



Parramatta Light Rail (Stage 2)  
Parramatta to Sydney Olympic Park

# Scoping Report



November 2018

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# Executive summary

## Purpose of this Scoping Report

This Scoping Report has been prepared to support a State significant infrastructure application for the proposed Stage 2 Parramatta Light Rail (PLR) corridor as described below, and to assist the formulation of Secretary's environmental assessment requirements (SEARs) by the Department of Planning and Environment. This report seeks SEARs related to the PLR Stage 2 corridor only, to inform a concept level Environmental Impact Statement (EIS).

## Background

The Greater Parramatta and Olympic Peninsula (GPOP) priority growth area is one of Sydney's fastest growing areas. In the next 23 years, the population of the GPOP priority growth area will undergo substantial growth, with forecasts predicting the GPOP priority growth area will accommodate almost 170,000 new residents and an additional 102,500 jobs by 2041 (SGS, 2017).

The Parramatta Light Rail (PLR) network will deliver an integrated light rail service that supports population and employment growth as well as the additional development expected throughout the GPOP priority growth area. The light rail will also integrate with existing and future modes of transport including buses, trains, ferries and active transport across the area as well as future metro services and the existing road network.

Stage 2 of PLR (the Project) was announced in October 2017 with the preferred route connecting to Stage 1 at Rydalmere and running north of the Parramatta River through the rapidly developing suburbs of Ermington and Melrose Park, before crossing the Parramatta River at Wentworth Point and continuing to Sydney Olympic Park. An option for extending east through Camellia before crossing the Parramatta River to Rydalmere is also being considered.

PLR Stage 2 follows approval of Stage 1 in May 2018 – a 12 kilometre two-way light rail system connecting Westmead, Parramatta CBD and Carlingford. Procurement and early works for Stage 1 is underway with operations planned to commence in 2023.

## Key features of the Project

The key features of the Project include:

- a new light rail line extending about 10 kilometres, with at least 10 to 12 stops that forms part of the overall Parramatta Light Rail network
- turn-up-and-go light rail services between Parramatta Square and the Carter Street Precinct at Sydney Olympic Park
- up to two Parramatta River bridge crossings, one bridge over Silverwater Road and one viaduct over Ken Newman Reserve in Ermington
- the potential conversion of additional sections of the existing disused freight rail corridor in Camellia to light rail
- active transport infrastructure that links into the existing cycling and pedestrian network
- urban design features integrated with the light rail design and stop precincts
- integration with the wider transport network, including improvements to local bus and special event services with selected routes using the proposed bridge between Melrose Park and Wentworth Point

- interchanges with existing rail, bus and ferry facilities and the proposed Sydney Metro West
- alterations to the road network to accommodate the Project
- construction of substations to provide electricity for the Project
- track infrastructure including overhead wiring.

Detailed planning for the Project is ongoing with an investment decision expected in 2019.

## Project benefits

PLR Stage 2 will be a transformative transport project that supports future growth and significantly improves the way people connect within the growing GOP priority growth area. It will encourage new and more diverse housing, support increased population densities, and provide important connections to the existing heavy rail and future Sydney Metro West stations in Parramatta and Sydney Olympic Park.

The Project will be part of an integrated land use and transport solution for the GOP priority growth area that will deliver the following benefits:

- builds upon the approved PLR Stage 1 project that connects Westmead, Parramatta CBD and Carlingford via Camellia and contributes to transport services within the GOP priority growth area
- supports population and employment growth
- addresses current car dependency
- improves connectivity between precincts and attracts investment
- provides much needed public transport and active transport connections.

## Corridor protection and staged approval approach

The concept design of the Project is being developed to optimise the overall benefits of the transport corridor and achieve the best integration with existing and planned urban development and transport links.

Early protection of the Project corridor is essential to enable the design development and associated investment to move forward with confidence. There is also a need to protect the Project corridor to ensure that proposed and future development is planned to achieve integrated land use and transport outcomes.

The Project design will continue to progress to enable planning approval to be sought for construction and operation. In the meantime, to address the need for corridor protection as discussed above, and to ensure certainty in development of the Project it is proposed that Transport for NSW undertake a staged State significant infrastructure process. Section 5.20(1) of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) provides for this approach, which will be undertaken as outlined below:

1. **Corridor Environmental Impact Statement (EIS):** preparation of an initial concept level EIS which will gain approval for the proposed Project corridor. This EIS will not seek approval for construction or operation of the light rail.
2. **PLR Stage 2 EISs:** following approval of the business case and availability of adequate design and delivery strategy, detailed PLR Stage 2 EISs will be prepared for Project construction and operation. The timing of this process is yet to be determined.

## Key environmental issues: Corridor EIS

The preliminary environmental risk analysis undertaken for the Corridor EIS has identified the following 'Key' environmental issues:

- traffic, transport and access
- biodiversity
- non-Aboriginal heritage
- Aboriginal heritage
- land use and property
- social impacts and community infrastructure
- hazard and risk (key electrical, contamination and water infrastructure).

Assessment of other relevant issues at a level of specificity possible and appropriate at the concept stage will be undertaken as part of the Corridor EIS.

A preliminary environmental risk assessment was also undertaken for the PLR Stage 2 EISs relevant to Project construction and operation, to identify the likely Key, Other and Non-material matters however these will be re-assessed prior to undertaking the PLR Stage 2 EISs.

## Next steps

Following receipt of the SEARs, Transport for NSW will prepare and publicly exhibit an EIS for the Corridor, which will be prepared in accordance with the SEARs and technical guidelines and will include:

- a description of the corridor and key light rail infrastructure elements
- identification and consideration of issues raised by stakeholders and the community
- a description of the existing environment
- an assessment of impacts associated with establishing a light rail corridor on the key environmental issues and consideration of other environmental issues
- identification of strategies to avoid, minimise and mitigate the potential impacts of the Project
- scoping of key and other issues for the PLR Stage 2 EISs and subsequent assessment of potential impacts and mitigation.

# 1. Introduction

*This chapter provides an overview of Parramatta Light Rail, the Project and the staged planning approval approach. The structure of this report is also provided.*

## 1.1 Background

The Greater Parramatta and Olympic Peninsula (GPOP) priority growth area, a 40 square kilometre area extending from Westmead and Parramatta in the west to Sydney Olympic Park to the east is one of Sydney's fastest growing areas. In the next 23 years, the population of GPOP priority growth area will undergo substantial growth, with forecasts predicting the GPOP priority growth area will accommodate almost 170,000 new residents by 2041. Employment opportunities in the GPOP priority growth area will also grow, with an additional 102,500 jobs predicted by 2041 (SGS, 2017).

The Parramatta Light Rail (PLR) network will deliver an integrated light rail service that supports population and employment growth as well as the additional development expected throughout the GPOP priority growth area. The light rail will also integrate with existing and future modes of transport including buses, trains, ferries and active transport across the area as well as future metro services and the existing road network.

The PLR network will be delivered in stages to keep pace with the thousands of new houses and jobs expected in Western Sydney. In February 2017, the NSW Government announced the preferred route for Stage 1 of PLR – a 12 kilometre two-way light rail system connecting Westmead, Parramatta CBD and Carlingford. Procurement and early works for Stage 1 are underway with operations commencing in 2023.

In October 2017, the NSW Government announced the preferred route for PLR Stage 2. It will connect to Stage 1 via the rapidly developing suburbs of Ermington, Melrose Park and Wentworth Point to Sydney Olympic Park, and provide a new public transport option to this booming sport, entertainment and employment precinct. An option for extending east through Camellia before crossing the Parramatta River to Rydalmere is also being considered.

PLR Stage 2 (the Project) will be a transformative transport project that supports future growth and significantly improves the way people connect within the GPOP priority growth area. It will encourage new and more diverse housing, support increased population densities, and provide important connections to the existing heavy rail and future Sydney Metro West stations at Parramatta and Sydney Olympic Park.

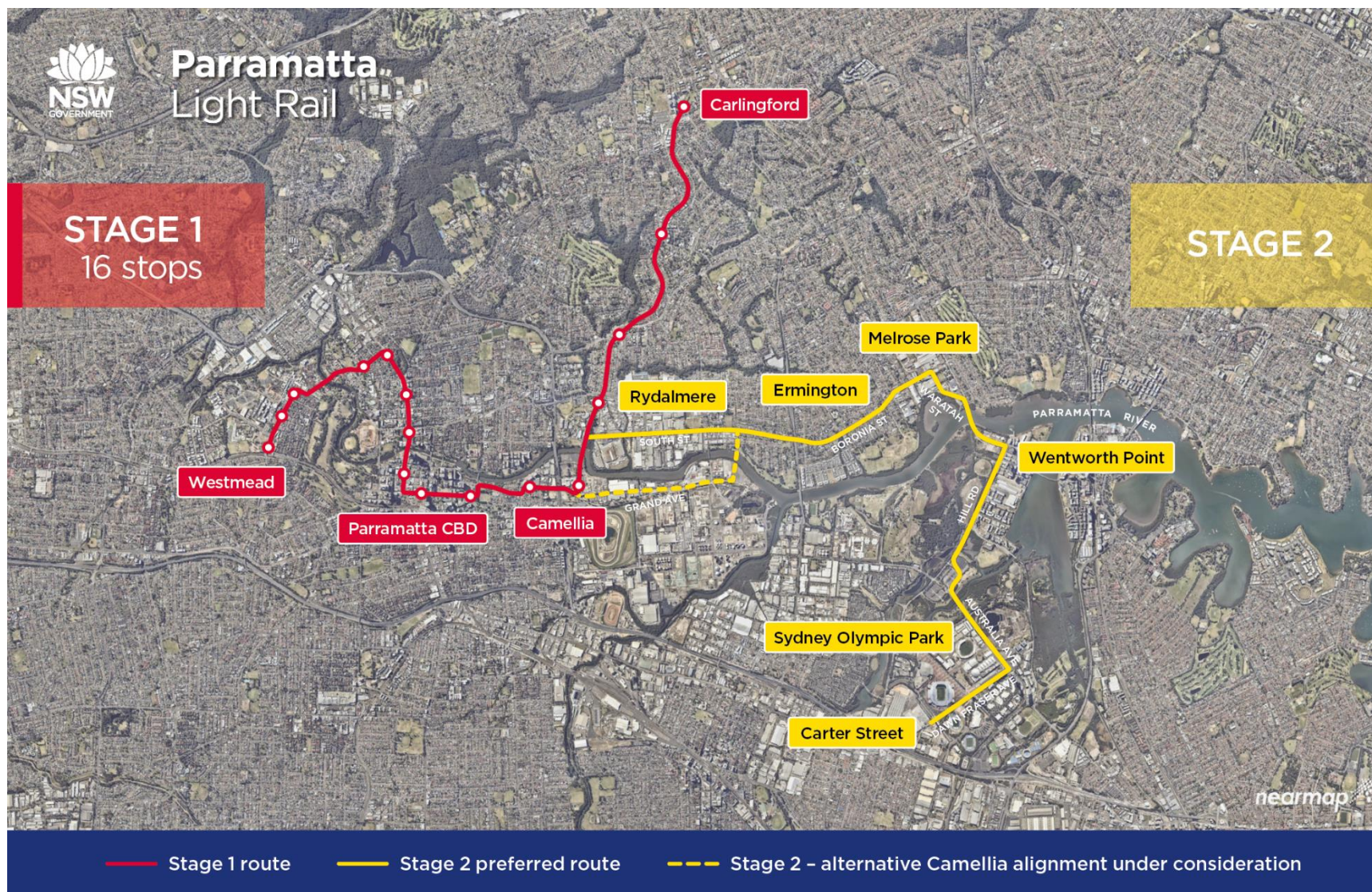
Figure 1.1 provides an overview of the PLR network showing both Stage 1 and the corridor for Stage 2. Further information regarding the Project is provided in Chapter 5.

## 1.2 Purpose of the Scoping Report

This Scoping Report has been prepared to support a State significant infrastructure application for the proposed Project corridor, and to assist the formulation of Secretary's environmental assessment requirements (SEARs) by the Department of Planning and Environment in accordance with sections 5.15 and 5.16 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

This report seeks SEARs related to the proposed Project corridor only. As described in Section 1.5 construction and operational impacts will be further detailed and assessed as part of future PLR Stage 2 Environmental Impact Statements (EISs) to be prepared following approval of the Corridor EIS.





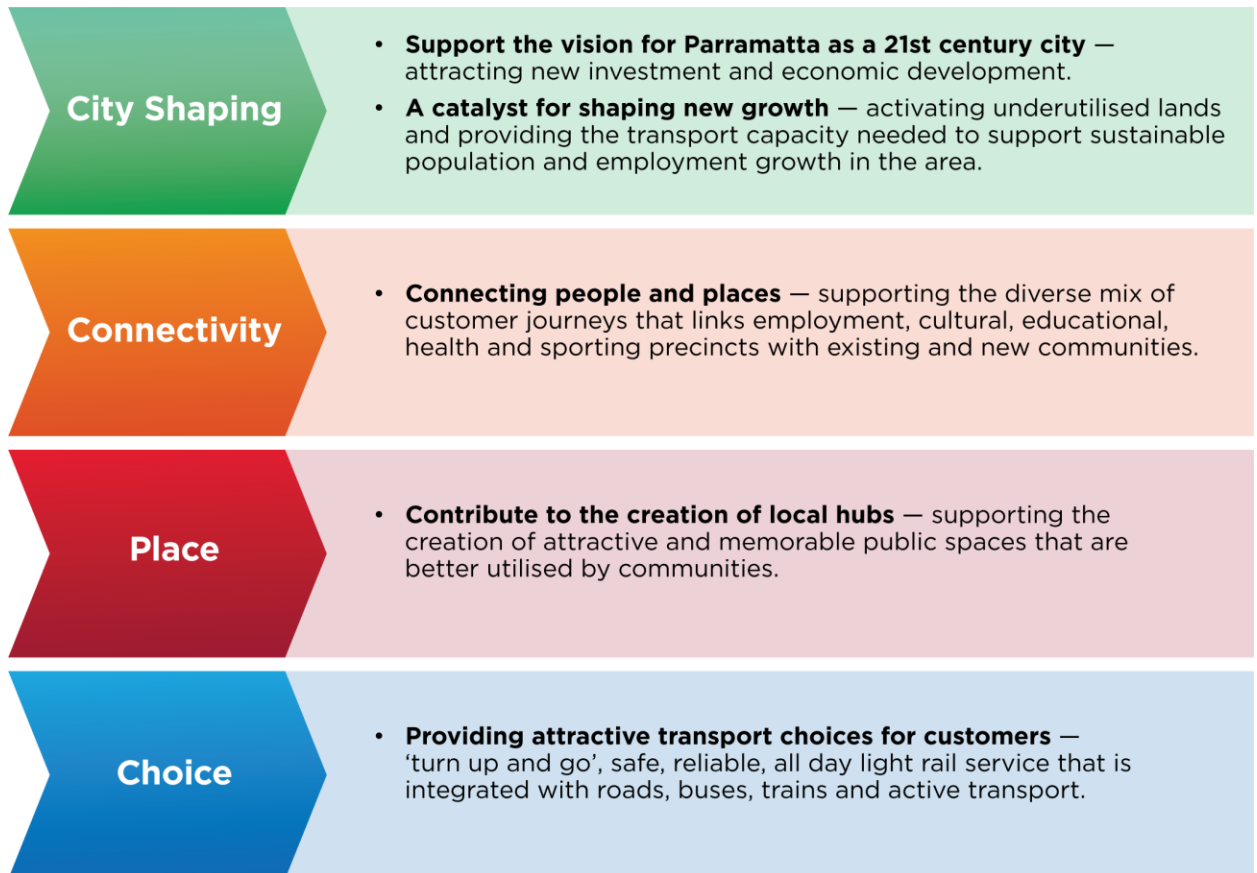
**Figure 1.1 Parramatta Light Rail network overview**



### 1.3 PLR objectives

The vision for the whole PLR network is to *deliver integrated light rail services that support the NSW government's vision for the GPOP priority growth area.*

Five project objectives across the four category areas of city shaping, connectivity, place and choice underpin this vision. These objectives are shown in Figure 1.2.



