

CHAPTER 12

DELIVERY OPTIONS AND VALUE FOR MONEY ANALYSIS



12 DELIVERY OPTIONS AND VALUE FOR MONEY ANALYSIS

CHAPTER SUMMARY AND RECOMMENDATIONS:

- A delivery model and Value-for-Money (VfM) assessment was completed for Brisbane Metro in accordance with the Queensland Government Project Assessment Framework (PAF) Guidelines and the Building Queensland Business Case Development Framework.
- A packaging assessment to inform delivery model and VfM analysis has not yet been completed. For the purpose of the analysis, Brisbane Metro was assumed to be delivered via one single package, even though it is acknowledged there would almost certainly be multiple packages of work for Brisbane Metro.
- A Design and Construct (D&C) delivery model was chosen as the traditional delivery model to be assessed, as it is well understood by key stakeholders and provides a good basis for understanding the advantages and disadvantages of a traditional model.
- An Availability Public Private Partnership (PPP) was chosen to be the PPP delivery model to be assessed, based primarily on the fact that market (demand) risk relating to the Brisbane Metro is unlikely to be able to be transferred to the private sector, given the Queensland Government's responsibility for public transport delivery and revenue collection.
- Potential operating model options were considered at a high level during the VfM assessment and were reflected in the assessment scoring, where applicable. Key considerations included the role of TransLink and Brisbane City Council based on current contracting arrangements, and the level of private sector involvement.
- The two models were assessed against five VfM drivers, namely output based service requirement encouraging innovation, risk allocation, whole of life costing, asset utilisation and competitive market factors.

12.1 Purpose and Overview of this Chapter

The purpose of this chapter is to outline the qualitative evaluation of delivery models for Brisbane Metro and consider whether the opportunity for private sector investment exists or whether the Brisbane Metro should be delivered under a traditional government delivery model.

This chapter outlines:

- The methodology used to complete the delivery model and VfM analysis for the Brisbane Metro
- A suite of potential delivery models that could be utilised to deliver the Brisbane Metro, and the preferred traditional model and PPP model to be used to complete the VfM assessment
- The outcomes of the VfM assessment and conclusions drawn from the results.

Consideration of the method by which a project will be delivered is a critical step in Business Case. It is important to acknowledge which method/s will best balance the control of project cost and risk against achieving project objectives and outcomes. The analysis completed in

the Business Case provides a sound base for further detailed delivery model and VfM analysis to be completed, which in turn will inform procurement and project implementation planning.

12.2 Methodology

In accordance with the Queensland Government PAF Guidelines and the Building Queensland Business Case Development Framework, a delivery model options assessment is required. At this stage, qualitative VfM assessment is undertaken on the merits of a PPP delivery model versus a traditional delivery model.

The delivery model and VfM analysis methodology takes into consideration the work undertaken on Brisbane Metro to date and is reflective of the requirements of State and National Guidelines. The methodology applied comprises two key phases:

- Phase 1: Identify and agree the traditional and PPP delivery model/s via desktop analysis to include in a qualitative VfM assessment.
- Phase 2: Undertake a qualitative VfM assessment on the selected traditional and PPP delivery models, resulting in a recommendation for which delivery model options should be taken forward for further assessment.

12.2.1 Evaluation Criteria and Scoring Mechanism

A set of evaluation criteria was agreed at the delivery model and VfM workshop, based on the suggested VfM drivers presented in the PAF. Consideration was also given to the strategic objectives and outcomes sought for the Brisbane Metro, as well as the technical characteristics of Brisbane Metro.

Table 12.1 presents the VfM drivers, supported by a short description of each driver.

VFM DRIVER	DESCRIPTION AND OTHER CONSIDERATIONS
Output based service requirement encouraging innovation	<p>Output-based service requirements tend to create an environment that encourages innovation from the private sector. Where the private sector must provide facilities to meet an output-based service requirement, innovative solutions may be possible.</p> <p>In determining the potential for VfM to be derived in this area, key questions include:</p> <ul style="list-style-type: none"> • Is the project suited to an output-based specification? • Are the output requirements easily defined and able to be measured in terms of performance? • Is there potential for the private sector to provide innovative solutions to the Queensland Government's requirements?
Risk allocation	<p>VfM is maximised by optimal risk allocation. Risk should be allocated to the party best able to manage it. Such optimal allocation reduces individual risk premiums and the overall cost of a project, because the party in the best position to manage a particular risk should be able to do so at the lowest price.</p> <p>In determining the potential for VfM to be derived in this area, key questions include:</p> <ul style="list-style-type: none"> • Are the risks well understood and able to be articulated? • Are there risks that are able to be better managed by the private sector under a PPP solution? • Is it possible to achieve optimal risk transfer (e.g. price certainty) under a PPP delivery option or are there likely to be subsequent significant variations or scope changes? • Will the private sector be able to price the risks efficiently or is it likely that there will be a significant risk premium included in the private sector's pricing under a PPP solution?
Whole-of-life costing	<p>Integration between design, construction, operations and maintenance under a PPP delivery can provide the incentive to achieve lower whole-of-life costs. The basic</p>

