incentives on the private sector for on-time and on-budget delivery. • Flexibility for the State in terms of funding.	• High capital construction costs mean that projects traffic volumes may be considered as an insufficient revenue stream to meet debt service and equity return for sponsors. As a result, additional government contribution may be required if there is a funding gap, limiting otherwise market appetite to take on greenfield toll road revenue risk. • Limited flexibility offered by this model in terms of network integration and augmentation, the State being typically imposed with contractual limitations in regards to future changes to the network initiated by the State that may adversely impacts traffic volumes on the tolled road link. • Requires continuous and demanding monitoring activities by the procuring agency.

Attachment E – Detailed Procurement Options Assessment

The following table presents the detailed procurement options assessment.

D&C	Alliance	DBOM	Availability PPP	Economic PPP
Maximise market interest				
• The market is familiar with the tradition model, given that it is the most common form of procurement. • Form of procurement model currently implemented by transport agencies in Australia. • The scale of works should raise interest and enable a competitive field. • It is expected that the market would respond in an effective manner to a D&C procurement.	• The market is familiar with the alliance procurement model. • Form of procurement model currently implemented by transport agencies in Australia. • Based upon the of relevant precedent projects, this procurement model is currently implemented for projects of similar nature. • The scale of works should raise interest and enable a competitive field. • It is expected that the market would respond in an effective manner to an alliance model.	• The market is familiar with the DBOM procurement model, although it hasn't been utilised for a project of this scale before and historically, has not been utilised to any great degree by the State of Victoria, • The scale of works should raise interest and enable a competitive field. • Noting that utilisation this model model would be new in Victoria, it is still expected that the market would respond in an effective manner to a DBOM model.	• The market is familiar with the availability PPP model. • Market sounding exercise carried by the State in August 2017 confirmed interest and appetite of key market participants for the Project to be delivered as an availability PPP. • Form of procurement model currently implemented by transport agencies in Australia (most notably in Victoria – the Peninsula Link Project and the Suburban Roads Upgrade (Western Package). • It is expected that the market would respond in an effective manner to an availability PPP model.	• The market sounding exercise carried out by the State in August 2017 demonstrated a limited interest in light of the recent performance of road projects which have transferred risk to the private sector in Australia • Limited traffic forecasting capacity in the market was noted as a key constraint to accepting toll revenue risk in an Economic PPP model. • Participants also noted the uncertainty relating to systemic changes to the way roads are used and priced. • Participants considered raising fully committed financing would be challenging under an Economic PPP given financiers reluctance to be exposed to any degree of greenfield traffic revenue risk. • Based on the above, it is expected that the market would respond in a manner that would unduly constrain competition under the model and therefore not optimise value for money outcomes to the State.
✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓

D&C	Alliance	DBOM	Availability PPP	Economic PPP
Transport network integration				
• The D&C model offers flexibility to the State by limiting contractual barriers that could impact its ability to manage the Project as part of the existing transport network over time. • The contractual framework provides the State with greater discretion • This model offers flexibility for the State to change toll prices in the future as it is not locked into largely fixed toll price profile regulated by a concession deed, which improves the State's ability to manage demand across the transport network over time as volume and use change.	• The alliance model has similar characteristics to the D&C model.	• This model offers flexibility for the State to change toll prices in the future as it is not locked into largely fixed toll price profile regulated by a concession deed, which improves the State's ability to manage demand across the transport network over time as volume and use change. • During the operating phase, the ability to introduce operational or technical change to the network will depend upon the terms of the contract and its ability to allow for variations. DBOM models are 'whole of life' models whereby contractors commit up-front to a fixed construction, operations and maintenance cost profile. The DBOM model is considered to be less effective in this criterion compared to D&C and Alliance models.	• The Availability PPP model has similar characteristics to the Traditional, Alliance and DBOM models in relation to toll price flexibility. • However, an availability PPP does not offer the same degree of flexibility in relation to network augmentation or implementation of operational changes to the network over time compared to D&C and Alliance models. • During the operating phase, the ability to introduce operational or technical change to the network will depend upon the terms of the concession deed and its ability to allow for variations. The current set of PPP Standard Contracts issued by the Department of Treasury and Finance incorporate greater flexibility with regard to Modification and Augmentation regimes compared to earlier availability PPPs. • Availability PPP models are 'whole of life' models whereby a PPP company commits up-front to a fixed construction, operations and maintenance cost profile. The Availability PPP model may be considered slightly less effective in this criterion compared to D&C and Alliance models where the State retains full control of the network.	• The Economic PPP model has similar characteristics to the Availability PPP model in so far as it's a 'whole of life' model whereby the PPP company commits up-front to fixed construction, financing, operations and maintenance in exchange for rights to toll users. • Given the PPP company relies on toll revenue as compensation for its investment in constructing and operating the toll road, comparatively the economic PPP model imposes more contractual limitations on the State in regards to future changes to the network and the toll road itself that may adversely impact traffic volumes (and toll revenues) on the tolled road link. • However, it is worth noting that on more recent toll road concessions (such as EastLink) the State has obtained greater flexibility to make changes. • While the State always reserves the right to make changes to its network, such changes are more likely to require negotiations with the concessionaire and may result in financial compensation to a concessionaire (if adversely affected) under this model.
✓✓✓	✓✓✓	✓✓	✓✓	✓