**Figure 1.2 PLR objectives**

Development of the Project has been informed by the PLR network's vision and objectives, as demonstrated by the Project benefits which are discussed further in Chapter 2.

### 1.4 Need for corridor protection

The Project corridor will connect key employment centres within the GPOP priority growth area and areas of current and planned urban renewal. It will be an integrated transport corridor containing both light rail and active transport, including pedestrian and cycling connections. It is also designed to interchange with local and regional bus services, ferry services and the planned Sydney Metro West. The design of the Project is still being developed to optimise the overall benefits of the transport corridor and achieve the best integration with existing and planned urban development and transport links.

Development of the Project design will continue to progress to enable planning approval to be sought for construction and operation. In the meantime, to address the need for corridor protection a staged State significant infrastructure approval process is proposed. This will involve the preparation of a Corridor EIS to ensure the corridor is protected followed by PLR Stage 2 EISs for approval of construction and operation. This process is described further in Section 1.5 below.

Early protection of the Project corridor is essential to enable the design development and associated investment to move forward with confidence.

Benefits include:

- early public recognition of the Project alignment, providing clarity for the community and key stakeholders, including land owners and developers
- enabling relevant approval authorities to consider light rail in future planning and development approvals and ensure integrated land use and transport outcomes for the transport corridor
- ability to optimize the overall social benefit of the Project through early integration of the light rail corridor in developments (during their planning phase) and responding to stakeholder issues raised
- better management of cost and risk in the long term for developments proposed along the alignment through early integration of the project corridor in development proposals
- improved certainty in planning of related road and/or transport projects.

## **1.5 Staged approval approach**

Transport for NSW has formed the view that the Project is likely to significantly affect the environment and therefore requires the preparation of an EIS.

The key issues that inform this view are:

- Traffic, transport and access – potential impacts include changes to the local road network (including during special events at Sydney Olympic Park), bus routes and loss of parking.
- Biodiversity – potential impacts to high quality native vegetation communities, threatened ecological communities, threatened flora and fauna and estuarine ecosystems (Parramatta River and various creeks).
- Non-Aboriginal heritage and Aboriginal heritage – potential to impact known and unknown heritage items and areas of archaeological potential.
- Land use and property – potential impacts include property acquisition and induced land use changes by acting as a catalyst for shaping new growth and connecting areas proposed for urban renewal.
- Social impacts and community infrastructure – potential benefits include access to an improved and integrated public transport system including an active transport corridor. Potential impacts relate to social dislocation due to induced land use changes and property acquisition.
- Hazard and risk – the alignment will be close to key utilities including fuel pipelines, high pressure gas mains and water mains.

Clause 14 and Schedule 3 of *State Environmental Planning Policy (State and Regional Development) 2011* (the State and Regional Development SEPP) operate to make the Project State significant infrastructure. Therefore, the Project will be subject to assessment and approval by the Minister for Planning under Division 5.2 of the EP&A Act.

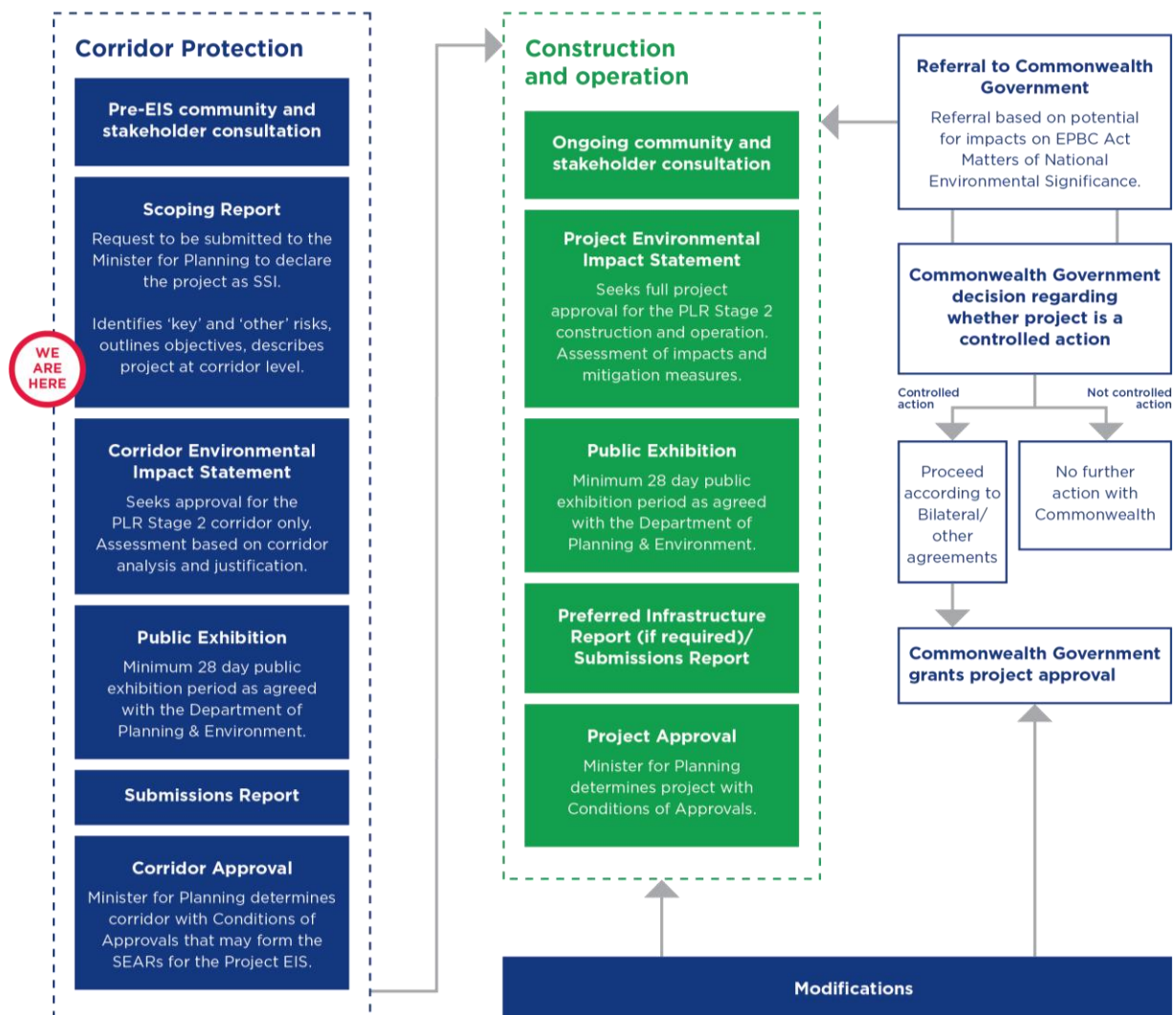
Under the EP&A Act there is provision to undertake staged State significant infrastructure applications. Specifically, section 5.20 (1) of the EP&A Act specifies that:

*For the purposes of this Division, a staged infrastructure application is an application for approval of State significant infrastructure under this Division that sets out concept proposals for the proposed infrastructure, and for which detailed proposals for separate parts of the infrastructure are to be the subject of subsequent applications for approval. The application may set out detailed proposals for the first stage.*

Due to the need to obtain early corridor protection it is proposed to undertake a staged State significant infrastructure process as outlined below and shown in Figure 1.3.

- **Corridor EIS:** preparation of an initial concept level EIS which will gain approval to protect the proposed Project corridor. This EIS will not seek approval for construction and operation of the light rail.
- **PLR Stage 2 EISs:** following approval of the business case and availability of adequate design and delivery strategy, detailed PLR Stage 2 EISs will be prepared for the construction and operation of the Project. The timing of this process is yet to be determined.

Further information regarding this process is provided in Section 1.6.



**Figure 1.3 Statutory pathway**

## 1.6 Staged State significant infrastructure process

The Corridor EIS will focus on issues that relate to defining a corridor for preservation and issues that could impact the Project alignment within the corridor. Impact assessment undertaken as part of the Corridor EIS will focus on key constraints, opportunities that will inform the Project design and the Project influence on surrounding land uses. Further information regarding issues that will be assessed as part of the Corridor EIS is provided in Chapter 7.

While a high-level assessment of construction and operation impacts will be considered as part of the Corridor EIS, the design of the Project will be developed in parallel to preparation of the Corridor EIS.

Key elements of the Corridor EIS and the PLR Stage 2 EISs are described further in Table 1.1.

**Table 1.1 Key elements of the Corridor EIS and Project EIS**

Stage EIS	Key elements
Corridor EIS	<ul style="list-style-type: none"><li>• Definition of a Project corridor including a high-level description of project features.</li><li>• Justification for the selection of the proposed corridor including the options considered.</li><li>• Environmental assessment of the proposed corridor, focussing on refining the corridor's alignment and avoiding impacts.</li><li>• Consideration of applicable NSW and Commonwealth legislation which regulate land uses within the Project corridor.</li><li>• Feedback and issues received from stakeholder engagement activities and how these have been considered.</li></ul>
PLR Stage 2 EISs	<ul style="list-style-type: none"><li>• Project justification and description, including specific alignment, stop locations, ancillary facilities, construction impact area and construction sites.</li><li>• A detailed environmental assessment, including more information on construction and operation impacts.</li><li>• Consideration of the NSW licence and approval requirements for construction and operation of the Project.</li><li>• Consideration of the requirements under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act).</li></ul>

## 1.7 Structure of this report

This report is structured as summarised below.

- an introduction to the Project and report (Chapter 1)
- an overview of the Project's benefits and strategic context (Chapter 2)
- a description of the planning and assessment process (Chapter 3)
- an overview of the Project development process and the corridor options considered to date (Chapter 4)
- a description of the Project including indicative milestones (Chapter 5)
- a description of the stakeholder and community consultation undertaken to date and activities planned for the future (Chapter 6)



- a preliminary risk analysis of the Corridor EIS versus PLR Stage 2 EISs and a preliminary assessment of the potential environmental issues that may impact the corridor alignment (Chapter 7)
- closing comments for consideration (Chapter 8)
- a reference list, acronyms and glossary (Chapter 9).

## 2. Project benefits and strategic context

*This chapter discusses how the Project responds to a number of key transport and land use challenges which are aligned to objectives detailed in key NSW Government strategic plans.*

### 2.1 Project benefits

#### 2.1.1 Contributes to the GPOP priority growth area light rail network

The PLR network underpins the vision for the GPOP priority growth area, as Greater Sydney's true centre- the connected and unified heart, by providing turn-up-and-go light rail services between Parramatta Square and the Sydney Olympic Park precinct. The Project will connect with Stage 1 (which will link Westmead and Carlingford via Parramatta) to form an integrated light rail network. As a result, the Project will provide more customers with reliable 30-minute access to jobs, education and services, and entertainment attractions.

The Project will also complement the existing transport network and proposed transport projects (such as Sydney Metro West) to support growth and respond to the growing travel demands within and beyond the GPOP priority growth area.

#### 2.1.2 Supports population and employment growth

The Project supports planning for population and employment growth in the GPOP priority growth area and will create a more attractive and liveable neighbourhood. Having access to an improved and integrated public transport system offers customers better choice and will help to lower the cost of living for households.

The Project will also help create more attractive communities by delivering high quality streetscapes and urban design. It will also allow for better housing earlier than planned due to the availability of public transport.

#### 2.1.3 Provides transport mode choice

The Project will help to address current car dependency by providing a high quality, rapid and reliable public transport service. Encouraging more journeys by public transport, will assist in easing road congestion and allow for more reliable road journeys.

#### 2.1.4 Improves connectivity between precincts and attracts investment

Transport connections between residential areas and job centres is key to attracting business investment. The Project will provide improved transport connections and more efficient, less crowded trips which will have a positive contribution to businesses and workers.

The Project will help better realise the benefits of investments by providing more people with convenient access to Parramatta and Sydney Olympic Park, attracting more people and events to the area. The Project will connect key investments such as Westmead Innovation and Education Precinct, Museum of Applied Arts and Science, Western Sydney Stadium and ANZ Stadium. It will also connect existing locations that host events, including the Parramatta CBD, Parramatta Park, Rosehill Racecourse, Sydney Showground and other event facilities at Sydney Olympic Park.

### **2.1.5 Provides much needed public transport and active transport connections**

The Project will provide much needed public transport and active transport connections across the Parramatta River and physical barriers including Silverwater Road and steep topography. The Project provides an opportunity to improve walking and cycling, through new and enhanced active transport facilities, which can contribute to the wellbeing of the community and urban amenity.

## **2.2 Strategic context**

Several NSW Government strategic plans, including the *Greater Sydney Region Plan*, *GPOP Vision* and *Future Transport 2056* articulate an integrated land use and transport plan for the GPOP priority growth area to support its development as a liveable, productive and connected area. Refer to Table 2.1 for a discussion of these key strategies and policies and how the Project aligns with their commitments.

**Table 2.1 Key NSW Government policies and strategies applicable to the Project**

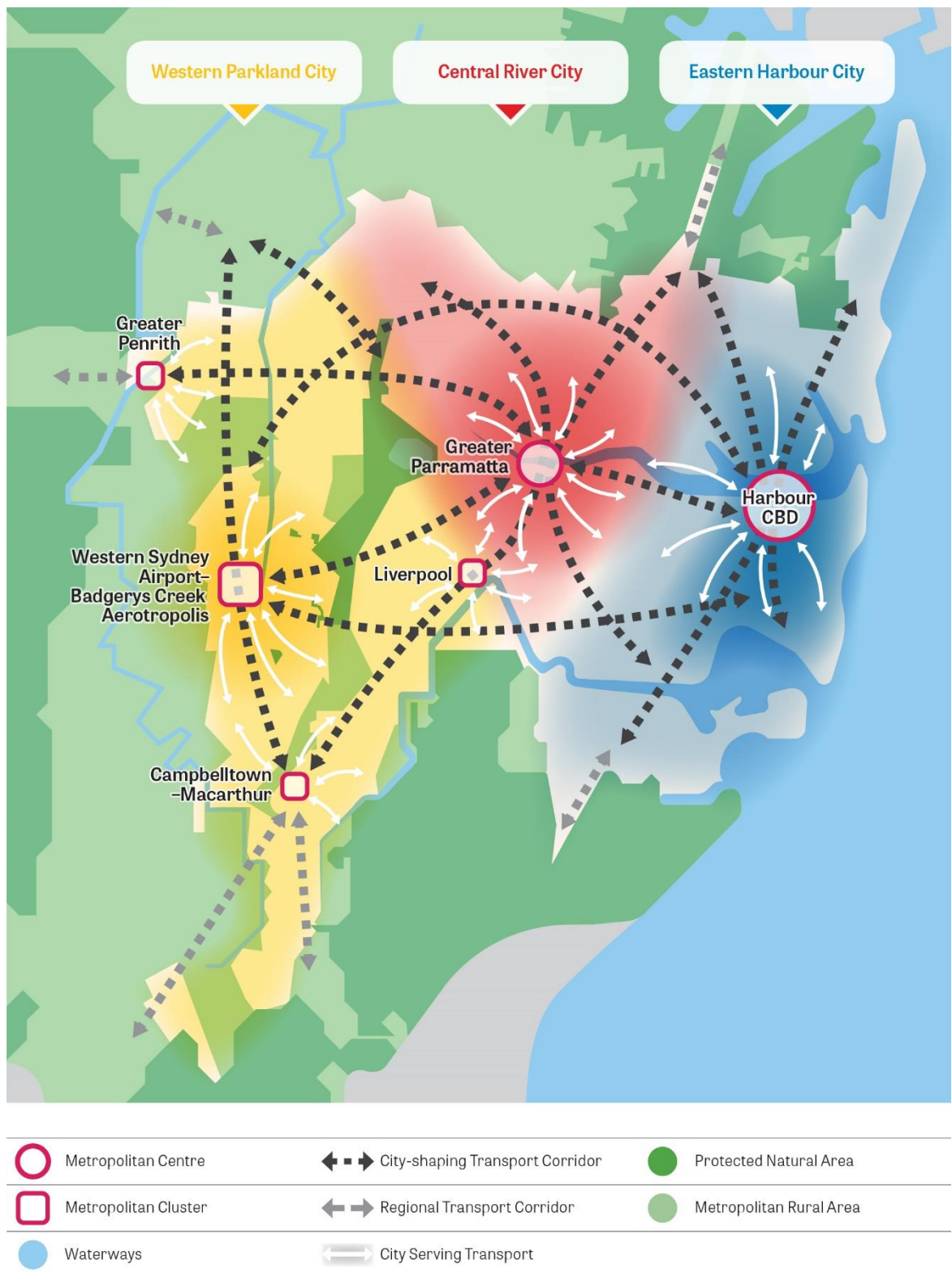
Policy / Strategy	Overview	How the Project aligns
<p><b><i>A Metropolis of Three Cities - Greater Sydney Region Plan</i></b></p> <p>(Greater Sydney Commission, 2018a)</p>	<p>The <i>Greater Sydney Region Plan</i> is the NSW Government's 40-year land use plan for Sydney. It establishes a vision for a metropolis of three cities – the Eastern Harbour City, Central River City and Western Parkland City (refer Figure 2.1).</p> <p>The Central River City is anchored by the GPOP priority growth area – a 40 square kilometre area extending from Westmead and Parramatta in the west to Sydney Olympic Park in the east.</p> <p>The GPOP priority growth area is crucial to the growth of the Central River City, as one of three identified Economic Corridors in Greater Sydney and a designated growth area. The GPOP priority growth area is forecast to accommodate an additional 72,000 dwellings and 110,000 additional jobs by 2036 (Department of Planning and Environment, 2017a).</p>	<p>The Project traverses through five precincts: Camellia, Ermington, Melrose Park, Wentworth Point and Sydney Olympic Park (which includes the Carter Street Priority Precinct – an area designated for urban renewal by Department of Planning and Environment)</p> <p>The Project will meet the following objectives:</p> <ul style="list-style-type: none"> <li>• Objective 15: The Eastern, GPOP and Western Economic Corridors are better connected and more competitive.</li> <li>• Objective 19: Greater Parramatta is stronger and better connected.</li> </ul>