VFM DRIVER	DESCRIPTION AND OTHER CONSIDERATIONS
	<p>principle is that, under traditional delivery, if the design and construction roles are separated from the operations and maintenance roles, there is no incentive for one to minimise the costs of the other. Under a PPP arrangement, the central contractor has an incentive to ensure an optimal mix of construction and ongoing costs.</p> <p>In determining the potential VfM to be derived in this area, key questions include:</p> <ul style="list-style-type: none"> • Will a PPP solution offer the opportunity for a more efficient capital versus ongoing expenditure mix due to the PPP solution being viewed as a package, rather than as separate projects (e.g. design and construction, operation and maintenance)? • Does the project include a significant operating expenditure component?
Asset utilisation	<p>An assessment of the potential and scale of the private sector to achieve additional revenue should be undertaken.</p> <p>In determining the potential VfM to be derived in this area, key questions include:</p> <ul style="list-style-type: none"> • Does the asset offer the opportunity to achieve additional revenue? (This might include sale of excess land or revenue from station advertising)
Competitive market	<p>A key mechanism for achieving VfM is a competitive bidding process.</p> <p>In determining the potential for VfM to be derived in this area, key questions include:</p> <ul style="list-style-type: none"> • Are there a number of private sector bidders for this type of project? • Is there a strong market appetite to participate in the project?

Table 12.1 – VfM analysis drivers

The scale used to complete the VfM assessment is presented in Table 12.2.

SCORE	NOTES
✓✓✓	The driver represents excellent scope for value generation
✓✓	The driver represents reasonable scope for value generation
✓	The driver represents some scope for value generation
✘	The driver represents no scope for value generation

Table 12.2 – VfM analysis scoring scale

12.2.2 Assessment assumptions and limitations

There are a number of key assumptions and limitations which were taken into consideration during the assessment process, including:

- A packaging assessment has not yet been completed. For the purpose of the initial delivery model and VfM workshop, the Brisbane Metro was assumed to be delivered via one single package.
- The assessment did not consider the impact of any potential expansion to the existing busway system in the future.
- It has been assumed that one party would be responsible for the operation of new services, but the form this responsibility could take has not been considered in detail.
- Construction would require staging; as existing busway operations need to continue.
- There is a lack of precedence in the Australian market for a project of this nature.
- For selected delivery options, it is assumed the patronage risk remains with Council. Regardless of the delivery model, if Council sought to expand services, additional operations funding would not automatically be received from the State; but would need to be negotiated between Council and TransLink.

These assumptions will be re-visited during further assessment.

12.3 Identification of Delivery Models

12.3.1 Delivery Model Background

12.3.1.1 Traditional Delivery Model

Under a traditional delivery model, a contractor is engaged by Government to design and construct, or just construct the infrastructure asset, based on a design brief supplied by the project owner.

The contractor either uses in-house design resources to prepare the design, or bids as part of a consortium that includes external designers. Common variants of the traditional delivery model include: construct only (CO); D&C; design, construct and maintain (DCM); design, construct and operate (DCO); and design, construct, maintain and operate (DCMO).

There are also other traditional delivery models such as: early contractor involvement (ECI) with a D&C contract; a competitive alliance (CA) and a managing contractor (MC).

In a typical traditional delivery model project:

- Under a D&C, the contractor commits to design and construct the asset
- Under a DCM, DCO or DCMO, the contractor is also responsible for post-construction maintenance and/or operation of the asset for a designated time period (commonly at least 10 years) at agreed prices.

Figure 12.1 provides a diagrammatical summary of elements of a typical traditional delivery model.