D&C	Alliance	DBOM	Availability PPP	Economic PPP
Price and budget certainty				
• The traditional D&C model is typically tendered on a fixed time and cost basis, which makes this model suited to projects where the State's requirements are tightly specified before tender and risks well understood. • While there may be scope to vary the provisions in the contract to account for required changes to the scope or design from the public sector, this will lead to substantial claims for cost and time overruns which will be priced on a non-competitive basis, therefore much higher than the tendered costs. • While risks are often 'transferred' under fixed time, fixed cost contracts, experience suggests that the State's direct involvement in project funding (and the difficulty associated with recovering that funding when projects are not completed) means the State still has a residual exposure to support the project should budget overruns occur (once other forms of contractual protections have expired). • The O&M contracting model offers limited opportunity to provide price and budget certainty during the maintenance period as they remains subject to Government funding and tendered in accordance with short-term schedule of rates maintenance contracts as per the majority of existing maintenance contracts deployed by State authorities.	• In an alliance model price and budget certainty is limited during the construction period since the Target Outturn Cost may need to change as the project develops, exposing the State to overrun risk due to the realization of risks. • The risk and cost sharing mechanisms reduce incentives to achieve on budget outcomes compared to other contract models. • From an O&M perspective this model offers a level of budget and price certainty comparable to the D&C model. • From a budget certainty perspective the alliance model is comparatively the weakest. From a budget certainty perspective the alliance model is comparatively the weakest. Based on a recent study by DTF, Victoria, "In Pursuit of Additional Value: A benchmarking study into alliancing in the Australian Public Sector": • The average increase from business case cost estimate to Actual Outturn Cost (AOC) was of the order of 45-55%.	• A DBOM model offers a lower risk of cost overruns as the price is determined upfront for the period of the contract, including capital and O&M costs. • This risk is transferred unless there are changes in scope from the State. • Despite these strengths, the DBOM model remains publically funded and does not have the benefit of a private investment discipline and controls for managing cost outcomes. This means the State still has a residual exposure to support the project should budget overruns occur (once other forms of contractual protections have expired).	• In an availability PPP model the D&C and O&M risks are transferred unless there are changes in scope from the State. • In absolute terms, whole-of-life delivery models' cost advantage was found to be economically and statistically significant. • This model offers greater certainty of cost given equity and debt at risk, which creates a buffer (for the State) for cost overruns. • A private finance discipline in brought to the project by virtue of its investors and their due diligence throughout the project's lifecycle. • Where the State decides to undertake a modification or augmentation, current PPP contracts offer stronger cost compensation controls compared to other models and therefore offers greater budget certainty.	• From a cost and risk transfer perspective the Economic PPP model offers similar levels of effectiveness to an Availability PPP. • Given toll revenue risk is transferred to the private sector under an economic PPP model it offers arguably even greater budget certainty to the State compared to models whereby the State retains toll revenue risk.
✓✓✓	✓✓✓	✓✓	✓✓	✓

