WestConnex M4-M5 Link

Addendum State significant infrastructure application report - Addendum 2

March 2017

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Abbreviations and Glossary

AHIMS	Aboriginal Heritage Information Management System
CBD	Central Business District
DP&E	NSW Department of Planning and Environment
EIS	Environmental impact statement
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EP&A Regulation	Environmental Planning and Assessment Regulation 2000 (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
Interchange	A grade separated junction or overpass to separate road, rail or other traffic that cross each other, so that crossing movements do not conflict
Iron Cove Link	A tunnel connection from the southern abutment of the Iron Cove Bridge to the proposed Rozelle interchange
HCA	Heritage Conservation Area
LEP	Local Environmental Plan
LoS	Level of service - a qualitative measure describing operational conditions within a traffic stream and the motorists and/or passengers perception.
M4 East	A part of the WestConnex program of works – Homebush Bay Drive, Homebush to Parramatta Road and City West Link (Wattle Street) at Haberfield
New M5	A part of the WestConnex program of works – King Georges Road at Beverly Hills to St Peters
PAD	Potential Archaeological Deposit
REF	Review of Environmental Factors
Roads and Maritime	NSW Roads and Maritime Services
Rozelle Rail Yards	The former Rozelle Rail Yards is bounded by: · City West Link to the south · Lilyfield Road to the north · Balmain Road to the west · White Bay to the east.
RPA	Royal Prince Alfred (Hospital)
SEARs	Secretary's Environmental Assessment Requirements
SMC	Sydney Motorway Corporation
SSI	State significant infrastructure

SSIAR	State significant infrastructure application report
The project	M4-M5 Link
Threatened	As defined under the *Threatened Species Conservation Act 1995* (NSW). A species, population or ecological community that is presumed to be extinct (not recorded in its known or expected habitat within a determined time frame), likely to become extinct or is in immediate danger of extinction
Tunnel portal	The entry/exit structures at each end of a tunnel
Western Harbour Tunnel	A proposed motorway tunnel crossing of Sydney Harbour to the west of Sydney Harbour Bridge which, together with WestConnex, would act as a western bypass of the CBD and reduce pressure on the Sydney Harbour Bridge and Sydney Harbour Tunnel. The project is being investigated by Roads and Maritime Services. This project would be subject to separate assessment and planning approval with the exception of the civil construction of stub tunnels, above-ground ramps and infrastructure at Rozelle, which are included within the M4-M5 Link project.

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1 Introduction

1.1 Background

NSW Roads and Maritime Services (Roads and Maritime) propose to construct and operate the M4-M5 Link (the project) which would comprise a new, tolled multi-lane road link connecting the M4 East at Haberfield with the New M5 at St Peters. The project would also provide an inner western bypass of the Sydney Central Business District (CBD), via the Anzac Bridge and proposed future Western Harbour Tunnel and includes an interchange at Rozelle as well as a tunnel connection from the eastern abutment of the Iron Cove Bridge to the interchange at Rozelle (the Iron Cove Link). Any proposed future Western Harbour Tunnel project would be subject to separate environmental assessment and approval with the exception of the civil construction of short stub tunnels, above-ground ramps and infrastructure which is included within the M4-M5 Link project.

The project is a component of the WestConnex program of works. WestConnex is a 33 kilometre motorway linking Sydney's west and south-west with Sydney Airport and the Port Botany precinct. The WestConnex program of works is being delivered as a series of projects in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and other relevant legislation. Figure 1 illustrates the regional context of WestConnex incorporating the changes as outlined in this SSIAR Addendum 2.

1.2 Overview of key amendments to the project

In January 2016, Roads and Maritime prepared a State significant infrastructure (SSI) application report (SSIAR) for the project under section 115X of the EP&A Act. References to the SSIAR in this report therefore refer to the January 2016 report. The SSIAR describes the project, considers the potential environmental issues for the project and identifies the key environmental issues. The purpose of the SSIAR was to assist the formulation of the Secretary's environmental assessment requirements (SEARs) by the NSW Department of Planning and Environment (DP&E) under section 115Y of the EP&A Act, to inform the preparation of an environmental impact statement (EIS) for the project. On 3 March 2016, SEARs for the project were issued by DP&E.

In September 2016, preliminary design development informed further refinement of the project design in the form of a tunnel connection from the eastern abutment of the Iron Cove Bridge to the proposed Rozelle interchange (the 'Iron Cove Link'). The Iron Cove Link was not considered in the SSIAR. Since the preparation of the SSIAR, Roads and Maritime has also identified a separate project involving site management works proposed to be undertaken at part of the former Rozelle Rail Yards, separately from the construction of the project.