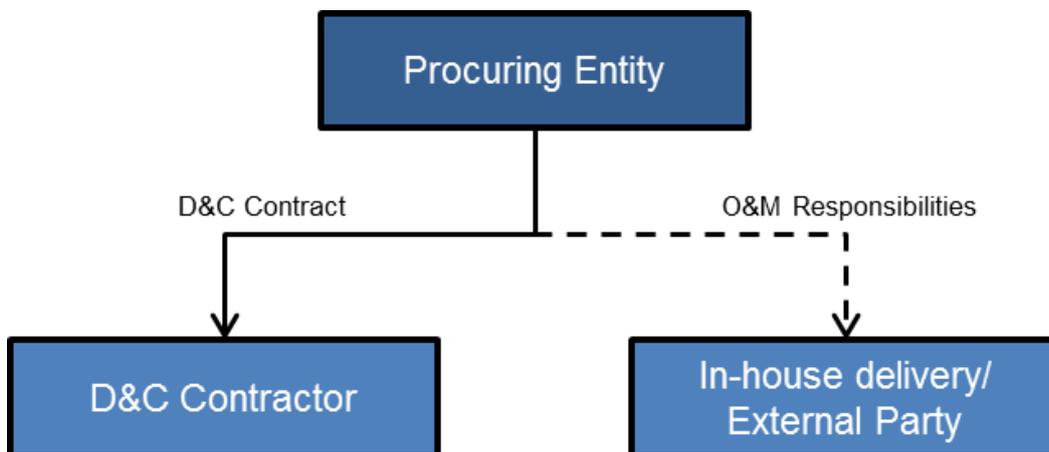


Figure 12.1 – Traditional Delivery Model Structure

Table 12.3 presents the key advantages and disadvantages relating to a traditional delivery model.

ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none"> • Single point of accountability if single contractor is engaged for whole scope. • Procuring entity retains control of performance 	<ul style="list-style-type: none"> • Procuring entity carries funding risk. • Limited incentives for D&C contractor to consider whole-of-life cost impacts.

<p>and quality requirement specification.</p> <ul style="list-style-type: none"> • D&C models are very common and well understood by the infrastructure market. • Procuring entity accesses revenue upside (and downside). • Promotes simplified and conclusive communication to the public. 	<ul style="list-style-type: none"> • Success relies on well-defined and functional service specifications. • Requires departmental skills (or consultants) for financial and technical assessment, tendering and management. • Potential to restrict Principal's ability to source innovative designs.
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Table 12.3 – Advantages and Disadvantages of utilising a Traditional Delivery Model

12.3.1.2 PPP Delivery Model

A PPP is a service contract between the public and private sectors where the Government pays the private sector (typically a consortium) to deliver infrastructure and other related services over the long term. The private provider generally designs, constructs, maintains and finances the project infrastructure to specified standards over a pre-determined period of time.

There are a number of types of PPP delivery models including: Build, Own and Operate (BOO); Build, Own, Operate and Transfer (BOOT); and Availability Payment model (where government retains the demand risk and the consortium receives payments from government, in return for delivering, operating and/or maintaining the infrastructure).

Other types of PPP delivery models can include: design, construct, finance and maintain (DCFM); and design, construct, finance, maintain and operate (DCFMO).

In a typical PPP project, the Government:

- Prepares an output-based specification, rather than prescriptive input requirements
- Engages a private sector partner to design, finance, construct, operate and/or maintain the infrastructure over a long term concession period (e.g. 20 to 50 years)
- Under an Availability Payment model, provides payments over the term of the contract based on the infrastructure's availability and the achievement of key performance indicators
- Uses the available infrastructure to provide services, either through in house operation of the service or via a separate operations agreement
- Eventually takes back ownership of the infrastructure at a specified handover quality/standard.

Figure 12.2 provides a diagrammatical summary of elements of a typical PPP delivery model.