Policy / Strategy	Overview	How the Project aligns
<b>Central City District Plan</b> (Greater Sydney Commission, 2018b)	<p>The <i>Central City District Plan</i> is a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision of Greater Sydney. It is a guide for implementing the <i>Greater Sydney Region Plan</i> at a district level and is a bridge between regional and local planning.</p> <p>All transport initiatives outlined in the District Plan, such as Parramatta Light Rail, are sourced from <i>Future Transport 2056</i> (see below).</p>	<p>The Project will meet the following priorities:</p> <ul style="list-style-type: none"> <li>• Priority C6: Creating and renewing great places and local centres, and respecting the District's heritage</li> <li>• Priority C7: Growing a stronger and more competitive Greater Parramatta</li> <li>• Priority C8: Delivering a more connected and competitive GPOP Economic Corridor.</li> <li>• Action 29: Prioritise public transport investment to deliver the 30-minute city objective for strategic centres along the GPOP Economic Corridor</li> <li>• Action 30: Prioritise transport investments that enhance access to the GPOP Economic Corridor and between centres within the GPOP Economic Corridor.</li> </ul>
<b>GPOP Vision</b> (Greater Sydney Commission, 2016)	<p>This document articulates a vision for the GPOP priority growth area which describes the GPOP area as Greater Sydney's true centre – the connected, unifying heart by 2036.</p> <p>The PLR network is considered central to this vision, providing a connected spine through the GPOP priority growth area and enabling liveable communities.</p>	<p>The Project will meet the following Vision directions:</p> <ul style="list-style-type: none"> <li>• Direction 7: Design Parramatta as our central '30-minute city', with good connectivity within GPOP and beyond to the north, south, east and west</li> <li>• Direction 12: Shape attractive and effective built environments and public spaces that reflect a focus on great urban design and environmental excellence.</li> </ul>
<b>Greater Parramatta Interim Land Use and Infrastructure Implementation Plan</b> (Department of Planning and Environment, 2017a)	<p>The interim Plan identifies how more jobs, homes and essential services will be accommodated in the priority growth area over the next 20 years. It includes a land use framework to guide future redevelopment of the priority growth area, identifies key actions for the short term and allows government agencies to identify and plan for the infrastructure required to unlock its potential.</p>	<p>The Project will meet the following actions:</p> <ul style="list-style-type: none"> <li>• Key Action: Planning for future major projects such as the PLR and Sydney Metro West.</li> <li>• Key Action: Enhance the priority growth area's open spaces, walkways and cycleways.</li> </ul>



Policy / Strategy	Overview	How the Project aligns
<b><i>Future Transport Strategy 2056</i></b> (Transport for NSW, 2018)	<p><i>Future Transport 2056</i> is an update of NSW's <i>Long Term Transport Master Plan</i>. It is a suite of strategies and plans for transport to provide an integrated vision for the state.</p> <p><i>Future Transport 2056</i> reinforces the importance of better connectivity and place making in the GPOP priority growth area through its customer outcomes, network vision and investment priorities. It identifies 12 customer outcomes to guide transport investment in Greater Sydney.</p> <p>These outcomes include transport providing convenient access, supporting attractive places and providing 30-minute access for customers to their nearest centre by public transport.</p>	<p>City-serving transport is designed to serve higher density areas around metropolitan centres, like the GPOP growth area, with light rail being a typical mode for such services.</p> <p>Consistent with this, Parramatta Light Rail Stage 2 is identified as a committed initiative (subject to completion of a business case) to deliver a 30-minute, city-serving network for Parramatta.</p>
<b><i>Building Momentum – State Infrastructure Strategy 2018-2038</i></b> (Infrastructure NSW, 2018)	<p>The <i>State Infrastructure Strategy 2018-2038</i> makes recommendations for each of NSW's key infrastructure sectors including transport. Parramatta Light Rail Stage 2 is nominated as a proposed future transport project with a key recommendation for Transport for NSW to progress a business case.</p> <p>The Strategy also acknowledges that while the Greater Parramatta area and the GPOP Corridor are the geographic centre of Greater Sydney, they are not well connected to areas to their north and south.</p>	<p>The Project will deliver on a proposed future transport project and align with several of the infrastructure responses outlined in the Strategy:</p> <ul style="list-style-type: none"> <li>• improve transport connections</li> <li>• improve and promote north-south connections through the GPOP priority growth area</li> <li>• improve walking and cycling connections.</li> </ul>

Policy / Strategy	Overview	How the Project aligns
<b>Premier's Priorities and State Priorities</b> <a href="https://www.nsw.gov.au/improving-nsw/premiers-priorities/">https://www.nsw.gov.au/improving-nsw/premiers-priorities/</a>	<p>The NSW Government has identified 12 Premier's Priorities and 18 State Priorities that are focused on growing the NSW economy, delivering infrastructure, protecting the vulnerable and improving health, education and public services across the State.</p>	<p>The Project will support and enable the following priorities:</p> <ul style="list-style-type: none"> <li>• jobs growth</li> <li>• delivering infrastructure</li> <li>• boosting apprenticeships</li> <li>• ensure on-time running for public transport</li> <li>• increasing housing supply</li> <li>• creating sustainable social housing.</li> </ul>



**Figure 2.1 A metropolis of three cities**

Source: Greater Sydney Regional Plan (Greater Sydney Commission, 2018a)

## 3. Planning and assessment process

### 3.1 Planning pathway under the Environmental Planning and Assessment Act 1979

The EP&A Act is the primary legislation regulating land-use planning and development assessment in NSW. Part 5 of the EP&A Act defines the assessment process for infrastructure which can either be assessed under:

- **Division 5.1:** Assessment of an activity to be carried out by, or on behalf of, a public authority not otherwise requiring development consent (i.e. a public authority such as Transport for NSW can undertake an assessment and 'self-determine' for railway facilities); or
- **Division 5.2:** State significant infrastructure that is approved by the Minister for Planning and which recognises that while major infrastructure projects deliver significant community and economic benefits, there are also inherent risks and impacts that need to be assessed and managed.

The EP&A Act also has provisions relating to Critical State significant infrastructure, which are major infrastructure projects declared by the Minister for Planning as being essential to the state for economic, social or environmental reasons.

Assessment under Part 5, Division 5.2 is triggered by certain State environmental planning policies (SEPPs), which are outlined in Table 3.1. In addition, section 5.7(1) of the EP&A Act states that an EIS must be prepared for an activity likely to significantly affect the environment. A determining authority (such as Transport for NSW) shall not carry out an activity or grant an approval in relation to an activity that is likely to significantly affect the environment, prior to the approval of an EIS by the Minister for Planning.

**Table 3.1 Statutory considerations in determining a State significant infrastructure planning pathway**

SEPP	Requirement
<b>State Environment Planning Policy (Infrastructure) 2007</b> (Infrastructure SEPP).	Clause 79(1) of the Infrastructure SEPP provides that development for the purpose of a railway or rail infrastructure facilities may be carried out by or on behalf of a public authority <i>without consent</i> on any land. Furthermore Clause 78(2) states: <i>A reference in this Division to rail infrastructure facilities includes any facilities, buildings, works or infrastructure related to light rail purposes.</i> The Project is for a light rail network and therefore meets the criteria of clause 79(1).

SEPP	Requirement
<p><b><i>State Environmental Planning Policy (State and Regional Development) 2011</i></b> (State and Regional Development SEPP)</p>	<p>Clause 14(1) of the State and Regional Development SEPP provides that development is State significant infrastructure, pursuant to section 5.12(2) of the EP&amp;A Act, if it is permissible without development consent under Part 4 of the Act by virtue of the operation of a State environmental planning policy, <u>and</u> it is specified in the categories of development in Schedule 3.</p> <p>Schedule 3 (clause 1) of the State and Regional Development SEPP defines State significant infrastructure as infrastructure that would be an activity for which the proponent is also the determining authority and will, in the opinion of the proponent, require an EIS to be obtained.</p> <p>Transport for NSW, as the proponent, has formed the view that the Project is likely to significantly affect the environment during construction and operation (refer Chapter 7), and therefore requires the preparation of an EIS. Also refer to Section 3.4.3 for the declaration of State significant infrastructure.</p>
<p><b><i>State Environmental Planning Policy (State Significant Precincts) 2005</i></b></p>	<p>Consistent with the <i>Sydney Olympic Park Authority Act 2001</i>, Part 23 of <i>State Environmental Planning Policy (State Significant Precincts) 2005</i> establishes Sydney Olympic Park as a State Significant Precinct and provides for that development in this precinct may be declared State significant development and assessed under Part 4, Division 4.7 of the EP&amp;A Act.</p> <p>However, it is proposed that a declaration of State significant infrastructure is made enabling assessment and approval for the Project under Part 5, Division 5.2 of the EP&amp;A Act. This is because:</p> <ul style="list-style-type: none"> <li>the Project corridor extends beyond the precinct and also meets the criteria for State significant infrastructure under the State and Regional Development SEPP (see above);</li> <li>clause 7 of the State and Regional Development SEPP notes in the event of an inconsistency between it and another SEPP (whether made before or after commencement), the SRD SEPP prevails (i.e. prevails over the <i>State Environmental Planning Policy (State Significant Precincts) 2005</i>).</li> </ul> <p>However, notwithstanding a State significant infrastructure planning pathway, the Corridor EIS and PLR Stage 2 EISs will have regard for the State significant precinct, its objectives and associated management plans.</p>



### **3.2 Staged State significant infrastructure**

Due to the need to obtain early corridor protection from future development for Parramatta Light Rail Stage 2 (refer Section 1.4) it is proposed that Transport for NSW undertake a staged State significant infrastructure process as per the provisions of Subdivision 3 of Part 5, Division 5.2 of the EP&A Act. The legislation allows for the assessment and approval of a concept proposal, with subsequent detailed proposals and assessments at the appropriate stage.

The proposed staged State significant infrastructure process for the Project is outlined in Section 1.5.

### **3.3 Rail corridor protection**

While approval of the Corridor EIS will not permit construction of the Project, it will enable early public recognition and corridor protection. Approval of the Corridor EIS under Part 5, Division 5.2 of the EP&A Act (which constitutes a concept proposal) would meet the definition of a 'rail corridor' under the Infrastructure SEPP and trigger requirements for Transport for NSW to be notified of specified development in the area.

Use of additional corridor protection will be considered during the Corridor EIS process.

### **3.4 Environmental Planning and Assessment Regulation 2000**

Clause 192 of the EP&A Regulation requires that an application for approval of the Minister for Planning to carry out State significant infrastructure must include:

- details of any approvals that will, but for section 5.23 of the EP&A Act, be required for the carrying out of the State significant infrastructure
- details of any authorisations that must be given under section 5.24 of the EP&A Act if the application is approved
- a statement as to the basis on which the proposed infrastructure is State significant infrastructure, including, if relevant, the capital investment value of the proposed infrastructure.

These requirements are addressed below.

#### **3.4.1 Approvals that would otherwise apply**

State significant infrastructure (including for staged State significant infrastructure) is exempt from requiring certain authorisations under section 5.23 of the EP&A Act, these include:

- a permit under section 201, 205 or 219 of the *Fisheries Management Act 1994*
- an approval under Part 4, or an excavation permit under section 139 of the *Heritage Act 1977*
- an Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*
- a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the *Water Management Act 2000*.

#### **3.4.2 Authorisations if the application is approved**

Section 5.24 of the EP&A Act lists the approvals that must be applied consistently, regardless of the State significant infrastructure declaration.

For the Corridor EIS, given no physical works will be undertaken, no authorisations will be required under section 5.24 of the EP&A Act.

The PLR Stage 2 EISs will likely require relevant approvals, as per section 5.24, which may include:

- an environmental protection licence under Chapter 3 of the *Protection of the Environment Operations Act 1997*
- a consent under section 138 of the *Roads Act 1993*
- a licence under the *Pipelines Act 1967*.

Relevant approvals will be identified in the PLR Stage 2 EISs following the development of more detailed design and construction information.

### **3.4.3 Statement of State significant infrastructure**

As per the statutory considerations outlined in Table 3.1 the Project is considered to be State significant infrastructure as per clause 14(1) of the State and Regional Development SEPP and approval from the Minister for Planning is required under section 5.14 of the EP&A Act.

## **3.5 Other NSW legislation**

Given approval is being sought for a concept proposal and no physical works will be undertaken, generally NSW approval or licence requirements are considered unlikely to be triggered by approval of the Corridor EIS but will be considered in further detail as part of the PLR Stage 2 EISs.

However, given the need to protect the Project corridor, the applicability of legislation relating to easements, licences and leasing rights for land uses within the Project corridor will be considered further during preparation of the Corridor EIS. This could include acts that govern the presence of utilities located within the Project corridor as well as the following acts:

- *Crown Land Management Act 2016*
- *Sydney Olympic Park Authority Act 2001*

## **3.6 Commonwealth legislation**

Concept proposals do not require referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as no physical works are being undertaken. However, Transport for NSW has identified that a referral is likely to be needed that will be undertaken during the PLR Stage 2 EISs phase.