To address these items, Roads and Maritime prepared and submitted an SSIAR Addendum (SSIAR Addendum 1) to DP&E on 22 September 2016 which provided a preliminary environmental assessment of the potential impacts of the Iron Cove Link and for clarity, excluded the site management works at the former Rozelle Rail Yards from the SSI application. Revised SEARs were issued by DP&E on 9 November 2016.

Since submission of the SSIAR Addendum 1, further developments have been made to the project design and scope. The following design refinements and scope changes have been incorporated for the project:

- Refinement of the Rozelle interchange design to include tunnel connections which extend beyond the boundaries of the Rozelle Rail Yards, including civil construction of stub tunnels linking to a proposed future Western Harbour Tunnel. The interchange design also includes civil construction of infrastructure for, and above-ground ramps into, a proposed future Western Harbour Tunnel as part of the Rozelle interchange
- Removal of the road interchange at Camperdown
- Realignment of the mainline tunnels
- Amendment of the mainline tunnel configuration from three lanes to four lanes
- Removal of Easton Park from the project construction footprint.

A description of the revised scope of the separate project to undertake site management works at part of the former Rozelle Rail Yards has also been included in this addendum.

These design refinements and scope changes were not considered or assessed in the SSIAR or the SSIAR Addendum 1. This SSIAR Addendum 2 has therefore been prepared to describe and to undertake preliminary environmental assessment of these design refinements and scope changes to be lodged with DP&E. DP&E may further revise the SEARs issued on 9 November 2016.

1.3 Project clarifications

1.3.1 Clarification regarding site management works

The SSIAR Addendum 1 described the separate site management works at part of the former Rozelle Rail Yards and for clarity excluded these works from the project (which is the subject of the SSI application). The site management works will be assessed separately in a Review of Environmental Factors (REF) under Part 5 of the EP&A Act.

During the preparation of the REF for the site management works, the key features of this separate proposal were revised. The description of the site management works, as excluded from the M4-M5 Link project, is revised to include the following:

- Site establishment **for the site management works,** including fencing, installing temporary site offices, **arranging site access,** erosion, sediment and drainage controls **and defining lay down, stockpile and transfer areas**
- Investigative works to identify the location and nature of underground utilities and services across the site **and site investigations**
- Removal of waste, stockpiles of materials and ~~associated~~ vegetation to reduce the existing environmental and safety hazards of the site
- Removal of existing above ground rail infrastructure (where permissible to do so), buildings and redundant services (where intercepted when removing infrastructure (e.g. gantries and ballast) **generally** to a depth of around 500 millimetres below ground level, **or greater depth where drainage channels and sediment basins are required**
- Site stabilisation comprising reshaping of the ground surface as a result of the site management works and implementation of stormwater controls **including the construction of drainage channels and sediment basins**.

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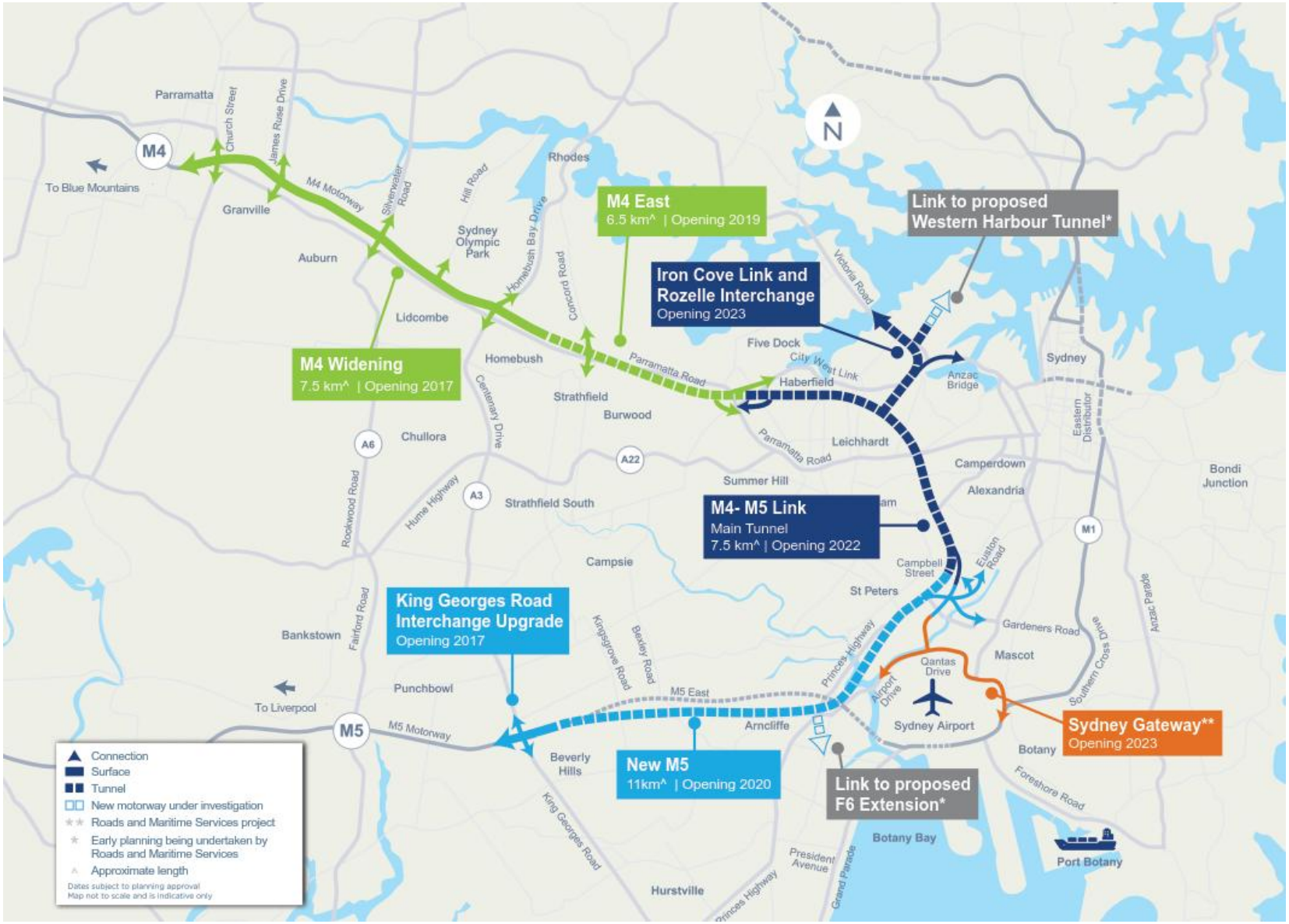
Figure 1 Regional context of WestConnex