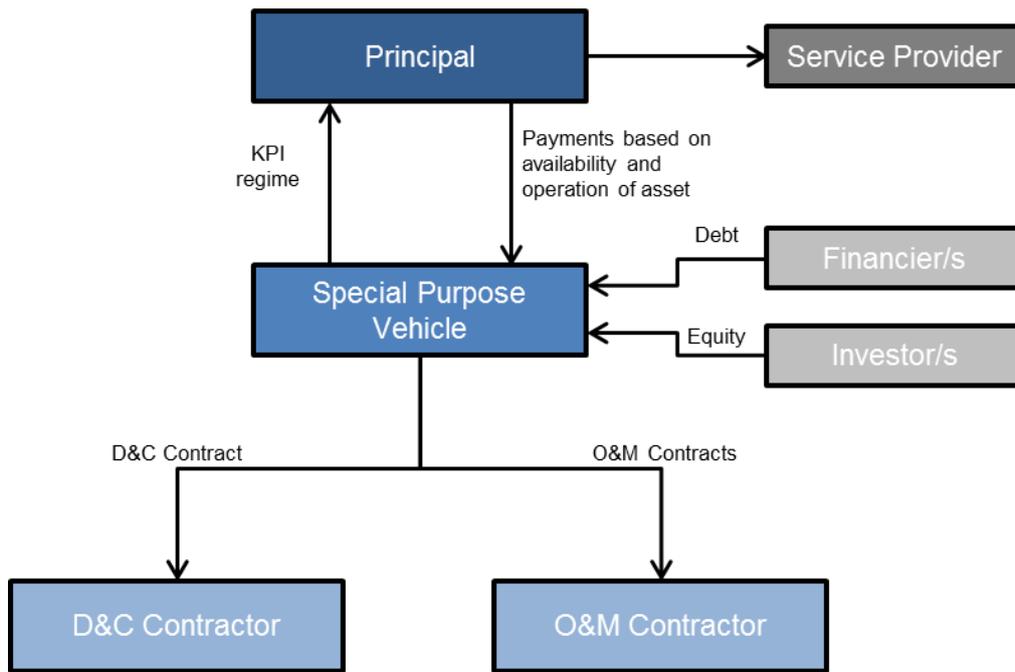


Figure 12.2 – PPP Delivery Model Structure

Table 12.4 presents the key advantages and disadvantages relating to a PPP delivery model.

ADVANTAGES	DISADVANTAGES
<ul style="list-style-type: none"> • Single point of accountability. • Full integration of design, construction, financing, infrastructure operations and maintenance and refurbishment responsibilities. • Potential for greater transfer of risk to the private sector. • Opportunity to develop innovative solutions. • Transfer of lifecycle cost risk encourages efficient design, quality construction and finishes. • Potential for lower cost of asset development and service provision. 	<ul style="list-style-type: none"> • Success relies on well-defined functional and service specifications. • Changes to design or specification post award may require significant contract negotiations. • State carries risk that the overall design and fit-for-purpose may not meet service requirements if poorly specified. • Potential for higher departmental tendering costs. • Requires departmental skills (or consultants) for financial and technical assessment, tendering and management. • Return on investment required by private sector may not deliver VfM if little risk is transferred.

Table 12.4 – Advantages and Disadvantages of utilising a PPP Delivery Model

12.3.2 Preferred Models for Assessment

A D&C delivery model was chosen as the traditional delivery model to be assessed as it is well understood by key stakeholders and provides a good basis for understanding the advantages and disadvantages of a traditional model. Models incorporating a facility operations or maintenance component were excluded from the initial assessment, based on the assumption of Brisbane Metro being assessed as a single package, due to the large proportion of existing infrastructure within the project scope, and the difficulty that could be anticipated with the numerous greenfield/brownfield interface points.

An Availability PPP was chosen to be the PPP delivery model to be assessed. The key factors that influenced this selection at this stage include:

- 'Operations' for the purposes of a PPP model may only include operation of the infrastructure (facilities) e.g. new tunnel, platform extensions or depot; not operating the metro vehicles themselves. Responsibility for the operation of the metro vehicles is assumed to remain with Transport for Brisbane (or another contracted service provider).
- Market (demand) risk is unlikely to be able to be transferred to the private sector given the Queensland Government's responsibility for public transport delivery and revenue collection.

For these reasons, a PPP incorporating service operations was not considered during this stage of assessment.

12.4 Operations Arrangements for Brisbane Metro

Prior to completing the VfM assessment, consideration was given to the operation of Brisbane Metro and how this may influence the VfM assessment.

12.4.1 Current arrangements between Council and TransLink

Under the *Transport Operations (Passenger Transport) Act 1994*, TransLink has responsibility for public transport services, ticketing and infrastructure across Queensland. Currently Council (through Transport for Brisbane) is a contracted service operator of passenger transport for TransLink in the Brisbane area, excluding the receipt of revenues (except onboard cash receipts which are remitted to TransLink). The current contractual arrangement for Brisbane bus services between TransLink and Council is represented in Figure 12.3.