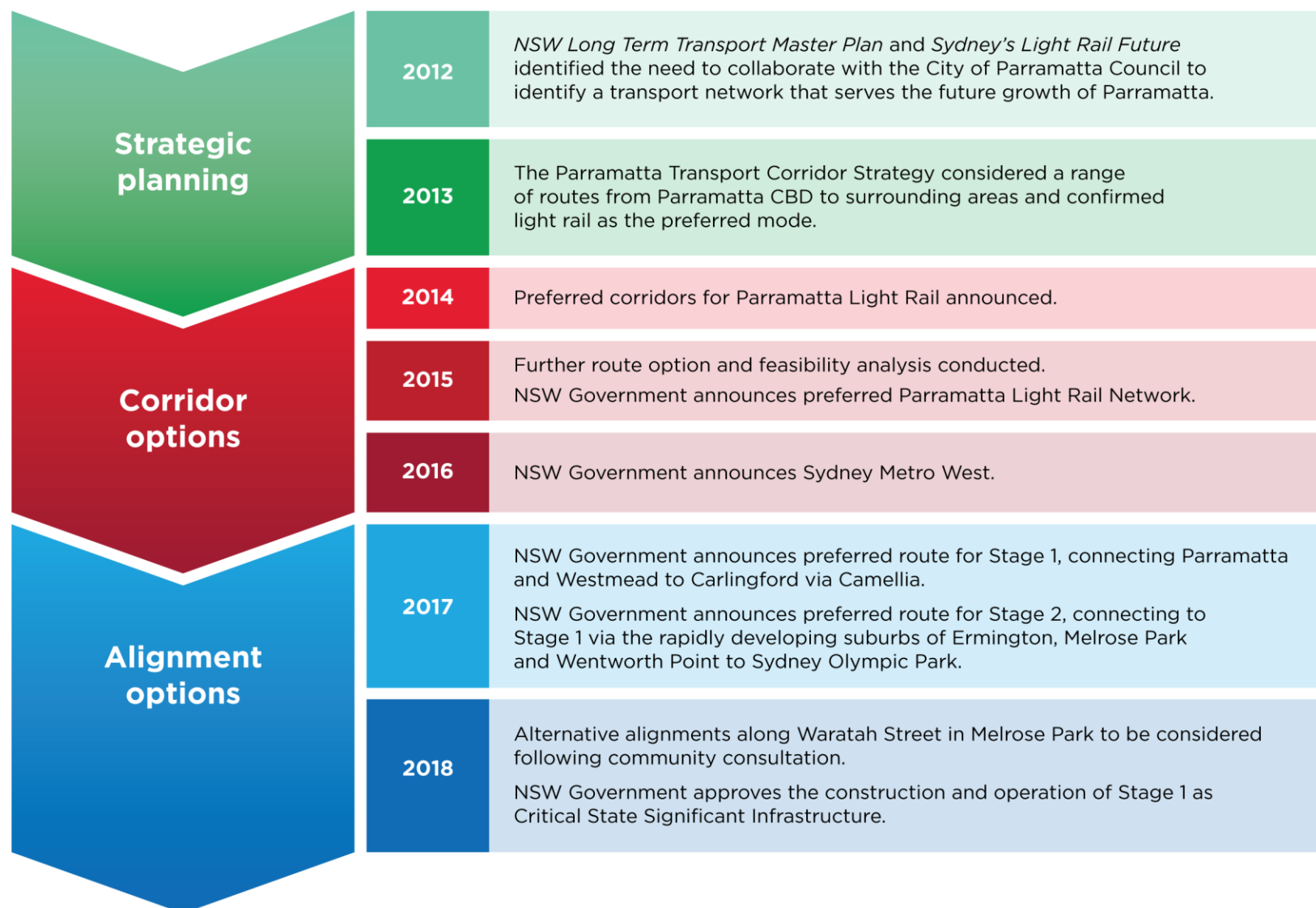
## 4. Project development and alternatives

*This chapter describes the alternatives and options evaluation process undertaken to determine the final alignment options for the Project, where relevant to the Project corridor.*

### 4.1 Project development background

The corridors and alignments for the overall PLR network, including Stage 1, have been subject to consideration of options that were described in detail in the Stage 1 EIS and are summarised in Figure 4.1.

Key phases of relevance to the Project are discussed further in the sections below.



**Figure 4.1 Project development process**

#### **4.1.1 Rational for the light rail as the preferred mode**

The NSW Government is currently investigating and/or delivering a number of transport projects across the GPOP priority growth area, including WestConnex, Sydney Metro West, PLR Stage 1 and rapid bus transit. To address the potential demand for intermediate trip tasks (trips around five to 10 kilometres) within the GPOP priority growth area, a complementary service to major rail transport is required.

An analysis of modal options for the PLR network was undertaken to determine the most effective transport mode. Each transport mode was assessed and it was found that light rail was the most viable and preferred mode to address the GPOP priority growth area's transport need and support growth and change.

Key benefits of light rail include:

- provision of larger carrying capacity when compared to bus services
- aligns with customer preferences for greater reliability and comfort over buses
- lower environmental and amenity costs (no on-site emissions due to electrical operation)
- supporting land use change, place-making and long term cost benefit.

#### **4.1.2 2015 – PLR network announced**

Following a period of route and feasibility analysis the NSW Government announced the preferred PLR network in December 2015. The network included:

- Westmead to Carlingford – this corridor, which reuses the Sydney Trains Carlingford Line, offered a feasible and cost-effective way of providing significant transport and land use benefits to the growing population in this corridor.
- Parramatta to Strathfield via Olympic Park – this corridor presented a large opportunity to support planned land use changes in the GPOP priority growth area and deliver transport benefits by supporting access to heavy rail interchanges.

#### **4.1.3 2017 – Stage 1 delivery and preferred route for Stage 2 announced**

In 2017 the NSW Government announced the delivery of Stage 1 from Westmead to Carlingford via Parramatta. Additionally, it was announced that Stage 2 will connect east to Sydney Olympic Park and potentially beyond and be planned in collaboration with Sydney Metro West.

The need for planning of Stage 2 in collaboration with Sydney Metro West reflected the fact that the projects had a number of interfaces. In particular, Sydney Metro West will connect Greater Parramatta and Sydney Olympic Park, overlapping with the baseline PLR network alignment announced in 2015.

When considered in parallel with Sydney Metro West, it was determined that the demand and feasibility of extending Stage 2 from Sydney Olympic Park to Strathfield was significantly decreased.

In addition to the introduction of Sydney Metro West, a number of other issues were identified that warranted a review of the Stage 2 component of the baseline PLR network alignment including:

- limited growth opportunities in Camellia East, Silverwater and Newington
- a congested and constrained road network between Sydney Olympic Park and Strathfield.



To address these issues an extension to Carter Street, Sydney Olympic Park was identified as the preferred extension as it will maximise the benefits of both Stage 2 and Sydney Metro West by connecting a growing residential precinct to these project corridors.

The final alignment for Sydney Metro West is still being investigated however the PLR network proposes quality interchanges with Sydney Metro West stations at Westmead, Parramatta and Sydney Olympic Park, supporting an integrated public transport solution for the GOP priority growth area.

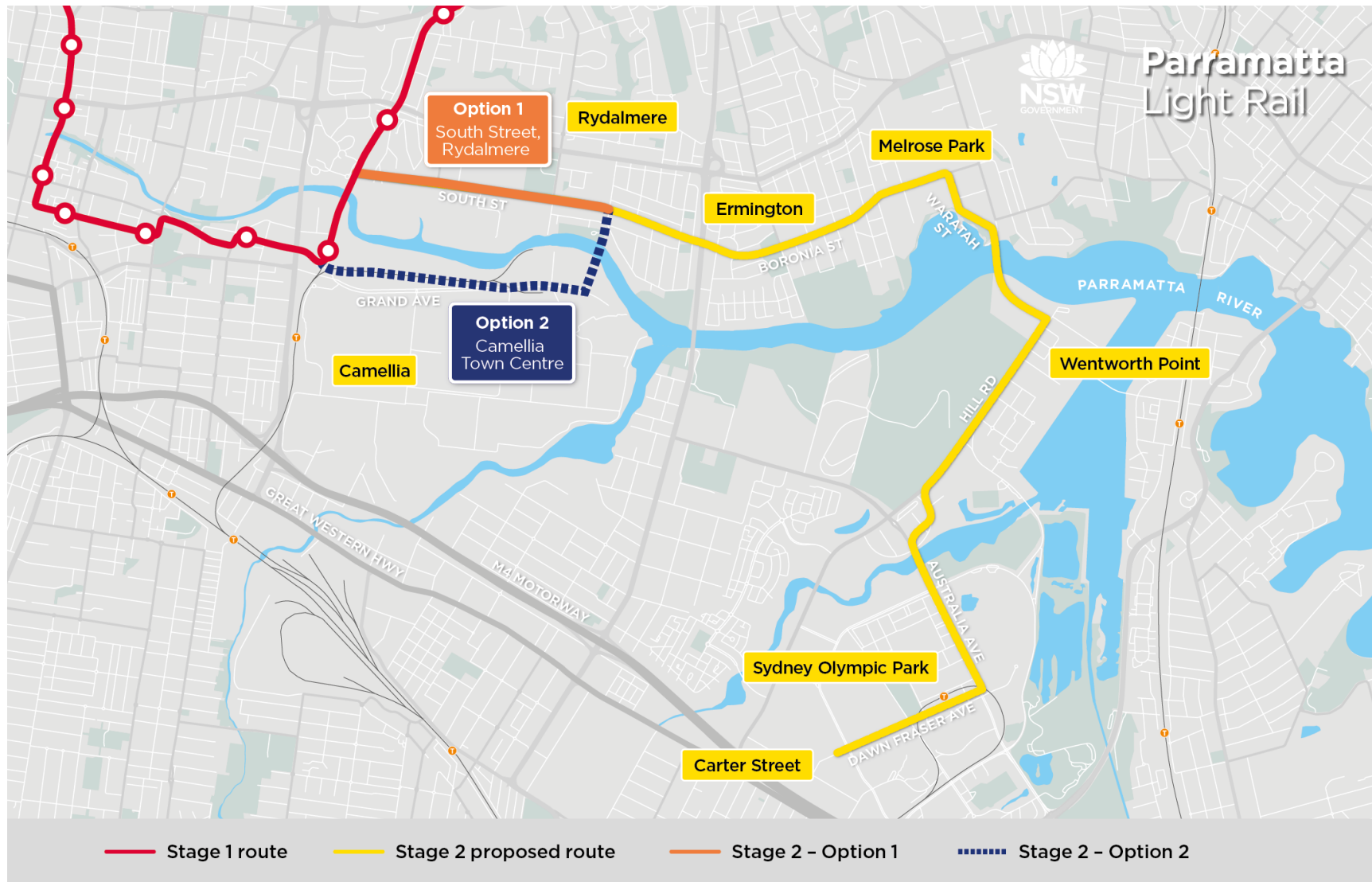
## **4.2 Preferred Project alignment**

The preferred Project alignment was announced in October 2017. The preferred alignment connects Stage 1 via Rydalmere, Ermington, Melrose Park, Wentworth Point and Sydney Olympic Park and provides the best outcomes in terms of land use, constructability, affordability and connectivity.

The current Project alignment considers two alternative corridor options, as illustrated in Figure 4.2, including:

- along South Street through Rydalmere- Option 1
- through the proposed Camellia Town Centre- Option 2.

Option 2 along Sandown Boulevard and Grand Avenue in Camellia is currently being considered as an alternative to the preferred corridor (Option 1). Option 2 has the advantage of better supporting the urban renewal outcomes outlined in the *Draft Camellia Town Centre Master Plan* (Department of Planning and Environment, 2018).



**Figure 4.2 Project corridor alignment options**

## 5. Project description

*This chapter provides a high-level description of the Project based on the current level of planning and design. It also provides indicative timing for key milestones associated with the Corridor EIS.*

### 5.1 Overview of the Project

#### 5.1.1 Location

The Project is generally located along existing road corridors. Exceptions are specific locations through Ermington and Melrose Park and at Parramatta River crossings.

The preferred Project route will connect to Stage 1 north of Parramatta River and runs east along South Street and Boronia Street to Melrose Park, south to Wentworth Point via Waratah Street and a new Parramatta River crossing, and on to Sydney Olympic Park, terminating at Carter Street via Australia Avenue and Dawn Fraser Avenue. An option for extending east through Camellia via the disused Sandown Line and Grand Avenue before crossing the Parramatta River to Rydalmere is also being considered.

An overview of the Project alignment is shown in Figure 5.1.

#### 5.1.2 Key features

Design development of the Project has been urban design led with a focus on integrated land use and transport outcomes.

The key features of the Project are expected to include:

- a new light rail line extending about 10 kilometres, with at least 10 to 12 stops that forms part of the overall Parramatta Light Rail network
- turn-up-and-go light rail services between Parramatta Square and the Carter Street Precinct at Olympic Park
- up to two Parramatta River bridge crossings, one bridge over Silverwater Road and one viaduct over Ken Newman Reserve in Ermington
- the potential conversion of the existing disused freight rail corridor to light rail in Camellia
- active transport infrastructure that links into the existing cycling and pedestrian network
- urban design features integrated with the light rail design and stop precincts
- integration with the wider transport network, including improvements to local bus and special event services with selected routes using the proposed bridge between Melrose Park and Wentworth Point
- interchanges with existing rail, bus and ferry facilities and the proposed Sydney Metro West
- alterations to the road network to accommodate the Project
- construction of substations to provide electricity for the Project
- track infrastructure including overhead wiring.





**Figure 5.1 Overview of alignment for the Project**



### **5.1.3 Operation**

The operation of the Project will be similar to that of Stage 1, utilising the stabling and maintenance facility located at 6 Grand Avenue, Camellia.

Light rail vehicles (LRVs) will travel on tracks, located predominately within or adjacent to the existing road network. The Project's alignment has been designed so that:

- general traffic can run adjacent to the light rail track
- LRVs will run in both directions
- active transport (walking and cycling paths) will generally run adjacent to the track
- in certain locations LRVs will share lanes with buses (e.g. river crossings).

The network will generally use overhead lines to supply electricity to the LRVs.

LRVs will include a mix of seating and standing areas, accessible priority seating, low floors and air conditioning.

The Project will operate as a turn-up-and-go light rail service between Stage 1 at Parramatta Square and Carter Street, Sydney Olympic Park.

## **5.2 Project timing**

As described in Section 1.5 a staged State significant infrastructure approval process is proposed for the Project. The proposed timing of this approvals process is shown in Figure 5.2 and is subject to change. The delivery strategy and timing for construction and operation of the Project is currently being developed.



**Figure 5.2 Project program**

## 6. Consultation

*This chapter provides details on community and stakeholder engagement activities and outcomes from October 2017 to September 2018 for the Project.*

### 6.1 Overview

Stakeholder and community engagement forms a central and integral part of the Parramatta Light Rail project for both Stages 1 and 2.

An overarching *Community and Stakeholder Engagement Plan* was prepared to guide and support the engagement and communication activities proposed for the Project. The Plan outlines different phases of engagement, from early engagement prior to the scoping and preparation of the Corridor and PLR Stage 2 EISs, through to delivery and construction of the Project.

Since the October 2017 Project announcement through to September 2018, Transport for NSW has undertaken a variety of engagement activities to gather feedback on the Project. To provide more detail and context on the engagement activities and outcomes, this chapter will:

- detail the engagement and consultation activities undertaken
- summarise issues raised to date
- outline how feedback from engagement has influenced the Project alignment
- outline the communication and engagement activities planned for the Corridor EIS and beyond.

### 6.2 Approach and engagement objectives

The objectives of the communication and engagement activities are to:

- introduce the concept and begin discussions with the community and stakeholders on the preferred route for the Project
- inform and advise the community and stakeholders on work being completed on the Project in terms of planning and investigative works
- engage with the community to communicate the significant benefits of the proposed light rail and address any points of concern
- encourage ongoing participation in the conversation about the Project
- communicate the connections between different modes of public transport, their roles in an integrated network, and how the PLR network and Sydney Metro West complement each other
- seek feedback on community knowledge of light rail, of the Project and on their current public transport usage.