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1.4 Project changes

1.4.1 Description

Rozelle interchange

The SSIAR describes the Rozelle interchange as being 'located within the existing Rozelle Rail Yards'. The design of the Rozelle interchange has progressed since the submission of the SSIAR to consider a number of options for the interchange which allow for optimal connectivity and considers stakeholder and community expectations for the future use of the Rozelle Rail Yards. While the project design still proposes to use part of the Rozelle Rail Yards site, it also includes tunnel connections as part of the interchange which extend underground beyond the boundaries of the site, refer to Figure 4.

The Rozelle interchange also includes the civil construction of stub tunnels, ramps and infrastructure for a proposed future Western Harbour Tunnel project. The stub tunnels and ramps would provide future connectivity to and from the M4-M5 Link tunnels, ramps, and surface roads. The above-ground ramps and infrastructure would be constructed within the Rozelle Rail Yards and the stub tunnels would extend beyond the boundaries of the site.

Further optimisation and refinement of the design for the Rozelle interchange is ongoing.

Camperdown interchange

The SSIAR identified that a component of the project would be 'a new road interchange at Camperdown to provide on and off ramps connecting to Parramatta Road for drivers coming to and from the Sydney CBD' (refer to Figure 2). The ramps were proposed to be located on Arundel Street, near the University of Sydney. This component of the project has been removed from the current design, refer to Figure 4. The M4-M5 Link mainline tunnel now runs between the Wattle Street interchange at Haberfield and the St Peters interchange at St Peters with an interchange at Rozelle and the Iron Cove Link.

Mainline tunnel alignment

The removal of the Camperdown interchange has enabled the realignment of the mainline tunnel. The realignment results in a shorter mainline tunnel length of almost 300 metres. The east-west section of the alignment, between the Wattle Street interchange and the Rozelle interchange, has moved slightly north, while the north-south section between the Rozelle interchange and the St Peters interchange has moved further west. Figures 2 to 4 provide an overview of the tunnel alignment, as it has evolved from the SSIAR, to the SSIAR Addendum 1 and now to the current alignment for Addendum 2.

Mainline tunnel configuration

The SSIAR identified that the mainline tunnels for the project would be 'built to accommodate up to three lanes of traffic in each direction'. This component of the project has been amended in the current design and the mainline tunnels would be built to accommodate up to four lanes of traffic in each direction.

Easton Park

The SSIAR Addendum 1 described the project having an impact on Easton Park at Rozelle (bound by Lilyfield Road, Denison Street and Burt Street). Impacts described were associated with surface works to construct the dive and cut and cover tunnel portals for the Iron Cove Link. This meant that during the construction period for the project, the park would not have been available to the public.