D&C	Alliance	DBOM	Availability PPP	Economic PPP
Price and budget certainty				
• The majority of D&C risks are generally transferred to the constructor, however given the separation of construction and maintenance contracts, there is a lower level of consideration given to whole of life approaches to risk management. • Under this model the State retains procurement, commissioning, interface, operating and toll revenue risks related to the tolling system (equipment, software, back-office systems).	• The alliance model is suitable where material delivery risks cannot be identified, allocated and priced upfront on an efficient basis and risks are therefore best managed collectively. • NEL's construction risks are expected to be reasonably well known and therefore this model is deemed comparatively less applicable. • A key feature of this model is the ability to share risks (and consequences) between the public and private parties. Therefore, the ability of this model to provide long term financial savings (via a robust transfer of risk to the non-owner participant) is considered comparatively limited. • The State retains procurement, commissioning, interface, operating and toll revenue risks related to the tolling system (equipment, software, back-office systems).	• The long term, whole of life focus of this model is likely to allow for a more robust allocation of risks to the DBOM contractor. • However, as the D&C cost is paid in full during the delivery phase, the extent of the financial incentives for the contractor to ensure that the project's capital elements continue to perform as expected is limited to the value of any performance security and the O&M payments at risk (which is expected to be immaterial relative to the proportion of the capital works. • Under this model the State retains procurement, commissioning, interface, operating and toll revenue risks related to the tolling system (equipment, software, back-office systems).	• The long term, whole of life focus of the availability PPP model allows for a more robust allocation of design, construction and O&M risks to the private sector. • The introduction of private finance and long term financial exposure for the operator introduces higher levels of discipline and scrutiny of risk, which creates additional incentives for the contractor to deliver on performance specifications and outcomes. • Under this model the State retains procurement, commissioning, interface, operating and toll revenue risks related to the tolling system (equipment, software, back-office systems).	• An economic PPP has similar characteristics to an availability PPP, from a D&C, O&M and whole of life approach to managing risk perspective. • Under this model the Private sector retains procurement, commissioning, interface, operating and toll revenue risks related to the tolling system (equipment, software, back-office systems), which therefore mitigates the State's risk exposure. • The introduction of private finance and long term financial exposure for the operator introduces higher levels of discipline and scrutiny of risk, which creates additional incentives for the contractor to deliver on performance specifications and outcomes.
✓	×	✓	✓✓✓	✓✓✓

D&C	Alliance	DBOM	Availability PPP	Economic PPP
Innovation				
• The material opportunity for innovation relates to the design and construction methodologies for the construction works. • Variations related to innovations following contractual close are likely to be costly and may result in construction delays. • Once competitive bidding tension is removed from the process, there is less incentive for the D&C contractor to competitively price innovations. • As the O&M services are separately contracted, opportunities for the State to drive innovation that delivers whole of life benefits are expected to be limited (noting however that construction innovation is likely to be a very critical factor given the value of the capital works relative to the O&M services).	• The alliance model has a similar rationale to the D&C models in this aspect.	• As a result of a greater emphasis on achieving an efficient whole of life costing, the DBOM model provides an improved scope for design and construction innovation over the D&C and alliance models. • Flexibility for future scope changes related to innovation is similar to a D&C model during the construction phase.	• The nature of an availability PPP offers greater scope and incentive for the private sector to bid innovative solutions, which can deliver the required infrastructure and services at a lower whole of life cost. • However as the State retains toll revenue risk, there will exist a misalignment of incentives between the party operating the road compared to the party collecting tolls. This means the private operator will have less incentive to develop innovative solutions to improve the customer experience of the toll road to optimise throughput.	• The economic PPP model drives enhanced innovation as investors are incentivised to maximise throughput, maximise operational efficiency and optimise the customer experience by delivering a high quality service.
✓	✓	✓✓	✓✓	✓✓✓

D&C	Alliance	DBOM	Availability PPP	Economic PPP
Time				
• In the D&C model the procurement timeframe is expected to be shorter than in the other models examined, due to the comparatively simpler contracting requirement, which excludes operations and private financing considerations. • However, a D&C model can be sensitive to construction completion delays in circumstances where construction is complex. • Furthermore, the D&C model does not offer the same level of incentives for on-time completion (such as accessing toll revenues). • However noting that payment arrangements could be structured on a milestone completion basis and/or a portion of any milestone payments could be retained until final completion.	• The alliance model is well understood and has precedent in the Australian market, decreasing the risk of time delay in relation to the procurement phase. • However, on a comparative basis, the alliance model's risk sharing scheme reduces incentives of the private sector to achieve on time outcomes (compared to other models).	• Under a DBOM model the procurement timeframe is expected to be marginally shorter than a PPP (due to the absence of private finance) but longer than a D&C due to the inclusion of O&M considerations. • In terms of meeting construction completion timing, the risk allocation regime and contractual structure associated with this model provides reasonable incentives to achieve on time completion, i.e. comparable to a D&C.	• In the case of the availability PPP model, given the complexity of the contracting arrangement which combines construction, operations and private finance, the procurement timeframe is generally longer compared to other models. • While procurement may take longer than other options, a PPP offers the most robust contractor incentives to complete on time through a payment mechanism linked to asset availability (i.e. payment at completion).	• The economic PPP has a similar rationale to an availability PPP in terms of the time criteria, however with the added incentive of completing construction in order to commence operations and toll revenue generation.
✓✓	✓✓	✓✓	✓✓✓	✓✓✓