### 6.3 Summary of engagement

A summary of engagement and communication activities with the community and stakeholders is provided in Figure 6.1 and outlined below:

- stakeholder engagement with government agencies, local governments and state-owned corporations and entities commenced in January 2018
- a formal consultation process for major landowners in the Rydalmere Industrial Precinct and on the Camellia peninsula commenced in early February 2018 and concluded in May 2018
- community consultation was conducted through three main engagement activities undertaken between March 2018 and September 2018.



**Figure 6.1 Summary of Project engagement activities (October 2017 to September 2018)**

## 6.4 Stakeholder engagement

### 6.4.1 Key stakeholder briefings

Meetings with key stakeholders and commercial landowners included project updates, addressing project interfaces and identifying issues, concerns or suggestions for improvement.

In total, 17 key stakeholders were briefed on the Project and any implications for their organisation as well as 15 landowners from the Rydalmere Industrial Precinct and Camellia peninsula. In addition, engagement with the City of Parramatta Council included a briefing to councillors from senior PLR project staff. Details of all stakeholder meetings have been recorded and a list of participants is provided in Table 6.1.

**Table 6.1 Stakeholder list**

Key stakeholders	Commercial and industrial landowners
<ul style="list-style-type: none"><li>• City of Parramatta Council</li><li>• City of Ryde Council</li><li>• Department of Education and Training</li><li>• Department of Planning and Environment</li><li>• Fire and Rescue NSW</li><li>• Greater Sydney Commission</li><li>• Land and Housing Corporation</li><li>• Parramatta Chamber of Commerce</li><li>• NSW Police</li><li>• State Emergency Services</li><li>• Property NSW</li><li>• Sydney Olympic Park Business Association</li><li>• Sydney Olympic Park Authority</li><li>• Venues NSW</li><li>• UrbanGrowth NSW Development Corporation</li><li>• Western Sydney Business Chamber</li><li>• Western Sydney University</li></ul>	<ul style="list-style-type: none"><li>• AMP Capital</li><li>• Australian Turf Club</li><li>• Billbergia</li><li>• Concrete Recyclers</li><li>• Dexus Group</li><li>• George Weston Foods</li><li>• Goodman</li><li>• GPT Group</li><li>• ISPT Super</li><li>• Kingsmede Property Group</li><li>• KLF Holdings</li><li>• Rheem Australia</li><li>• UGL Boral</li><li>• Viva Energy</li></ul>

### 6.4.2 PLR Advisory Group

The PLR Advisory Group was formed in August 2017 to provide project updates and encourage discussion, ideas and collaboration from a range of key government and local stakeholders.

The Advisory Group membership covers government stakeholders and other major stakeholders that overlap both Stages 1 and 2 including the City of Parramatta, Department of Planning and Environment, UrbanGrowth NSW, Transport Coordination Division, Western Sydney Business Chamber and Western Sydney University.

To date, five meetings have been convened; in August 2017, November 2017, March 2018, May 2018 and August 2018. Updates on the progress of the Project were provided at each of the meetings, and opportunities for input and comment were provided.

In October 2018, Transport for NSW renewed membership to include the following list of stakeholders:

- Transport for NSW
- Infrastructure NSW
- Tourism and Transport Forum Australia
- Parramatta Leagues Club
- Western Sydney Local Health District
- UrbanGrowth NSW Development Corporation
- Committee for Sydney
- Western Sydney Business Chamber
- Department of Education
- Western Sydney University
- Venues NSW
- Land and Housing Corporation
- City of Parramatta Council
- Department of Planning and Environment
- Parramatta Chamber of Commerce
- Australian Turf Club
- Sydney Olympic Park Business Association
- Sydney Olympic Park Authority
- NRMA

### **6.4.3 Project Community and Stakeholder Reference Group**

Transport for NSW has established the Stage 2 Community and Stakeholder Reference Group that comprises representation from community members, local businesses and community-based stakeholder groups.

Broadly the objectives of the Community and Stakeholder Reference Group are:

- to provide a forum for all key stakeholders, both councils, and the community to be represented in the development of the project
- to provide advice regarding potential initiatives to support the community, affected land owners and businesses along the Stage 2 alignment during the planning and design stages, through to construction and operation of the light rail, including advice on mitigation measures to avoid or minimise impacts where reasonable
- to allow the community to seek information and provide feedback on project matters including:
  - the development of new project information
  - issues of interest or concern to the community
  - response to community complaints
  - community initiatives and programs.

Groups represented include: Waterfront Action Group; Melrose Park Residents Association; local residents; Sydney BMX Club (Sydney Olympic Park based); Rheem Australia; City of Ryde Council; and City of Parramatta Council.

## **6.5 Community engagement**

### **6.5.1 Community notifications**

To promote the community information sessions held between March 2018 and June 2018, a double-sided postcard was distributed to 15,000 residential properties in Rydalmere, Ermington, Melrose Park, Wentworth Point and Sydney Olympic Park as well as an additional mail out to 6,000 homes and businesses in Newington.

The postcard was also sent by email to 828 members of the Parramatta Chamber of Commerce and to 650 members of the Sydney Olympic Park Business Association. Advertisements were also placed in key suburban newspapers, the Parramatta Advertiser, the Northern District Times and the Weekly Times, to promote the community information sessions. The advertisements provided details of the community information sessions, including dates, locations and opening hours and invited community members to provide their feedback through a survey.

### **6.5.2 Community information sessions**

From March 2018 to June 2018, 13 drop-in information sessions were held to engage with the community and provide information on the Project. These sessions were held in areas along the alignment including the Parramatta CBD, Rydalmere, West Ryde/Melrose Park, Ermington and Sydney Olympic Park. Over 1,600 community members attended the information sessions.

Out of the total 13 sessions, four combined with the Sydney Metro West project and two with the Department of Planning and Environment. The aim was to provide the community with further information on other infrastructure and planning projects.

Issues and comments raised are summarised in Section 6.6.

### **6.5.3 Community pop-up sessions**

Between February 2018 and September 2018, 20 community pop-up sessions were held. These involved the team providing information on the project and being available to answer questions at local community events. In total the team spoke to over 2,300 community members. Some of the pop-ups included representatives from the Department of Planning and Environment and the Sydney Metro West project team.

### **6.5.4 Newsletters**

Two quarterly newsletters have been distributed to 85,000 residential and commercial letterboxes along the preferred route for Stage 1 and Stage 2. Newsletters were issued in May 2018 and September 2018 and each provided an update regarding the Project alignment, as well as information regarding the latest project information and project activities.

### **6.5.5 Email distribution lists**

A database of contacts has been developed for community members and stakeholders who have requested to be kept updated about the Project and receive regular updates including latest brochures and quarterly newsletters. Emails have been issued to the contact database to promote the information sessions or other community events. In addition to further the reach of this email distribution, other stakeholders have also emailed their contact lists:

- the Parramatta Business Chamber sent out invitations to the community information sessions to their database of 850 email accounts
- the Sydney Olympic Park Business Association sent out invitations to the community information sessions to their database of 650 email accounts.

### **6.5.6 Website**

The project website ([www.parramattalightrail.nsw.gov.au](http://www.parramattalightrail.nsw.gov.au)) is a constant source of information, resources and updates for community members and stakeholders. Details of any upcoming community information sessions or other engagement activities are provided on the project website. Between March 2018 and September 2018, the website had over 28,000 page views.

### 6.5.7 Survey

A survey was placed on the PLR website home page to capture community use of public transport as well as sentiment on the Project. There were more than 300 responses to the survey which provided valuable insights.

### 6.5.8 Community contact and information points

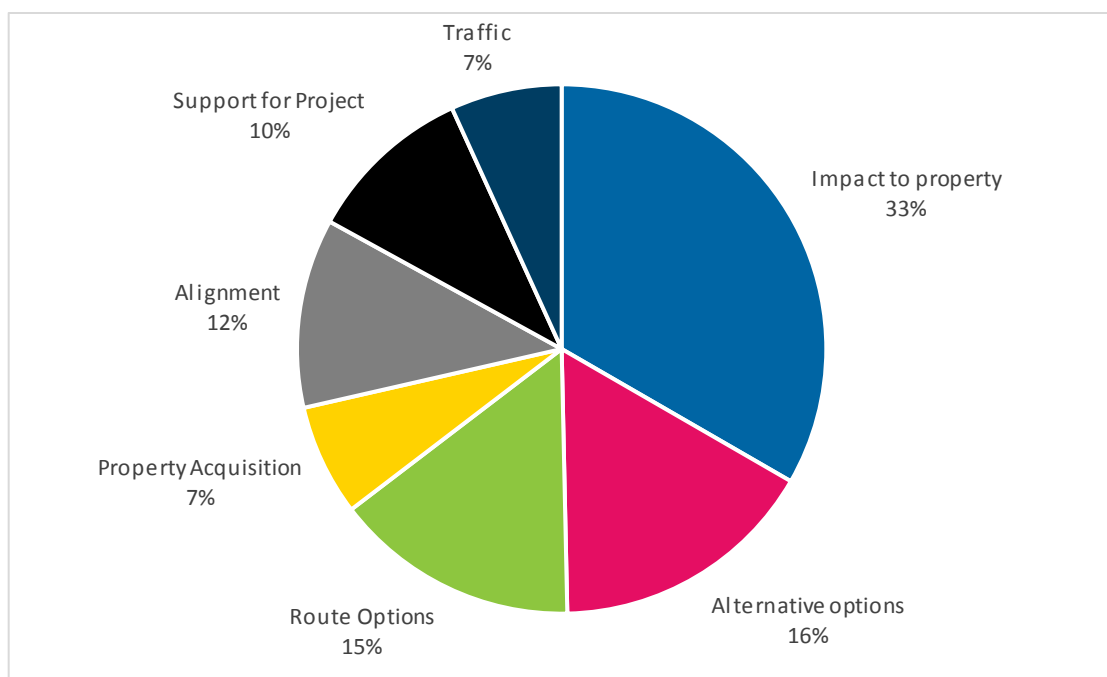
There are several points of contact for community and stakeholders. This includes an information line, 1800 189 389 and email address ([parramattalightrail@transport.nsw.gov.au](mailto:parramattalightrail@transport.nsw.gov.au)). Community members and stakeholders are encouraged to contact the project team to discuss any questions or concerns they may have.

To date over 120 phone calls or emails inquiries were received via these channels between October 2017 and September 2018 for Stage 2.

## 6.6 Issues raised to date

As a result of the engagement activities undertaken to date a number of positive and negative issues have been raised and documented.

A summary of the Project issues raised to date is shown in Figure 6.2. General impacts to property were the most raised issue (33 per cent) of respondents, followed by alternative options to Light Rail (16 per cent) and route options (15 per cent). These issues are discussed in more detail in Section 6.6.1.



**Figure 6.2 Issues summary**

### 6.6.1 Property impacts/ alternative options/route options

Impact to property and acquisition of private property along the alignment combined, accounted for 40 per cent of issues raised by stakeholders and the community for Stage 2. These concerns included the request for a more refined map to enable residents to understand the impacts in greater detail and to be able to make choices about their future in the area.

The issues raised about the alignment reflect more specifically where the track will be placed within the corridor – closely relating to property impacts.

Residents and stakeholders in Melrose Park provided feedback on the proposed alignment along Wharf Road. Issues raised included safety of students at the primary school on Wharf Road as well as the traffic congestion which already takes place in peak periods along this road. In July 2018, the NSW Government took this feedback onboard and proposed a different alignment along Waratah Street which will be assessed as part of the Corridor EIS. Other residents with property concerns include those along South Street, Tristram Street and Heysen Avenue in Ermington.

The issue of route options reflects the Camellia and Rydalmere alignments, both of which had support and opposition for a variety of reasons.

## 6.7 Activities planned for future (EIS stage and beyond)

A number of activities are planned to ensure there are different opportunities for the community and stakeholders to provide feedback and input into the project design and technical studies being undertaken for the Corridor EIS and the PLR Stage 2 EISs. Specific engagement activities and associated collateral to be produced during Corridor EIS phase are listed in Table 6.2. Further consultation will continue into the PLR Stage 2 EISs phase.

**Table 6.2 Engagement activities during the EIS phase**

Task	Activities	Collateral
<b>EIS preparation</b> (November 2018 – April 2019)	<ul style="list-style-type: none"> <li>• Pop-up community events</li> <li>• PLR Advisory Group meeting</li> <li>• Stage 2 Community and Stakeholder Reference Group meeting</li> <li>• Stakeholder briefings and meeting</li> <li>• Project information line and emails</li> </ul>	<ul style="list-style-type: none"> <li>• Community Newsletter</li> <li>• Fact sheet – Stage 2 EIS</li> <li>• Website content and updates</li> </ul>
<b>EIS exhibition</b> (April 2019 – May 2019)	<ul style="list-style-type: none"> <li>• Community information sessions</li> <li>• Pop-up community events</li> <li>• EIS displays</li> <li>• Static displays</li> <li>• Door knocking</li> <li>• Stakeholder emails</li> <li>• PLR Advisory Group meeting</li> <li>• Stage 2 Community and Stakeholder Reference Group meeting</li> <li>• Stakeholder briefings and meetings</li> <li>• Newspaper advertisements</li> <li>• Email distribution to contact database</li> <li>• Project information line and email</li> </ul>	<ul style="list-style-type: none"> <li>• Community Newsletter</li> <li>• Fact sheets</li> <li>• EIS navigator</li> <li>• Website content and updates</li> <li>• EIS summary document</li> <li>• Exhibition postcard</li> <li>• USB copies of the EIS</li> </ul>

Task	Activities	Collateral
<b>Post-EIS</b> (May 2019 – June 2019)	<ul style="list-style-type: none"> <li>• Submission analysis</li> <li>• PLR Advisory Group meeting</li> <li>• Stage 2 Community and Stakeholder Reference Group meeting</li> <li>• Stakeholder briefings and meetings</li> <li>• Project information line and email</li> </ul>	<ul style="list-style-type: none"> <li>• Summary report</li> <li>• Community Newsletter</li> <li>• Website content and updates</li> </ul>



## 7. Preliminary environmental assessment

*This chapter details how a risk-based approach was undertaken to consider the potential environmental impacts for both the Corridor and PLR Stage 2 EISs to determine the level of assessment required, in accordance with Department of Planning and Environment's classifications from the Draft Scoping an Environmental Impact Statement Guideline – June 2017.*

### 7.1 Scoping an Environmental Impact Statement

#### 7.1.1 Background

In 2017, the Department of Planning and Environment released a series of draft guidelines as part of the Environmental Impact Assessment Improvement Project for State significant projects. The *Draft Scoping an Environmental Impact Statement Guideline – June 2017* (Department of Planning and Environment, 2017b) aims to create a consistent framework for setting the scope of an EIS and to ensure earlier and better engagement with the community and other stakeholders in the preparation of this document.

As part of the scoping stage, proponents nominate the level of assessment for the EIS in accordance with the classifications included in the *Draft Scoping an Environmental Impact Statement Guideline – June 2017*. These are:

- **Material – Key:** refers to the likelihood of there being a material impact on a matter, and that detailed assessment is required to fully understand such impacts and identify project-specific mitigation. A separate specialist study describing the assessment method, data inputs, detailed impact assessment and mitigation will be required.
- **Material – Other:** refers to the likelihood of there being a material impact on a matter, but that measures to manage the impact are well understood and routinely used on similar projects (e.g. using *Managing Urban Stormwater - Soils and Construction (Blue Book)* to manage erosion and sediment in urban developments). The assessment of impacts will be reported in the EIS without the need for a supporting specialist study in most cases.
- **Non-material:** if the impacts are expected to be non-material, the reasons why should be presented in the Scoping Report and the impact will not need to be considered any further in the EIS unless new information comes to light during the assessment which requires the potential impact to be re-evaluated.
- **No impact or unlikely to impact the matter:** the Scoping Report should explain why no further assessment is needed, and if accepted by the Department then the matter will not need to be discussed further in EIS (e.g. no coastal hazards in western NSW).