Design optimisation has led to the relocation of the tunnel portals to within the Rozelle Rail Yards, thereby avoiding direct construction impacts on Easton Park. Indirect impacts associated with local traffic movements, noise and air quality, mainly related to construction works at the Rozelle interchange near Lilyfield Road, may still impact on park users during the construction period for the project and are described in this addendum, where relevant.

Figure 2 Area of investigation - SSIAR

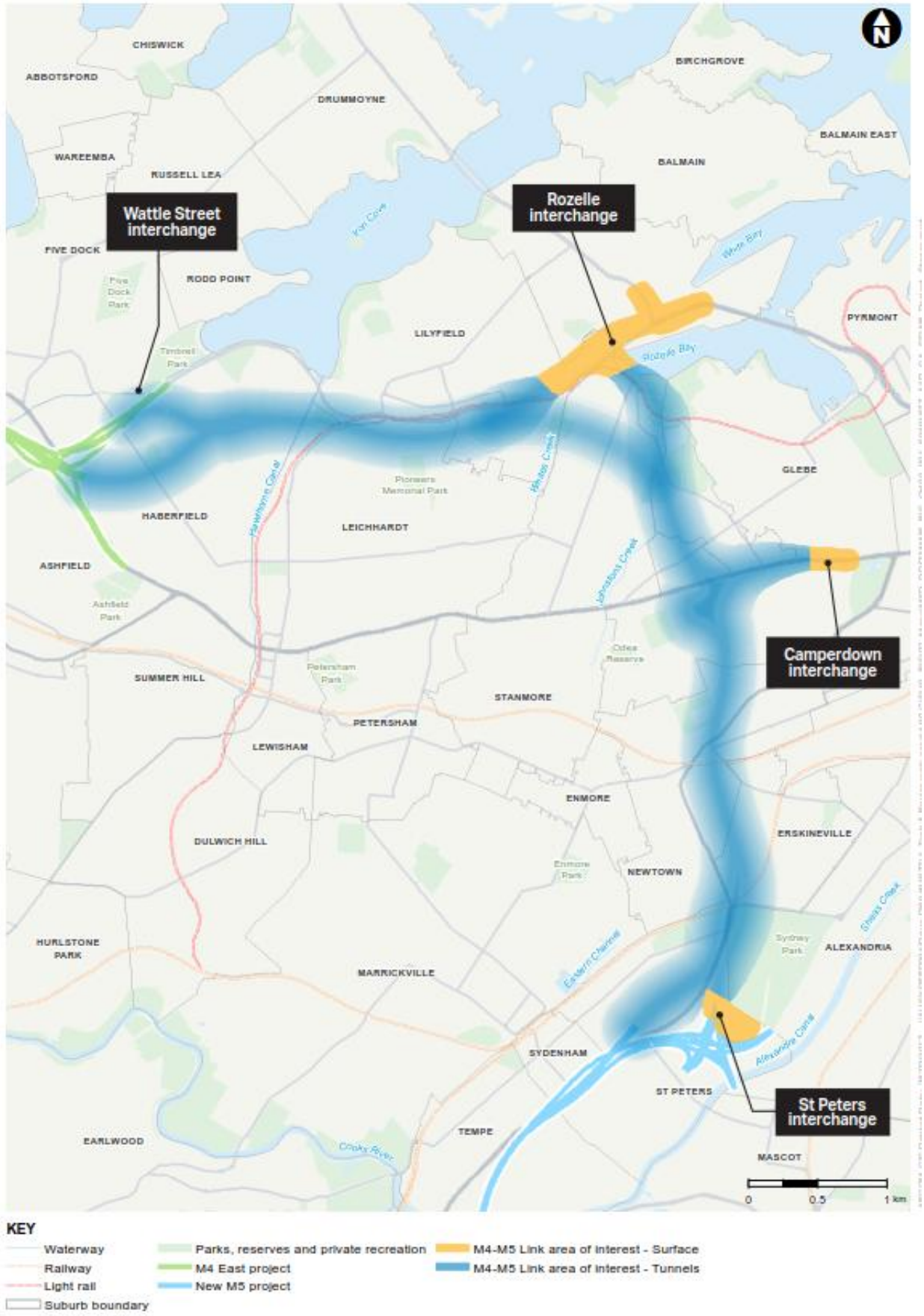

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Figure 3 Area of investigation – SSIAR Addendum 1