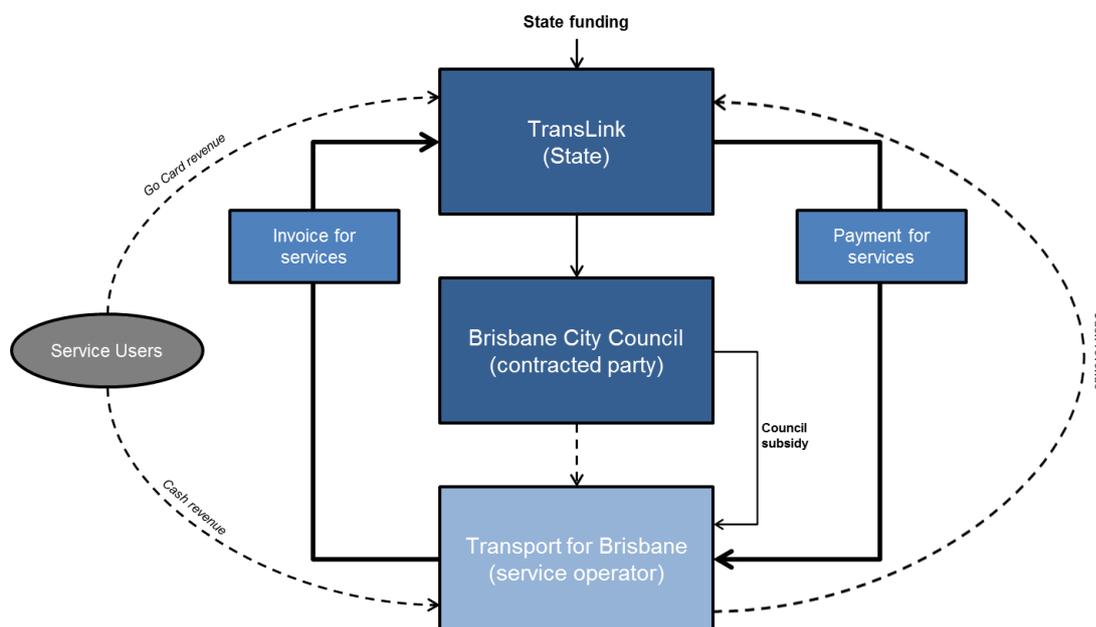


Figure 12.3 – Current bus contract arrangement between Council and TransLink

12.4.2 VfM Considerations

Based on the current operating contracts between TransLink, Council and Transport for Brisbane, the new Brisbane Metro vehicle operations could be contracted by TransLink via a number of potential options, including:

1. Incorporating the changes and additional services into the existing Council service contract

2. Establishing a new service contract and operator
3. Modifying/replacing the existing Council contract for service changes, and allowing Council to outsource the operations component to a third party.

These operational model options were considered at a high level during the VfM assessment and were reflected in the assessment scoring, where applicable.

12.5 Assessment of Delivery Models

With the preferred traditional delivery model and PPP delivery model confirmed, and consideration of operations models completed, a comparative VfM assessment was completed. Table 12.5 presents the results of the Brisbane Metro VfM assessment.