#### 7.1.2 Scoping approach for this Project

As discussed in Section 1.5 and Section 1.6 of this Scoping report, a staged State significant infrastructure assessment process is proposed as the planning approval pathway for the Project, involving the preparation of firstly a Corridor EIS following by PLR Stage 2 EISs. Consistent with the Department of Planning and Environment guideline a risk assessment based approach is proposed to inform the scoping for both stages as follows:

- **Corridor EIS** – risk assessment considers the strategic land use and transport issues associated with the selection and protection of the corridor and which has identified Key, Other and Non-material matters to help inform the Secretary's environmental assessment requirements for the Corridor EIS (refer Table 7.5 and Sections 7.4-7.6). The Corridor EIS will also scope the specialist studies likely to be required for the PLR Stage 2 EISs.

- **PLR Stage 2 EISs** – risk assessment considers impacts associated with the construction and operation of the Project to identify the likely Key, Other and Non-material matters (refer Table 7.6). This assessment is based on available information and will be re-evaluated during the preparation of the Corridor EIS, which will be used to inform the Secretary's environmental assessment requirements to be issued for the PLR Stage 2 EISs (i.e. a second Scoping Report will not be prepared).

## 7.2 Preliminary environmental risk assessment

The environmental risk assessment was carried out in accordance with the principles of the Australian and New Zealand standard (AS / NZS) ISO 31000:2009 *Risk Management – Principles and Guidelines* (Standards Australia, 2009) and the Transport for NSW Enterprise Risk Management Standard 30-ST-164/4.0, 2 June 2017 (Transport for NSW, 2017). To help inform the risk assessment an appraisal of environmental issues was undertaken to better understand the existing environment and potential for impacts. The findings of these preliminary investigations are also summarised in Section 7.4.

Also, with respect to the risk assessment it is important to note that:

- environmental issues were considered at a high level to understand the risk ratings for the whole Project (such as noise and vibration or biodiversity impacts across the whole of the Project corridor)
- industry standard practices were considered in determining risk ratings; however, project-specific mitigation measures (which will depend on the outcomes of the EIS) were not applied. Residual (post mitigation) risk ratings will form part of the future Corridor EIS and PLR Stage 2 EISs assessments.

The definitions of the consequences and likelihood used are provided in Table 7.1 and Table 7-2 respectively. The risk ratings were then determined by combining the consequence and likelihood to identify the level of risk as shown in Table 7.3.

The overall risk ratings of very high, high, medium, low and N/A were then assigned to a level of assessment for an EIS as shown in Table 7.4.

**Table 7.1 Consequence definitions**

Consequence	Definition
Catastrophic	Irreversible large-scale environmental impact with loss of valued ecosystems.
Severe	Long-term environmental impairment in neighbouring or valued ecosystems. Extensive remediation required.
Major	Impacts external ecosystem and considerable remediation is required.
Moderate	Short- term and/or well-contained environmental effects. Minor remedial actions probably required.
Minor	Changes from normal conditions within environmental regulatory limits and environmental effects are within site boundaries.
Insignificant	No appreciable changes to environment and/or highly localised event.

**Table 7.2 Likelihood definitions**

Consequence	Definition
Almost certain	Expected to occur frequently during time of activity or project.
Very likely	Expected to occur occasionally during time of activity or project.
Likely	More likely to occur than not occur during time of activity or project.
Unlikely	More likely not to occur than occur during time of activity or project.
Very unlikely	Not expected to occur during the time of activity or project.
Almost unprecedented	Not expected to ever occur during time of activity or project.

**Table 7.3 Risk ratings**

Likelihood	Consequence					
	Insignificant	Minor	Moderate	Major	Severe	Catastrophic
Almost unprecedented	Low	Low	Low	Low	Medium	Medium
Very unlikely	Low	Low	Low	Medium	Medium	High
Unlikely	Low	Low	Medium	Medium	High	High
Likely	Low	Medium	Medium	High	High	Very high
Very likely	Medium	Medium	High	High	Very high	Very high
Almost certain	Medium	High	High	Very high	Very high	Very high

**Table 7.4 Risk ratings and corresponding level of assessment in EIS**

Risk rating	Corresponding level of assessment in EIS
Very high	Key
High	Key
Medium	Other
Low	Non-material
N/A	No impact or unlikely to impact the matter

### 7.3 Environmental risk assessment results

The results of the environmental risk assessment for the Corridor EIS are displayed in Table 7.5, with further commentary on the Key, Other and Non-material matters for the Corridor EIS provided in Sections 7.4-7.6. The preliminary environmental risk assessment for the PLR Stage 2 EISs is displayed in Table 7.6.

**Table 7.5 Risk assessment and scoping for Corridor EIS**

Aspect	Consequence	Likelihood	Risk rating	Level of assessment
Traffic, Transport and access	Major	Almost certain	Very high	Key
Biodiversity	Major	Almost certain	Very high	Key
Non-Aboriginal heritage	Moderate	Almost certain	High	Key
Aboriginal heritage	Major	Very likely	High	Key
Soils, geology and contamination	Major	Unlikely	Medium	Other
Noise and vibration	Moderate	Likely	Medium	Other
Land use and property	Major	Almost certain	Very high	Key
Business and economic impacts	Minor	Very likely	Medium	Other
Social impacts and community infrastructure	Moderate	Almost certain	High	Key
Urban design, landscape and visual amenity	Minor	Very likely	Medium	Other
Hydrology, flooding and groundwater	Moderate	Likely	Medium	Other
Air quality	Minor	Very unlikely	Low	Non-material
Greenhouse gas and energy	Minor	Very unlikely	Low	Non-material
Climate risk and resilience	Minor	Unlikely	Low	Non-material
Hazard and risk	Major	Very Likely	High	Key
Waste and resource use	Minor	Unlikely	Low	Non-material
Cumulative	Minor	Unlikely	Low	Non-material

The preliminary environmental risk assessment for the PLR Stage 2 EISs is displayed in Table 7.6. These risk ratings will be reassessed during the Corridor EIS and PLR Stage 2 EISs as detailed information becomes available. Full assessments for Key issues will be undertaken during the PLR Stage 2 EISs.

**Table 7.6 Preliminary risk assessment and scoping for PLR Stage 2 EISs**

Aspect	Consequence	Likelihood	Risk rating	Level of assessment
Traffic, Transport and access	Major	Almost certain	Very high	Key
Biodiversity	Major	Almost certain	Very high	Key
Non-Aboriginal heritage	Moderate	Almost certain	High	Key
Aboriginal heritage	Major	Likely	High	Key
Soils, geology and contamination	Major	Almost certain	Very high	Key
Noise and vibration	Major	Likely	High	Key
Land use and property	Major	Almost certain	Very high	Key
Business and economic impacts	Moderate	Almost certain	High	Key
Social impacts and community infrastructure	Moderate	Almost certain	High	Key
Urban design, landscape and visual amenity	Moderate	Likely	High	Key
Hydrology, flooding and groundwater	Major	Possible	High	Key
Air quality	Minor	Possible	Medium	Other
Greenhouse gas and energy	Minor	Possible	Medium	Other
Climate risk and resilience	Minor	Possible	Medium	Other
Hazard and risk	Major	Likely	High	Key
Waste and resource use	Moderate	Likely	High	Key
Cumulative	Moderate	Likely	High	Key

## 7.4 Corridor EIS – Key issues

The risk assessment in Section 7.3 identified Key, Other and Non-material issues associated with corridor protection and are discussed further in this section. Specialist studies will be prepared for Key issues as part of the Corridor EIS at a level of assessment appropriate for a concept proposal (i.e. will include results of desktop searches and preliminary site investigations). More comprehensive assessments, involving detailed site surveys and modelling, will be undertaken as part of the PLR Stage 2 EISs.

## 7.4.1 Traffic, transport and access

### Existing environment

The Project corridor and surrounds incorporate a range of transport and access features which are summarised in Table 7.7.

**Table 7.7 Existing transport and access features**

Aspect	Description
Roads / parking	<p>The road network is shown in Figure 5.1. Kerb side parking is available along most of the local roads listed below, with a commuter car park adjacent to the Rydalmere Wharf. Car parks are also located at the Sydney Olympic Park precinct.</p> <p><b>Camellia:</b> There are currently two access points for Camellia – to the west via Grand Avenue to James Ruse Drive, and to the south via Colquhoun Street, Unwin Street, Kay Street and Wentworth Street to Parramatta Road. The primary road through Camellia is Grand Avenue; a wide two-way roadway separated by a generous median.</p> <p>There is often significant traffic generation in the area when there is an event taking place at the Rosehill Gardens Racecourse.</p> <p><b>Rydalmere/Ermington:</b> These suburbs are bisected by Silverwater Road running north-south, with Victoria Road running east-west to the north. The main access points are from signalised intersections at Victoria Road, including Park Road, Spurway Street and Trumper Street. South Street and Boronia Street provide the primary east-west distribution throughout the precinct and are both a single lane in each direction.</p> <p><b>Melrose Park:</b> Hope Street and the northern part of Wharf Road form an important heavy vehicle access route for existing businesses in the Melrose Park area. Waratah Street is a local road that extends north-south and curves around to connect back to Wharf Road at the Parramatta River.</p> <p><b>Wentworth Point:</b> Hill Road is currently the primary access point to this suburb and connects to the Bennelong Parkway that provides access to Sydney Olympic Park and further on to Homebush Bay Drive, while Holker Street provides access to Silverwater Road. The M4 Western Motorway can now be accessed directly from Hill Road following the addition of an east-facing onramp as part of the WestConnex project.</p> <p><b>Sydney Olympic Park:</b> The Sydney Olympic Park road network comprises an outer ring road formed by Kevin Coombs Avenue, Australia Avenue, Sarah Durack Avenue and Edwin Flack Avenue. Marjorie Jackson Parkway and Bennelong Parkway also form part of this outer ring road. These roads generally have a 60 km/hr speed limit and provide access to the wider road network, including major roads such as the M4-Western Motorway and Homebush Bay Drive.</p> <p>The inner local roads, such as Dawn Fraser Avenue and Herb Elliot Avenue, have lower traffic volumes and allow for circulation within the precinct. These roads are in areas of high pedestrian activity and consequently have a 40 km/hr speed limit.</p> <p>The Sydney Olympic Park transport and road network changes throughout the year (including some road closures) to accommodate the different events and sporting fixtures that are held.</p>



Aspect	Description
Rail / light rail	<p><b>T6 Carlingford Line:</b> the section of this line north of Grand Avenue will be converted to light rail operation as part of Parramatta Light Rail Stage 1 (with Camellia Station converted to a light rail stop). The disused Sandown Freight Line branches off from the T6 Carlingford Line and runs east-west through Camellia.</p> <p><b>T7 Olympic Park Line:</b> provides access between Olympic Park Station connecting to the T1 North Shore, Northern &amp; Western Line.</p> <p><b>Sydney Metro West:</b> connecting the Parramatta CBD and Sydney CBD, and will service the key precincts of Greater Parramatta, Sydney Olympic Park, The Bays precinct and the Sydney CBD.</p>
Bus	<p><b>Camellia:</b> bus routes extend along Hassall Street and James Ruse Drive providing services between Parramatta and Bankstown/Sutherland Station.</p> <p><b>Rydalmere/Ermington/Melrose Park:</b> one bus route (524) that connects Parramatta and Ryde via Boronia Street, Hope Street and Cobham Avenue. Metro buses also run along Victoria Road.</p> <p><b>Wentworth Point:</b> serviced by two bus services, Burwood to Rhodes Shopping Centre (526) and Sydney Olympic Park to Chatswood via Rhodes and North Ryde (533), both using the Bennelong Bridge transit corridor.</p> <p><b>Sydney Olympic Park:</b> The precinct is served by four bus routes (526, 525, 533 and 401) providing services to Lidcombe, Parramatta, Burwood, Rhodes and Chatswood. Special event buses also run during major events.</p>
Ferry / private boating	<p>Rydalmere Wharf and Sydney Olympic Park Wharf (at Wentworth Point) provide services between Parramatta and the City.</p> <p>Ermington Boat Ramp is located at the southern end of Wharf Road and is available for public use to the Parramatta River.</p>
Cycling / pedestrians	<p>Active transport routes are approved as part of Stage 1 and are proposed to be extended as part of the Project.</p> <p>The Parramatta Valley cycleway runs along the northern bank of the Parramatta River and provides a continuous cycling connection between Parramatta and Putney via Ermington. An on-road shared path is also located along Waratah Street and Lancaster Avenue in Melrose Park.</p> <p>Wentworth Point contains extensive shared paths (walking and cycling) throughout Millennium Parklands and Newington Reserve as well as parallel to Hill Road and Bennelong Parkway.</p> <p>Sydney Olympic Park contains extensive shared paths throughout the precinct, with dedicated on-road lanes provided on the major roads such as Australia Avenue, Sarah Durack Avenue and Dawn Fraser Avenue, and off-road trails and dedicated paths connecting into the surrounding parkland and communities.</p> <p>Council footpaths exist along most streets within the Project corridor and include a number of pedestrian features such as signalised and non-signalised crossings.</p>

### Potential impacts

The Project will build upon the Stage 1 route to provide a new light rail service between the Parramatta CBD and Sydney Olympic Park, connecting new communities throughout the region and supporting the GPOP priority growth area as a 30-minute city. A key objective for the Project is to also provide a safe and connected network of bicycle and walking paths.

The Project will trigger traffic, transport and access impacts such as changes to the road network (including during special events) and bus routes, loss of parking and consideration of navigable waters along with construction-related impacts.

The Corridor EIS will focus on assessing the high level traffic, transport and pedestrian network impacts across the various transport modes associated with construction and implementation of the Project.

Detailed assessment and modelling of these aspects will be undertaken as part of the PLR Stage 2 EISs once design details are known.

### **Corridor EIS**

A desktop Traffic and Transport Report will be prepared for the Corridor EIS including:

- details around how the Project will meet the traffic and transport objectives taking into account future land use changes and proposed new infrastructure projects
- justification of light rail as the appropriate mode for servicing this area and carrying out the desired functionality
- assessment of the potential traffic and transport impacts of the corridor:
  - identifying the positive and negative impacts on the regional and road network and further mitigation for investigation including road safety considerations
  - assessing public transport impacts and integration opportunities, particularly with respect to strategic bus corridors and other mode interchanges
  - assessing opportunities for active transport including pedestrian and cyclist connectivity
  - assessing traffic and transport impacts and integration opportunities with major urban renewal precincts.

## **7.4.2 Biodiversity**

### **Existing environment**

The Project is located within a highly modified urban environment with some fragmented pockets of natural areas remaining. Much of the open green space that is present is dedicated to recreational use (e.g. golf courses, public parks) or associated with remnant pockets of vegetation within close proximity to Newington Nature Reserve, Sydney Olympic Park, Millennium Parklands and riparian vegetation surrounding the Parramatta River and various creeks. Planted trees and other landscaped area also line many of the streets along the proposed route/s.

The Newington Nature Reserve is gazetted as a Nature Reserve under the *National Parks and Wildlife Act 1974* and is defined as part of the Parklands of Sydney Olympic Park by the *Sydney Olympic Park Authority Act 2001*. The reserve contains endangered ecological communities protected under State and Commonwealth legislation, as well as habitat for threatened species such as the Green and Golden Bell Frog (*Litoria aurea*), and migratory birds which are protected under international agreements.

Due to the high ecological values and sensitivity, the corridor alignment has been designed to avoid the Newington Nature Reserve however there is a risk of indirect impacts which will need to be considered.