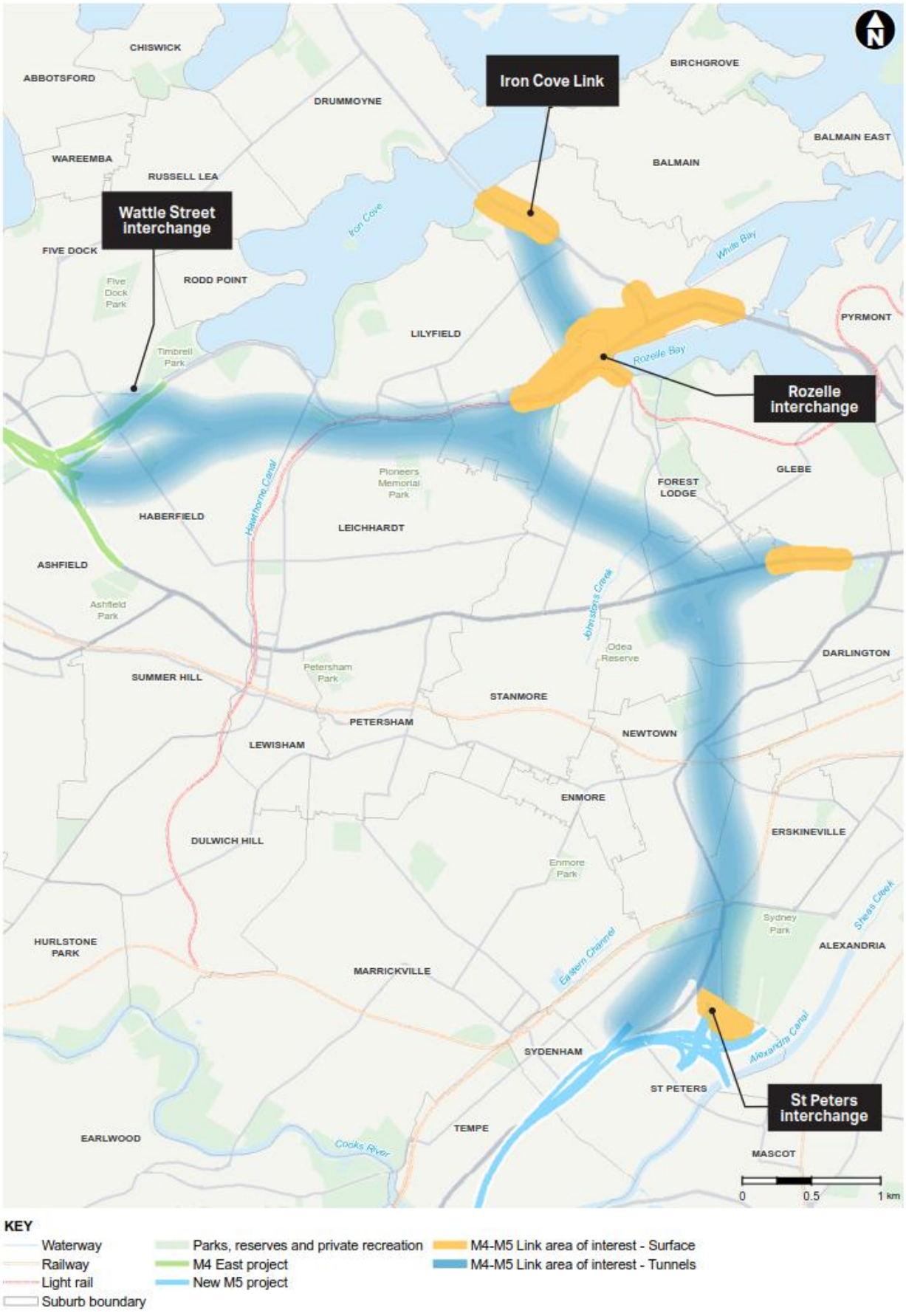

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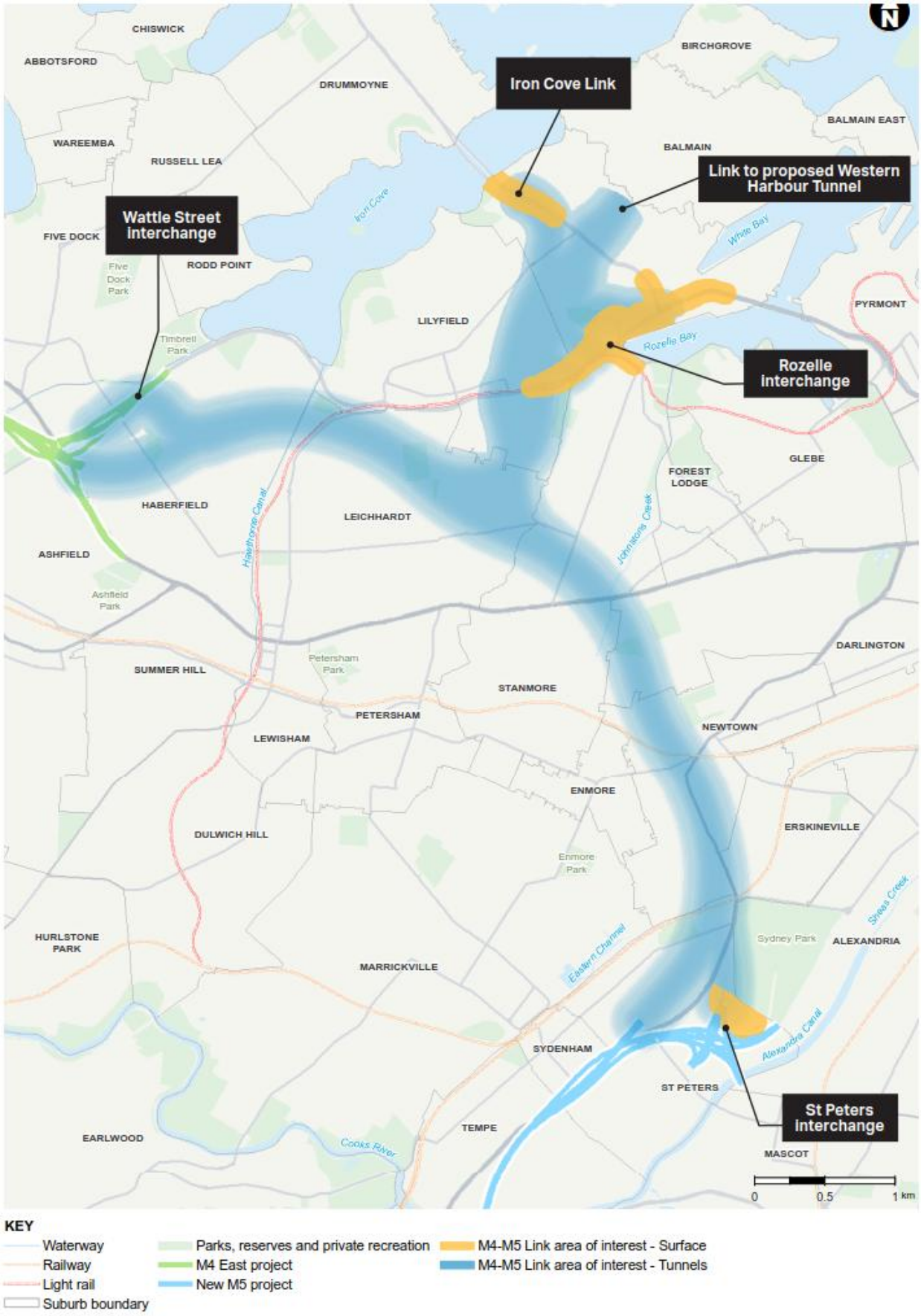
Figure 4 Area of investigation – SSIAR Addendum 2



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1.4.2 Justification

Since the SSIAR and SSIAR Addendum 1 were lodged, development of design options and preliminary traffic modelling has been undertaken to address the complexity of the various tunnel and surface road connections and the sensitivity of the receiving urban environment. The investigations have resulted in refinements to the project as set out in this addendum. Justification for the refinements to the project is provided below.

Rozelle interchange

Ground conditions, drainage management, consideration of stakeholder and community expectations for urban design and active transport outcomes, and the future use of the Rozelle Rail Yards, necessitated the change to the Rozelle interchange design to include tunnel connections which extend underground beyond the boundaries of the site.

Much of the Rozelle interchange for the current design is located underground, freeing up space at the Rozelle Rail Yards for community benefit. Revising the design in this way takes advantage of favourable ground conditions north of the Rozelle Rail Yards more suitable for tunnelling. The current design for the Rozelle interchange will provide a safe and easily navigable network of roads, at the surface and below ground.

By undertaking the civil construction of stub tunnels, above-ground ramps and infrastructure for a proposed future Western Harbour Tunnel project at the Rozelle interchange as part the M4-M5 Link project, all construction within the Rozelle Rail Yards would be consolidated and undertaken simultaneously.

Camperdown interchange

A review of the functionality and potential impacts of the proposed Camperdown interchange, as well as the feedback received from stakeholders and communities, was undertaken to evaluate the feasibility of the interchange within the M4-M5 Link project scope. The review identified a number of issues including spatial constraints, heritage impacts, traffic congestion, future public transport integration and tunnel queuing. On the basis of the issues identified, it was determined that the removal of the Camperdown interchange would provide an overall benefit to the project.