D&C	Alliance	DBOM	Availability PPP	Economic PPP
Operational Performance				
• Under the D&C model, when infrastructure is completed and handed over to the public sector, the O&M of the assets can be implemented using either public sector staff or through a separate contract with a private sector provider subject to an O&M agreement. • Under a D&C model with separate maintenance contract outsourced to the private sector, the amount of payment 'at-risk' to an operator is limited to its fixed and variable operating costs and its profit margin. These amounts 'at risk' are lower by comparison to other models.	• The alliance mode is similar to D&C model with a separate maintenance contract.	• Given the emphasis on whole of life operational considerations this model is expected to be more effective compared to D&C and Alliance models. • During the term of the DBOM contract, adequate provisions need to be put in place to incentivise the performance of the maintenance contractor.	• The main differentiator of the availability PPP model is that capital payments to debt and equity investors are at risk in addition to the operator's profit margin. • This payment structure provides a direct incentive to the private sector to have the road fully operational at the required standards at all times to minimise abatement risk to the service payments.	• In the economic PPP model the asset utilisation efficiency is enhanced as investors are incentivised to maximise throughput, maximise operational efficiency, performance and optimise the customer experience by delivering a high quality service. • Commercial incentives are therefore aligned between toll collection and operational performance.
✓	✓	✓✓	✓✓	✓✓✓
Simplicity				
• The D&C model presents a low degree of complexity associated with implementation, which is well understood by the market.	• The alliance model presents a low to medium degree of complexity associated with implementation, which is well understood by the market.	• The DBOM model presents a medium degree of complexity associated with implementation. • However, this model is well understood by the market and given the lack of private financing required, has been therefore ranked on an equal basis with the D&C and alliance models.	• The availability PPP presents a medium degree of complexity associated with implementation.	• The economic PPP model is considered comparable to an availability PPP.
✓✓✓	✓✓	✓✓	✓	✓

Attachment F – Public Interest Test

The Public Interest Test (PIT) has been undertaken to assess whether or not the delivery of the PPP project is in the public interest. The purpose of the PIT is to ensure that:

- Procuring the project as a PPP is in the public interest
- After a decision has been made to procure a project as a PPP, the process is structured so that the project continues to be in the public interest.

In accordance with the Partnerships Victoria Requirements (November 2016), procuring agencies are required to prepare a PIT at key stages of government approval (including prior to contract execution) to identify any changes to the public interest assessment and/or confirm that the project remains in the public interest

The Public Interest Test found that the public interest can be adequately protected through a PPP delivery of the North East Link.

Protecting the public interest		
Public interest element	Standard	Assessment
Effectiveness Is the project effective in meeting government objectives?	The project aligns with all relevant government policies and strategies and, in particular, the following key policies: • Transport Integration Act 2010 • Plan Melbourne 2017-2050 • Infrastructure Victoria, 30 year infrastructure strategy • Victorian Industry Participation Policy.	• The project is closely aligned with a number of State policy objectives, in particular, those which promote sustainable population growth and access to jobs and services. • The project objectives have been used to identify and assess various strategic and solution options to determine a preferred solution that optimises the benefits against these objectives. • Performance against these objectives has been evaluated against the KPI's defined in the Benefits Management Plan and contract documentation. • An assessment was undertaken to ensure value for money over the long term to the State. Key aspects that were assessed include project scope, the commercial offer, funding and costs, key commercial features, and procurement approach. • A Victorian Industry Participation Plan (VIPP) will apply to this project. VIPP requirements will be included in the conditions of tendering. All tenderers will be required to submit a certified Plan as part of their tender submissions. The Plan of the successful tenderer will be incorporated into the contract.