The alignment is proposed to travel through Millennium Parklands, governed by the *Parklands Plan of Management (2010)* under the *Sydney Olympic Park Authority Act 2011*. The vegetation communities of the Parklands include remnant and constructed freshwater and saltwater wetlands, grasslands, recently planted woodlands, turfed parklands and playing fields. The proposed route will travel through conservation areas and wetland/waterways within the Millennium Parklands. These places provide threatened species habitat, are adjacent to sensitive ecological communities and provide flora and fauna refuge. Where possible, the alignment of the corridor has been positioned adjacent to the existing road infrastructure to minimise impacts to the Parklands.

However, potential impacts to biodiversity are considered likely and will likely trigger an EPBC referral and potential offsetting requirements.

While almost all of the original vegetation and other natural features of the Project corridor have been removed or modified, some significant natural features still remain. It is anticipated that some of the existing vegetation may comprise threatened flora species or threatened ecological communities and/or provide habitat for threatened fauna species or migratory species (for example there are a number of records for the Green and Golden Bell Frog (*Litoria aurea*) occurring in the Sydney Olympic Park area). The extent of impacts on these species has not yet been quantified, however the Corridor EIS will consider potential areas of habitat sensitivity and how the corridor alignment has sought to minimise impacts.

The foreshores of the Parramatta River are lined with mangroves in some sections. Mangroves are listed as a type 2 marine vegetation comprising moderately sensitive fish habitat (NSW Department of Primary Industries, 2013), and are protected under the *Fisheries Management Act 1994*.

The Project also traverses areas that are mapped as 'Coastal Wetlands' and 'land in close proximity to coastal wetlands' under the *State Environmental Planning Policy (Coastal Management) 2018*, meaning that certain assessment criteria will need to be considered at the PLR Stage 2 EISs stage to ensure the Project is consistent with the objectives for the relevant coastal area.

### **Potential impacts**

The selection of a corridor for the Project has the potential to impact biodiversity through the future construction and operation of the Project. Direct and indirect impacts (such as vegetation removal) will be quantified as part of the Project EIS. For the Corridor EIS it is important to identify (and avoid/minimise where possible through route and design development):

- areas of high quality native vegetation communities and threatened ecological communities
- threatened flora
- habitat areas for threatened or migratory fauna
- estuarine ecosystems (Parramatta River and various creeks)
- changes to wildlife connectivity.

### **Corridor EIS**

The Corridor EIS will involve the preparation of a Biodiversity Report that will:

- provide a high-level understanding of the biodiversity values within the corridor and adjoining lands and the type and significance of the vegetation and habitats likely impacted by the Project, identifying key potential risks and areas of at-risk vegetation/habitats
- identify opportunities to minimise potential direct and indirect impacts on flora and fauna, in particular for threatened ecological communities and threatened species (such as the Green and Golden Bell Frog) and migratory shorebirds, where feasible
- undertake a preliminary discussion of impacts on biodiversity values and likely offset requirements with reference to the Biodiversity Assessment Methodology (BAM) and Biodiversity Offset Scheme (BOS)
- identify possible offset opportunities and processes for early implementation.

### 7.4.3 Non-Aboriginal heritage

#### *Existing environment*

No heritage items listed on the World Heritage List, Commonwealth Heritage List and National Heritage List are known to occur in or within 200 metres to the Project corridor.

The Project is located within 50 metres of the following State significant heritage items:

- Newington Armament Depot and Nature Reserve (also listed as Millennium Parklands (Newington Armament Depot and Nature Reserve) on the *State Environmental Planning Policy (State Significant Precincts) 2005*)
- State Abattoirs heritage conservation area (also listed on the *State Environmental Planning Policy (State Significant Precincts) 2005*)
- Sewage Pumping Station 67 (also listed on the Sydney Water Section 170 Heritage and Conservation Register and heritage schedule of the *Parramatta Local Environmental Plan 2011* (Parramatta LEP))
- Rydalmere Hospital Precinct (former) (also listed on the Western Sydney University Section 170 Heritage and Conservation Register and heritage schedule of the Parramatta LEP).

Local heritage items listed on the Parramatta LEP and located within 50 metres of the alignment include the Tram alignment (I6) – Grand Avenue at Camellia, Truganini House and grounds (I591) at 38 South Street Rydalmere, Wetlands (I1), and the Bulla Cream Dairy (I64) at 64 Hughes Avenue, Ermington.

With respect to archaeological sites there are various areas of the alignment which may contain archaeological items and there is also the potential for unknown archaeological remains given the history of the area. In 2001 Godden Mackay Logan prepared the *Parramatta Historical Archaeological Landscape Management Study* (PHALMS). PHALMS replaced the Archaeological Zoning Plan for Parramatta. The PHALMS divides Parramatta into Archaeological Management Units based on their historical context and level of disturbance. The archaeological items (anticipated to be of local significance) potentially located along the Project alignment include:

- the 'Tram Alignment' along Grand Avenue, Camellia
- Schaeffer's garden in Rydalmere
- Williamson structure in Rydalmere
- potential PHALMS Archaeological Management Units
- Windemere residence at Ermington
- Lockyer's Road and garden hut, Eyre's cottage and Pennant Hills Wharf at Ermington.

In addition, a number of significant historic view corridors are nominated in the *Parramatta Development Control Plan 2011* and *Sydney Olympic Park Master Plan 2030* (Sydney Olympic Park Authority, 2018) including:

- views towards Camellia from Elizabeth Farm and Harris Park colonial precinct
- significant views within and to Sydney Olympic Park.

There is also potential for maritime heritage, for example, the Pennant Hills wharf (at Ermington) where the extent of remains is unclear.

### *Potential impacts*

The selection of a corridor for the Project has the potential to impact known and unknown non-Aboriginal heritage items and areas of archaeological potential through the future construction of the Project. Non-Aboriginal heritage items impacted by the final design of the Project will be further assessed as part of the PLR Stage 2 EISs once there is a sufficient level of design to understand these impacts. For the Corridor EIS it is important to identify (and avoid/minimise impacts where possible through route and design development):

- heritage items which have the potential to be directly impacted
- potential archaeological remains
- heritage conservations areas
- key views and vistas.

### *Corridor EIS*

The Corridor EIS will involve the preparation of a Historical Heritage Study that will:

- provide an understanding of the heritage items likely to be impacted along the alignment, identify their significance and identify potential mitigation strategies to avoid or lessen potential impacts
- undertake a desktop preliminary archaeological assessment to determine the presence of potential archaeological items and the potential impacts as a result of the Project.

## **7.4.4 Aboriginal heritage**

### *Existing environment*

Due to the long and intensive European settlement history of Parramatta and surrounding suburbs, the majority of the Project corridor is highly disturbed. Major utility installations along the alignment have disturbed the ground area of depths beyond road disturbances.

Previous archaeological studies in the local area and wider region have identified a number of Aboriginal archaeological site types. This demonstrates that the local landscape retains archaeological evidence of Aboriginal activities and landscape use and is variably affected by disturbance. The information from previous archaeological studies in the region indicates that stone artefact scatters (open camp sites), isolated artefacts, shell middens and Potential Archaeological Deposits (PADs) are the most likely site type within the Project corridor.

The Project corridor also contains some landforms identified as archaeologically sensitive in the wider region, namely elevated alluvial terraces and alluvial plains around the Parramatta River. A number of small drainage lines and creeks are also present within this area alongside swamps and wetlands. These complex and varied hydrological features surrounding the Project corridor would have led to a range of different environmental contexts and a diversity of available resources for the local Aboriginal groups.

Preliminary desktop research indicates there are five known archaeological features along the Project corridor – two registered sites on the Aboriginal Heritage Information Management System and three PADs with moderate to low potential for subsurface archaeological deposits.

### *Potential impacts*

The selection of a corridor for the Project has the potential to impact known and unknown Aboriginal heritage items and areas of archaeological potential through the future construction of the Project. Aboriginal heritage items impacted by the final design of the Project will be further assessed as part of the PLR Stage 2 EISs once there is a sufficient level of design to understand these impacts.

## Corridor EIS

The Corridor EIS will involve the preparation of an Aboriginal Heritage Study that will:

- provide an understanding of the Aboriginal heritage items likely to be impacted along the alignment, identify their significance and identify potential mitigation measures to avoid or lessen potential impacts
- identify the potential for the Project to disturb previously unknown Aboriginal heritage (sites, objects, remains, values, features or places)
- undertake a desktop preliminary archaeological assessment to determine the presence of potential archaeological items and the potential impacts as a result of the Project.

### 7.4.5 Land use and property

#### Existing environment

The Project corridor will traverse well-established areas of commercial, residential and industrial land uses of varying densities interspersed with recreational areas (such as public open space) and community facilities (such as schools, childcare centres, places of worship and health facilities). Existing land use patterns are described in Table 7.8.

**Table 7.8 Existing land use patterns**

Land use	Pattern / key features
Residential	There are a number of lower density residential areas along the Project corridor, predominantly in Rydalmere and Ermington. These are characterised by single houses and semi-detached houses. There is also higher density housing characterised by townhouses, multi-dwelling buildings, and multi-storey apartment buildings. Areas of higher density housing are predominantly located around Wentworth Point, Olympic Park and the Carter Street Precinct, with higher density also currently being constructed through Melrose Park.
Mixed use	Mixed use precincts generally comprise a combination of uses and activities including commercial, residential, retail, civic, cultural, education, health, special use and recreation. Mixed use precincts are located along the Project corridor within Sydney Olympic Park.
Education	A number of educational institutions are located near the Project corridor. These educational institutions include, but are not limited to, Western Sydney University (Rydalmere), Rydalmere Public School, Rydalmere East Public School, Melrose Park Public School and a number of other early learning centres and preschools.



Land use	Pattern / key features
Industrial	Industrial areas located along the Project corridor include a large concentration of light industry, manufacturing, logistics, warehousing, community services and bulky goods retailing. These areas perform a critical local and regional economic role. These uses are currently operating through areas of Camellia, Rydalmere and Melrose Park.
Recreational	Major recreational facilities include recreational and sporting facilities associated with Newington Nature Reserve, Millennium Parklands, Brickpit Park, the broader Sydney Olympic Park arenas and stadiums and Rosehill Gardens Racecourse. In addition, there are numerous local parks around the Project corridor. These recreational facilities provide important parkland for residents and workers, with opportunities for informal recreation and sporting use.
Infrastructure	Infrastructure near the Project corridor is mainly associated with major roads and railway infrastructure. Other infrastructure includes utilities, electricity transmission and distribution, and Sydney Water stormwater channels.
Environmental conservation and management	Environmental conservation and management areas associated with Newington Nature Reserve, Millennium Parklands, Brickpit Park and surrounding parklands and wetlands.
Waterways	The waterways of the Parramatta River have a broad range of uses including recreation, sporting activities and transport for Sydney Ferry services.

### **Future land use**

The Project will link numerous areas proposed for urban renewal or further development, creating opportunities for alignment integration, including:

- Melrose Park – mixed use residential developments proposed for a combined 7,940 dwellings e.g. Payce Melrose Park (approved)
- Wentworth Point – new residential development proposed for about 10,000 dwellings e.g. Sanctuary by Sekisui House (approved)
- Sydney Olympic Park and Carter Street Precinct – about 10,000 dwellings and 25,000 jobs.

These precincts are planned to undergo urban renewal as part of a separate process which will result in changes to, or intensification of, existing land use.

Subject to selection of Option 2 (refer Section 4.2), the Project will also link the proposed Camellia Town Centre. The Draft Camellia Town Centre Master Plan, developed by the Department of Planning and Environment, establishes the vision for development of a town centre for a future population of 21,000, up to 200,000 square metres of commercial, retail and employment space and 40 hectares of remediated land (Department of Planning and Environment, 2018).

### Potential impacts

The Project will be a catalyst for shaping new growth – activating underutilised lands and providing the transport capacity needed to support sustainable population and employment growth in the area and is consistent with strategic planning directions for the GPOP priority growth area. Corridor protection is a key issue for the Corridor EIS that may influence future development along the route.

In addition to land use, a framework for how property impacts will be considered as part of the PLR Stage 2 EISs will be outlined in the Corridor EIS. Further assessment will be undertaken during the PLR Stage 2 EISs when there is a sufficient level of design to understand impacts associated with property acquisition. Land use and property is also a key issue raised in the consultation undertaken with the community to date.

### Corridor EIS

The Corridor EIS will involve the preparation of a Land Use and Property Study that will:

- identify the existing property and land use mix / ownership along the Project corridor
- consider likely changes to future land use based on zoning, current and planned future urban renewal, and consultation with the Department of Planning and Environment, City of Parramatta Council and City of Ryde Council
- develop a framework for a potential future property impact assessment and how impacts can be minimised through the options/design development process.

#### 7.4.6 Social impacts and community infrastructure

##### Existing environment

Community infrastructure includes the services that help individuals, families, groups and communities meet their social needs, maximise their potential for development and enhance community wellbeing. Community infrastructure includes schools, childcare centres, places of worship, medical / healthcare infrastructure and recreational areas (such as public open space) and correctional facilities. Those located in the immediate surrounds of the Project corridor are listed in Table 7.9.

**Table 7.9 Existing community infrastructure**

Suburb	Community infrastructure
Camellia	Camellia is limited in terms of existing social infrastructure due to its industrial nature with the exception being Rosehill Racecourse and associated transport facilities
Rydalmere, Ermington and Melrose Park	<p><b>Education facilities:</b> Western Sydney University, Rydalmere Public School, Rydalmere Public School Preschool, River Road Kindergarten, Rydalmere East Public School, Melrose Park Public School, Early Learning Centres (Atkins Road, Massie Street, Lambert Avenue)</p> <p><b>Places of worship:</b> Nova Life Church, Immanuel Australia Church, Rydalmere Masjid and Harvest Christian Centre</p> <p><b>Medical and healthcare:</b> Carinya Day Centre and Ermington Family Medical Practice</p> <p><b>Recreational areas:</b> Ermington Boat Ramp, Reid Park, Eric Primrose Reserve, Ken Newman Park, George Kendall Riverside Park, Bretby Park, Bruce Miller Reserve, Ryde-Parramatta Golf Course, Koonadan Reserve and Melrose Park Playground.</p>

Suburb	Community infrastructure
Wentworth Point and Sydney Olympic Park	<p><b>Conservation areas:</b> Newington Nature Reserve, Millennium Parklands Brickpit Park and Bird Hide Waterbird Refuge</p> <p><b>Recreational areas:</b> the broader Sydney Olympic Park arenas, stadiums and open space areas, Numerous cycle and walking paths through the area, Newington Armory Park, Blaxland Riverside Park</p> <p><b>Education facilities:</b> Wentworth Point Public School, SP Jain Global School of Management, Australian College of Physical Education, Sweet Peas Early Learning Centre, Woodstock child care centre</p> <p><b>Medical and healthcare:</b> Rainbow Dental Practice and Sydney Sports Medicine Centre.</p>

### *Potential impacts*

The Project will help create more attractive communities by delivering high quality streetscapes and urban design. Having access to an improved and integrated public transport system offers better choice in relation to transport and will provide more customers with reliable 30-minute access to jobs, educations and services, and entertainment attractions. The Project also provides an opportunity to improve walking and cycling, through enhanced active transport, which can contribute to the wellbeing of the community and urban amenity.

The Project may also have actual or perceived social impacts and benefits to people's way of life, sense of community, access to services, culture, health and wellbeing, surroundings, personal and property rights and decision making systems.

### *Corridor EIS*

The Corridor EIS will involve the preparation of a Social Impact Assessment Report that will include:

- desktop review of demographic, community and economic data
- identification of the Project's social area of influence
- audit of nearby sensitive receivers including community facilities, childcare centres, retirement villages etc
- policy review
- review of research on social impacts caused by comparable infrastructure projects
- identification and discussion of the community benefits of the Project
- desktop assessment of impacts of corridor protection including:
  - whether the impact is positive or negative
  - likelihood of the impact
  - magnitude of the impact
  - relevance to certain individuals, stakeholders or special interest groups.