The benefits of removing the Camperdown interchange from the project include:

- No additional impacts to the levels of service for traffic on Parramatta Road, especially at the City Road intersection, or on local street connectivity
- Allowing opportunities for future public transport improvements along Parramatta Road to be implemented in a less constrained infrastructure corridor
- Avoiding impacts (direct and indirect) to heritage conservation areas and heritage items such as the University of Sydney and Victoria Park (both nominated for State heritage listing) and a locally listed sandstone retaining wall on the northern side of Parramatta Road
- Avoiding impacts to residential and commercial properties at Camperdown and Forest Lodge from surface works and property acquisition
- Avoiding impacts to the urban landscape character of Broadway, the University of Sydney, and the area around Broadway Shopping Centre, which is proposed by the NSW Government to have a more pedestrian and public transport focus.

Mainline tunnel alignment

The removal of the Camperdown interchange facilitated the realignment of the mainline tunnel between Haberfield and St Peters to reduce the length of tunnelling, as shown in the current design illustration in Figure 4. The length of the mainline tunnel would be reduced to a length of about 7.5 kilometres and would provide a more direct connection between the Rozelle interchange and the St Peters interchange. However, the reduction in the length of the mainline tunnel has required an increase in the length of the ramps to the Rozelle interchange.

The realignment also results in the north-south section of the mainline tunnel between the Rozelle interchange and the St Peters interchange moving further to the west, thereby avoiding any vibration and settlement impacts on sensitive equipment at the Royal Prince Alfred (RPA) Hospital and University of Sydney.

Mainline tunnel lane configuration

Revised traffic modelling which incorporated updated land use inputs indicated that amendments to the original three lane configuration were required in order to maintain an acceptable level of service within the mainline tunnels in future years. Traffic modelling demonstrated that the mainline tunnels would operate more efficiently under a four lane configuration, when future demand increases.

Easton Park

The removal of Easton Park from the project construction footprint and the avoidance of direct impacts to the park are positive outcomes of the design refinement process. Community feedback on the project to date has included requests to maintain open space and to limit the impact on recreational users.

1.5 Options considered

Camperdown interchange

An investigation of other options for the location and configuration of the Camperdown interchange was undertaken following a feasibility review that identified a number of issues including spatial constraints, heritage impacts, traffic congestion, future public transport integration, and tunnel queuing.

A number of alternative sites were investigated for the siting of the Camperdown interchange. No suitable alternatives were found owing to the potential impacts on either open space or residential land use, potential requirement for property acquisition, difficulty integrating with the surface road network, or impact on future public transport plans. Further details on the alternatives considered will be presented in the EIS.

Mainline tunnel alignment

The removal of the Camperdown interchange facilitated a review of the mainline tunnel alignment and connectivity with the Rozelle interchange. A number of alignment options were considered. Other issues that influenced the tunnel realignment included the location of the State heritage listed water tunnels ('Pressure Tunnel and Shafts' as named on the State Heritage Register), the direction of the Wattle Street ramps being constructed for the M4 East project, the location of potential construction compound sites, and potential vibration and settlement impacts on sensitive equipment at the RPA Hospital and University of Sydney. The current design represents the optimal case for the project. Further details on the alternatives considered will be presented in the EIS.

1.6 Planning and assessment process

Roads and Maritime, as the proponent for the project, has formed the view that the project is likely to significantly affect the environment. On this basis, the project is State significant infrastructure under section 115U (2) of the EP&A Act by reason of the operation of clause 14 and clause 1(1) of Schedule 3 of the *State Environmental Planning Policy (State and Regional Development) 2011*. Accordingly, the project is subject to Part 5.1 of the EP&A Act and requires the preparation of an EIS and the approval of the NSW Minister for Planning.

The requirements of the Environmental Planning and Assessment Regulation 2000 (NSW) (EP&A Regulation), relevant to the project, are outlined in Appendix A of the SSIAR.

The proposed site management works at the former Rozelle Rail Yards will be assessed in detail in a separate REF under Part 5 of the EP&A Act.

1.7 Consultation

Consultation for the project is ongoing, with various methods established to engage with communities, government agencies and other stakeholders. Community Ideas Sessions for the M4-M5 Link were undertaken throughout August 2016 at the following locations to provide the community with the opportunity to share ideas and feedback on the design and construction of the project:

- Canada Bay Club (10 August 2016)
- Leichhardt Town Hall (13 August 2016)
- Rydges Camperdown (18 August 2016)

- Balmain Town Hall (20 and 22 August 2016)

Stakeholders, including local councils, RPA Hospital and University of Sydney have been consulted. Community and stakeholder feedback on the project has been considered and incorporated into the current project design (where feasible), including opposition to the Camperdown interchange and use of Easton Park, and urban design outcomes for the Rozelle interchange.

Further community consultation sessions are planned for early 2017, ahead of the EIS display period. These sessions aim to provide a design update to the community and seek feedback on the proposed, indicative design.