Protecting the public interest		
Public interest element	Standard	Assessment
Accountability and transparency Do the partnership arrangements ensure that: • The community can be well-informed about the obligations of government and the private sector partner • They can be overseen by the Auditor General?	The project is to comply with the Victorian Government accountability and transparency policies and obligations. These standards include: • Meeting Partnerships Victoria disclosure requirements • Meeting requirements under the Freedom of Information Act 1982 • The entitlements of the Auditor- General under the Audit Act 1994 • Observance of appropriate probity principles	• It is proposed that once approved, the business case will be released to the public, acknowledging some redactions will be required (for instance, in relation to any commercially sensitive information). • Relevant government departments and agencies including Transport for Victoria and the Department of Treasury and Finance are bound to comply with the Freedom of Information Act 1982. • A Stakeholder Engagement Plan has been developed and included in the Business Case at Appendix U. • The Auditor- General retains the right to view the project material, subject only to any limitations in the Audit Act 1994. • A probity advisor has been appointed to oversee the project procurement process.
Affected individuals and communities Have those affected been able to contribute effectively at the planning stages, and are their rights protected through fair appeals processes and other conflict resolution mechanisms?	Relevant standards include: • Following a public consultation process in relation to the Program prescribed by the appropriate planning approvals process • Undertaking an environmental impact analysis on relevant projects • Undertaking a social impact analysis on high risk projects.	• The North East Link project has undertaken extensive consultation with stakeholders including local community members, interface councils and special interest groups. The information gathered through this early consultation has assisted the selection of the corridor for the project and informed government regarding key areas of community interest and concern. • A preliminary planning, environmental and social impact analysis has been undertaken as part of this business case to identify sensitive stakeholders • NELA has developed a communications plan for external stakeholder engagement that will be implemented during the next phase of the project.

Protecting the public interest		
Public interest element	Standard	Assessment
Equity Are there adequate arrangements to ensure that disadvantaged groups can effectively use the infrastructure or access the related service?	Relevant standards include: • Disability Act 2006 and the Commonwealth Disability Discrimination Act 1992 • Disability Standards for Accessible Public Transport 2002 (DSAPT). • Racial Discrimination Act 1975 • Sex Discrimination Act 1974 • Equal Opportunities Act 1995.	• The project will be required to comply with all applicable legislation, codes and standards. • The project will require that intersections and interchanges including connections to freeways, must allow for the safe passage of cyclists and pedestrians including people with disabilities and the elderly. • The project will seek to improve walking and cycling facilities. Further consideration will be given to these users during the procurement phase. • The project will improve urban amenity by taking through traffic, particularly trucks off the local road network and residential streets. • The project will improve congestion on key arterial roads in the outer suburbs which benefits users of bus services.
Public access Are there safeguards that ensure ongoing public access to essential infrastructure?	The key standard relates to ensuring appropriate arrangements are in place to ensure ongoing access to the Program and its related infrastructure.	• During the construction phase, the State will impose controls to ensure impacts on the surrounding transport network (including the public transport network) are minimised. • During the construction phase, the State will also impose requirements to ensure impacts on access to private property and businesses are minimised. • Impacts to pedestrian and cyclist access will also aim to be minimised during construction.
Consumer rights Does the project provide sufficient safeguards for service recipients, particularly those for whom government has a high level of duty of care, and/or the most vulnerable?	• The key standards are those imposed by relevant laws • Service recipients to who government owes a high level of duty of care include children, elderly, low income earners, physically/mentally disabled, non-English speaking, overseas tourist, those not familiar with the transport system, etc.	• NELA and private sector responsible for delivery of the project will be required to comply with all applicable legislation, codes and standards • The project will provide sufficient safeguards for service recipients through: – Ongoing monitoring by the Government of the conduct of the private sector responsible for the delivery of the project – Ongoing monitoring of the private sector's dealings with the community – The Business Case contemplates that the North East Link will be operated by a private party under an availability-based PPP model, therefore State payments to the operator will be abated for underperformance and unavailability against contracted service levels

Protecting the public interest		
Public interest element	Standard	Assessment
Security Does the project provide assurance that community health and safety will be secured?	The project needs to ensure: • All relevant occupational health and safety standards are met in design • Construction and operation / maintenance stages • Government can meet its duty of care obligations to the public • Accreditation requirements.	• Safety is a critical consideration throughout all aspects of the project • The design solutions of the project are required to be compliant with all applicable legislation, codes and standards. This includes: – Occupational health and safety law – Environmental laws – Road safety standards • The performance requirements will be developed for the project including stringent standards around environmental matters • Risks to safety during the construction phase are to be managed through construction standards according to industry best standard
Privacy Does the project provide adequate protection of users' rights to privacy?	Relevant privacy standards are set out in: • Privacy Act 1988 (Cth); • Information Privacy Act 2000; • Surveillance Devices Act 1999; • Health Records Act 2001	The project will provide for protection of users' rights to privacy including through: • Appointment of a Probity auditor, who will oversee next phase of the project • Contractual obligations on all parties responsible for the delivery of the project to comply with relevant privacy laws and requirements • Government agencies involved with the project similarly observing privacy laws and requirements, including through the implementation of existing privacy policies