## **7.4.7 Hazard and risk**

### *Existing environment*

In terms of known hazards that will be considered at the Corridor EIS stage, the proposed alignment corresponds to a number of easements which house major utilities. Key known utilities/services include:

- major Sydney Water utilities that extend along Grand Avenue, South Street and Boronia Street and which cannot be relocated

- fuel and gas pipelines from Broadoaks Street / Boronia Street to Hope Street / Waratah Street
- overhead electrical assets that run north-south through Melrose Park and extend across Parramatta River
- underground electrical assets and contamination leachate drains at Wentworth Point on Hill Road.

### **Potential impacts**

There are a number of safety and operational requirements when working around utilities, such as allowing for appropriate clearances and operational access. Alignment selection and refinement needs to consider these utilities to avoid potential risks and/or complicated or unviable relocation processes.

### **Corridor EIS**

The Corridor EIS will involve the preparation of a Hazards and Risk Report that will:

- identify key hazards and how these have been considered through the options/design development process for corridor selection
- outline strategies for how these will be considered further in detailed design and managed during construction/operation.

## **7.5 Corridor EIS – Other environmental issues**

### **7.5.1 Soils, geology and contamination**

The Project is located in the Sydney Basin with a number of geological formations and soil landscape types. There is potential contamination associated with historical industrial land use and landfill activities along the corridor. In particular, at Camellia there is a NSW Environment Protection Authority (EPA) listed site with associated hexavalent chromium contamination and the potential for asbestos associated with the former James Hardie sites. Camellia and the immediate surrounds is also underlain by chromium impacted groundwater. Around the Sydney Olympic Park area there are a number of historic landfills and leachates with potential soil and groundwater contamination. High risk Acid Sulfate Soil areas are also mapped around Parramatta River and Haslams Creek.

For the Corridor EIS a desktop review will be undertaken to:

- review previous contamination assessments (where available)
- review historical aerial photography of the project area (to identify potential contamination sources along and / or adjacent to the Project)
- review publicly available data (web-based information searches)
- recommend site testing / investigations and / or management of potentially contaminated sites which could be encountered during construction.

Further quantification of the extent of the potential impacts of ground-disturbance activities through site testing / investigations will be undertaken as part of the PLR Stage 2 EISs once the detail of required ground disturbance activities for construction is known.

### **7.5.2 Noise and vibration**

Land use along the Project corridor varies considerably and contains a wide range of urban recreational, commercial, residential, parklands and industrial land uses / receivers in addition to recreational areas and community facilities (such as schools, childcare centres, places of worship and medical facilities). The existing noise environment is influenced by a range of noise sources including:

- heavy and light industrial activities which are dispersed throughout Camellia, Rydalmere and Melrose Park
- localised construction activities: in particular, residential and commercial development in Wentworth Point and Melrose Park
- suburban rail line operations at Sydney Olympic Park
- road traffic noise: in particular from main roads such as Silverwater Road, Victoria Road, James Ruse Drive and Grand Avenue
- natural noise sources such as birds, dogs and insects.

To understand the potential broad range of impacts of construction and operational noise along the Project corridor, a desktop review will be undertaken for the Corridor EIS to identify and map potential sensitive receiver areas. It will identify opportunities for noise reduction with a particular focus on operational phases.

Preservation of the corridor presents a way to trigger that any new development considers the future noise environment within the development application and design phase and thereby not retrofitting later.

Further quantification of the impacts of construction and operational noise will be undertaken as part of the PLR Stage 2 EISs once there is a sufficient level of design to understand these impacts.

### **7.5.3 Business and economic impacts**

Camellia, Rydalmere and Melrose Park comprise a large portion of industrial land. The primary industries within these suburbs range from manufacturing, service, wholesale, freight and logistics and bulk retail.

Sydney Olympic Park is an important economic centre supporting commercial office buildings, sporting facilities, education centres and hospitality. It plays host to major sporting events, conferences, festivals and community events and contains several hotels, and numerous permanent cafes, restaurants and bars. During events, Sydney Olympic Park also regularly supports numerous temporary food and retail stalls.

The Project travels through key areas identified as part of the Greater Parramatta Growth Area and the GPOP priority growth area which are currently undergoing substantial redevelopment, including Camellia, Rydalmere, Wentworth Point, Sydney Olympic Park and the Carter Street Precinct, which will help to deliver open space, shops, services, and new homes and jobs. In particular, Wentworth Point is rapidly transforming with residential and commercial development such as the new Marina Plaza with a large supermarket, shops and cafes.

Positive business impacts (such as increased passing trade and demand for services) and negative impacts (such as disruptions to services, deliveries and access; reduction in shopfront visibility and other amenity impacts) will be assessed as part of the PLR Stage 2 EISs when more information on the construction methodology is known.

The Corridor EIS will consider high level impacts (both positive and negative) and demonstrate how business and economic connectivity has been considered in the development of the corridor. A framework for how impacts to businesses will be considered as part of the PLR Stage 2 EISs will be outlined in the Corridor EIS.

#### **7.5.4 Urban design, landscape and visual amenity**

The sensitivity of the existing visual environment varies considerably along the Project corridor. The corridor contains a wide range of urban recreational, commercial, residential, parklands and industrial land uses in addition to recreational areas and community facilities (such as schools, childcare centres, and places of worship). Additionally, it is important to consider the Project in context of the urban renewal around sections of the alignment.

Visual catchments along the Project corridor are generally likely to be small due to the presence of intervening structures (e.g. commercial and residential buildings) which will restrict views to the Project corridor. Larger structures, such as the two bridges proposed over the Parramatta River, have the potential to change the visual amenity of a wider catchment.

Visually sensitive receivers will typically include residential dwellings, commercial premises (e.g. cafes, restaurants and commercial buildings), primary schools and educational facilities, child care facilities and recreational facilities (e.g. nature reserves and parklands).

The Corridor EIS will:

- identify urban design objectives and principles for the Project including an assessment of the consistency with the existing and desired built form, natural and community character of the area
- map potential viewshed areas and receiver areas and undertake (an indicative/ high level) assessment of the visual changes for receiver areas along the alignment
- identify a broad framework for the consideration of design and safety measures for pedestrian, cycle and bus connectivity and access.

Further assessment of impacts associated with the presence of construction machinery and compounds, light spill etc. will be undertaken for the PLR Stage 2 EISs, along with a more detailed assessment of the visual changes for various receivers along the alignment once there is a sufficient level of design to understand these impacts.

#### **7.5.5 Hydrology, flooding and groundwater**

The Project is located within the Parramatta River catchment, which covers an area of about 266 square kilometres and is divided into 10 sub-catchments. The Parramatta River is tidal to the Charles Street Weir in Parramatta and the mixing of fresh and saline waters through river discharge, astronomical tides and waves comprise key processes that influence the geomorphology of the section of river between Wentworth Point and Camellia. The Parramatta River catchment is highly urbanised with a number of modified waterways and isolated areas of native vegetation, resulting in poor water quality and modified flow regimes.

Sections of the preferred alignment for the Project are located on the floodplain of the Parramatta River and are likely to be subject to mainstream flooding (i.e. the inundation of normally dry land when water overflows the banks of a stream or river) and overland flooding (i.e. the excess rainfall runoff from homes, driveways and other surfaces). Areas likely to experience flooding include the alignment through Camellia, Rydalmere wharf and Wentworth Point.

The Corridor EIS will:

- include a desktop review of available flooding and hydrology reports
- identify areas for detailed assessment in the PLR Stage 2 EISs where there may be potential changes to flood levels, discharges, velocities, duration of flood inundation and flood hazards as a result of permanent infrastructure.

## **7.6 Corridor EIS – Non-material issues**

### **7.6.1 Air quality**

Air quality impacts are not considered to be a Key or Other issue for the Corridor EIS, as the risks are related to potential odours from the disturbance of contaminated materials, dust and vehicle emissions which will be considered for the PLR Stage 2 EISs once more information on the construction methodology is known.

### **7.6.2 Greenhouse gas and energy**

Risks for this aspect are around the emissions of greenhouse gases from construction activities including energy use for construction plant; and from operational energy use and embodied energy in materials. As the Corridor EIS does not propose any construction activities, the risk does not exist at this phase of the Project. However, a Sustainability Strategy is being prepared for the Project in order to consider these matters at an early design phase and to determine appropriate strategies for mitigation. These objectives, along with the results of any greenhouse gas and energy assessments will be included as part of the PLR Stage 2 EISs.

### **7.6.3 Climate risk and resilience**

The protection of the corridor is unlikely to have an impact on or be impacted by climate change. The impacts of climate change on light rail operations and infrastructure, and on the comfort of staff/customers require more detailed information relating to the design and so further detailed assessment will be considered in the PLR Stage 2 EISs. However, a Sustainability Strategy is being prepared for the Project to consider these matters at an early design phase and to determine appropriate strategies to mitigate. These objectives, along with the results of any climate risk assessments, will be included as part of the PLR Stage 2 EISs.

### **7.6.4 Waste and resource use**

Waste and resource impacts are relevant to construction and operation of the Project, so will be further considered in detail in the PLR Stage 2 EISs. The generation of waste and the anticipated resource consumption during construction and operation will be similar to other infrastructure projects of this nature and scale and these impacts are expected to be manageable through the implementation of standard environmental management measures (such as application of the waste management hierarchy).

### **7.6.5 Cumulative**

Cumulative construction impacts occur as a result of other major projects in the vicinity and include construction noise, construction road traffic noise and congestion, construction traffic noise and construction fatigue. Cumulative operational impacts such as traffic and noise may also occur. Heritage impacts associated with the Project will also need to be considered in a wider context (e.g. cumulative impacts to heritage sites (historic and Aboriginal)) across other developments and geographies.



The Project is likely to be undertaken concurrently with a number of other major projects, including a number of developments in Sydney Olympic Park, Wentworth Point and Melrose Park, as well as form a continuation of Stage 1 construction activities. Consideration of cumulative impacts will be deferred to the Project EIS, once more information on construction timing and precise impacts are known.

## 8. Conclusions

The GPOP priority growth area is one of Sydney's fastest growing areas. The PLR network will deliver an integrated light rail service that supports population and employment growth as well as the development expected throughout the GPOP priority growth area.

The PLR network will be delivered in stages. Procurement and early works for Stage 1 are underway with operations expected to commence in 2023. The preferred route for Stage 2 was announced by the NSW Government in October 2017 and due to the need to obtain early corridor protection from future development it is proposed to undertake a staged State significant infrastructure process under Part 5, Division 5.2 of the EP&A Act:

- **Corridor EIS:** preparation of an initial concept level EIS which will gain approval to protect the proposed Project corridor. This EIS will not seek approval for construction and operation of the light rail.
- **PLR Stage 2 EISs:** following approval of the business case and availability of adequate design and delivery strategy, detailed PLR Stage 2 EISs will be prepared for the construction and operation of the Project. The timing of this process is yet to be determined.

The purpose of this document is to support a State significant infrastructure application for the proposed Project corridor, and to assist the formulation of SEARs for the Corridor EIS in accordance with sections 5.15 and 5.16 of the EP&A Act.

An environmental risk assessment has been undertaken for the Corridor EIS which considered the strategic land use and transport issues associated with the selection and protection of the corridor. This assessment identified the following Key environmental issues for further assessment in the Corridor EIS:

- traffic, transport and access
- biodiversity
- non-Aboriginal heritage
- Aboriginal heritage
- land use and property
- social impacts and community infrastructure
- hazard and risk (key electrical, contamination and water infrastructure).

A preliminary environmental risk assessment was also undertaken for the construction and operation of the Project to identify the likely Key, Other and Non-material matters, however these will be re-assessed during the Corridor and PLR Stage 2 EISs.

Following receipt of the SEARs, Transport for NSW will prepare and publicly exhibit an EIS for the Corridor, which will be prepared in accordance with the SEARs and technical guidelines. It will include:

- a description of the corridor and key light rail infrastructure elements
- identification and consideration of issues raised by stakeholders and the community
- a description of the existing environment
- an assessment of impacts associated with the establishing of a light rail corridor focussing on key environmental issues and consideration of other environmental issues
- identification of strategies to avoid, minimise and mitigate the potential impacts of the Project
- scoping of key and other issues for the PLR Stage 2 EISs.

## 9. Reference list, abbreviations and glossary

### 9.1 Reference list

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## 9.2 Abbreviations and glossary

Term/Acronym	Definition
AS	Australian Standard
CBD	central business district
Central District City	One of the three cities defined in The Greater Sydney Regional Plan, <i>A Metropolis of Three Cities</i> . The Central District City covers the Blacktown, Cumberland, Parramatta and The Hills local government areas, with Parramatta at the heart.
Concept design	High level description of the Project, including general alignment and major structures.
Detailed design	Refinement of the Project design including engineering specifications, plans and drawings, costs and construction methodology.
EIS	Environmental Impact Statement
EPA	NSW Environment Protection Authority
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
<i>Future Transport 2056</i>	<i>Future Transport 2056</i> (Transport for NSW, 2016) is the NSW governments update to the 2012 <i>Long Term Transport Master Plan</i> . <i>Future Transport 2056</i> is an overarching strategy, supported by a suite of plans to achieve a 40 year vision for our transport system
GPOP priority growth area	Greater Parramatta to the Olympic Peninsula priority growth area
GPOP Vision	The Greater Sydney Commission's vision for the Greater Parramatta and the Olympic Peninsula. The 2036 vision for GPOP will be 'Greater Sydney's true centre- the connected unifying heart'
<i>Greater Sydney Regional Plan</i>	The <i>Greater Sydney Regional Plan- A Metropolis of Three Cities</i> , aligns land use, transport and infrastructure planning to reshape Greater Sydney as three unique but connected cities- the Western parkland City, the Central River City and the Eastern Harbour City
Infrastructure SEPP	(NSW) <i>State Environmental Planning Policy (Infrastructure) 2007</i>
ISO	International Organization for Standardization
LEP	local environmental plan
LRV	Light Rail Vehicles
NSW	New South Wales
PAD	Potential Archaeological Deposit
PHALMS	Parramatta Historical Archaeological Landscape Management Study
PLR	Parramatta Light Rail
PLR network	Parramatta Light Rail Stage 1 and Stage 2
(the) Project	refers to Stage 2 Parramatta Light Rail project (the subject of this report)
SEARs	Secretary's environmental assessment requirements
SEPP	State Environmental Planning Policy
Stage 1	The approved Stage 1 of Parramatta Light Rail- between Westmead and Carlingford via Parramatta and Camellia
Stage 2	Parramatta Light Rail – Stage 2 Project between Camellia/ Rydalmere and Sydney Olympic Park
State and Regional development SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011-</i> defines what is classified as State Significant Infrastructure.

Term/Acronym	Definition
Sydney Metro West	An underground metro railway that will link the Parramatta and Sydney CBDs, and communities in between. The project is currently in the planning stage, with a station proposed at Sydney Olympic Park.
<i>Sydney's Rail Future</i>	<i>Sydney's Rail Future: Modernising Sydney's Trains</i> (Transport for NSW, 2012b) is the NSW Government's long-term plan to increase the capacity of Sydney's rail network through investment in new services and upgrading of existing infrastructure. <i>Sydney's Rail Future</i> is being delivered in five stages. The project comprises Stage 4 of <i>Sydney's Rail Future</i> , which will provide the largest increase in capacity to the Sydney rail network for 80 years
Transport for NSW	The lead agency of the NSW Transport cluster which also includes Roads and Maritime Services, Sydney Trains, NSW Trains and State Transit Authority.
Westconnex	A 33 kilometre predominately underground motorway to link western and south-western Sydney with the city, Kingsford Smith Airport and Port Botany precincts. It will largely be constructed in the M4 and M5 corridors.



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