VFM DRIVER	DELIVERY MODEL		COMMENTARY
	<i>Traditional Model (D&C)</i>	<i>PPP Model (Availability Payment)</i>	
Output based service requirement encouraging innovation	✓	✓✓	<p>The traditional model has some potential to add additional KPIs that drive innovation in a D&C contract; however proponents have the potential to be motivated by price drivers, resulting in the delivery of a less innovative design.</p> <p>The PPP model has greater potential to leverage external best practice and expertise, including innovative approaches to infrastructure solutions. Historically, PPP models can provide an opportunity for intuitive private sector consortiums to develop a range of solutions, and address technical challenges.</p> <p>The development of output based specification may require larger lead times and can be complex. It requires clear direction on output specifications by the procuring entity, which may be difficult especially when Brisbane Metro will interact with existing bus fleet.</p> <p>The requirement to identify and manage the potentially broad range of interfaces between Council and Queensland Government owned assets may also potentially restrict innovative designs.</p>
Risk allocation	✓✓	✓	<p>The traditional model allows for greater flexibility for dealing with any uncertainties in the future. In particular for Brisbane Metro, operations risk will likely be retained by the procuring entity which will help with service flexibility and interfaces with Transport for Brisbane and TransLink.</p> <p>However the traditional model results in a higher level of retained risk to the public sector. Risks around timing delays can be transferred, but the incentive is not as high compared to the PPP model.</p> <p>Under a PPP model, higher levels of risk can be transferred to the private sector and providers are incentivised to finish the project on time (depending upon contract form) relative to traditional delivery as a result of bearing financial obligations to financiers.</p> <p>However the market may not accept the terms of risks transferred in the PPP contract (e.g. aged brownfield asset condition) or alternatively the public sector may be required to pay a premium when transferring some project risks to the private sector (e.g. operating on the existing busway inter-mingled with other services) which would result in higher costs for the public sector.</p> <p>Furthermore, under the PPP model, there may be high costs associated with contract variations limiting flexibility if requirements change for Brisbane Metro (e.g. a route extension).</p>
Whole-of-life costing	✓	✓✓	<p>Depending on the size of the contractor, the traditional model has some potential to deliver economies of scale. However, without an emphasis on whole-of-life costs, a D&C contractor would have little incentive to take a long-term view beyond the initial design and construct costs of the infrastructure for Brisbane Metro.</p> <p>A PPP model can have the potential for lower whole-of-life costs through project delivery and private sector experience in managing similar assets. However increased performance standards specified in the Brisbane Metro PPP contract may increase the whole of life costs.</p>

VFM DRIVER	DELIVERY MODEL		COMMENTARY
	<i>Traditional Model (D&C)</i>	<i>PPP Model (Availability Payment)</i>	
Asset utilisation	*	*	<p>Control over scheduling for Brisbane Metro and the different public transport linkages between services is retained by the public sector under the traditional delivery model. However there would be specific Queensland and local government complexities to address around the utilisation of the new public transport assets and services.</p> <p>A PPP model may provide some commercial capacity to drive revenue from new Brisbane Metro assets, including innovation in design to better utilise the assets.</p> <p>However as under the traditional model, there are inter-governmental complexities around asset utilisation, and historical trends indicate that the market has limited interest in driving additional revenue from assets, with the cost of implementation usually outweighing anticipated returns.</p>
Competitive market	✓✓	✓	<p>There is a large competitive market for delivery under traditional models, including a broad range of second tier market participants potentially able to deliver Brisbane Metro.</p> <p>There are a number of mature private sector (contractors and consortiums) that have recent experience delivering large transport solutions in Australia (e.g. Gold Coast Light Rail, Sydney Light Rail, Capital Metro).</p> <p>However there may be reduced PPP market interest due to the capacity of market, with significant projects currently underway in New South Wales and Victoria.</p> <p>The size of the PPP contract, as well as the numerous interface complexities may reduce market interest in Brisbane Metro.</p>

Table 12.5 – Brisbane Metro VfM Assessment Results

Based on the assessment undertaken, it may be concluded that the traditional model:

- Offers reasonable opportunities to drive a VfM outcome in respect of risk allocation and competitive market in the context of the Brisbane Metro
- Offers some opportunities to drive a VfM outcome in respect of innovation and whole-of-life costing in the context of the Brisbane Metro
- Offers no opportunities to drive a VfM outcome in respect of asset utilisation in the context of the Brisbane Metro.

In comparison, based on the assessment undertaken, it may be concluded that the PPP model:

- Offers reasonable opportunities to drive a VfM outcome in respect of innovation and whole-of-life costing in the context of the Brisbane Metro
- Offers some opportunities to drive a VfM outcome in respect of risk allocation and competitive market in the context of the Brisbane Metro
- Offers no opportunities to drive a VfM outcome in respect of asset utilisation in the context of the Brisbane Metro.

The key factors that impacted the PPP delivery model results included:

- Demand risk will remain with Council and there will be a high level of public sector retained risk
- There is difficulty in transferring risks associated with existing brownfield assets intended for upgrading
- Interface risks between Council, the Queensland Government and the contractor will be difficult to manage
- The busway operating environment would make it difficult to achieve risk transfer at a reasonable price.

Investigations will continue to explore delivery model, VfM must always be of paramount importance.

12.6 Recommendations and Next Steps

The VfM assessment of the Brisbane Metro has concluded that additional delivery model and VfM analysis is required. Therefore, it is recommended both the PPP and traditional delivery options proceed to further assessment.