1.8 Purpose of this document

This SSIAR Addendum 2 has been prepared to describe design refinements and scope changes to the M4-M5 Link project (as described in the SSIAR and SSIAR Addendum 1) and to undertake preliminary environmental assessment of those refinements and changes. The proposed design refinements the subject of this addendum could potentially result in a further revision to the project SEARs.

2 Key environmental issues

2.1 Overview

The SSIAR identified the following environmental aspects as key issues, being those that may have high or moderate impacts (actual or perceived) and that will require further detailed assessment and may require project specific impact mitigation measures:

- Traffic and transport
- Air quality and human health
- Noise and vibration
- Property and land use
- Urban design and visual amenity
- Soil and water quality
- Flooding and drainage
- Groundwater
- Resource management and waste minimisation.

The removal of the Camperdown interchange, the mainline tunnel realignment, mainline tunnel lane configuration and removal of Easton Park from the construction footprint, will result in a change to impacts identified and initially assessed in the SSIAR. The changes are largely positive and result in reducing potential impacts of the project.

Where the current project design has the potential for environmental impacts beyond those considered in the SSIAR and SSIAR Addendum 1, these have been assessed in the sections below.

2.2 Traffic and transport

The SSIAR and SSIAR Addendum 1 provided a preliminary assessment of the potential construction and operational impacts of the project on traffic and transport. Changes to anticipated potential construction and operational impacts due to the design refinements are discussed below.

Rozelle interchange

Potential impacts of the project on traffic and transport, including the civil construction of the stub tunnels, above-ground ramps and infrastructure associated with a proposed future Western Harbour Tunnel, would generally be consistent with those outlined in the SSIAR for the current Rozelle interchange design. As most of the interchange would be underground instead of being limited to the surface footprint of the Rozelle Rail Yards, there is more room to design the tunnels to allow for optimal traffic flow in multiple directions, providing underground connections to the M4 East at Haberfield, the New M5 at St Peters, the Iron Cove Link and a proposed future Western Harbour Tunnel.

As outlined in the SSIAR, the Rozelle interchange would be constructed to provide north-south and east-west connectivity across the project and to maintain existing connectivity along the surface road network between the City West Link, The Crescent, Victoria Road and the Anzac Bridge.

Camperdown interchange

The following traffic and transport issues were identified requiring the removal of the Camperdown interchange:

- Congestion – the City Road/Parramatta Road intersection currently experiences congestion. The inclusion of the Camperdown interchange was associated with an additional 20,000 vehicles per weekday exiting on Parramatta Road near the Glebe Point Road and City Road intersections, which would have exacerbated the congestion at these intersections
- Local connectivity – the Camperdown interchange would adversely impact local connectivity and access along the north side of Parramatta Road including on Arundel Street and Derwent Street

- Level of service – Parramatta Road eastbound between Missenden Road and the CBD currently experiences a low level of service. Levels of service would be reduced further with the operation of the interchange
- Tunnel queuing – the interchange would potentially create queuing on the off-ramps (due to traffic from the tunnel ramps merging with surface traffic on Parramatta Rd) during peak periods, which could extend back some distance and potentially obstruct the mainline flow
- Public transport – Transport for NSW is pursuing both kerb-side and centre-running future transport solutions (such as light rail) along Parramatta Road. Although design solutions could physically accommodate future public transport options, the interchange would create a constrained environment for public transport development. The interchange also led to conflicts between merging and weaving traffic and public transport options movements
- Policy – the Draft NSW Road Planning Framework (Transport for NSW 2016) designates Broadway (to the east of the interchange) as a 'vibrant street' typology, requiring a pedestrian focus. The interchange would lead to an increase in traffic on Broadway which would be contrary to the objective of improving public transport services and pedestrian connectivity/amenity in this corridor.

Traffic analysis to date has shown that the demand that would otherwise utilise the Camperdown interchange is redistributed across the wider road network.

The removal of the Camperdown interchange would have a small negative impact on traffic on the Anzac Bridge, noting that the Anzac Bridge currently operates at or over capacity in the peak periods and would remain at or over capacity with and without the inclusion of the interchange. Roads and Maritime and Sydney Motorway Corporation (SMC) are continuing to investigate possible solutions and strategies for this, both within and outside the scope of WestConnex.

The removal of the interchange would also have a small negative impact on Parramatta Road, east of the M4 East ramps near Bland Street, and roads around the St Peters interchange. Even with the removal of the Camperdown interchange, the project would still help to ease congestion along Parramatta Road.

Further assessment of traffic and transport impacts would be undertaken during preparation of the EIS and would include the current project design.

Mainline tunnel alignment

The mainline tunnel realignment would not result in a change to the range of traffic and transport impacts identified or initially assessed in the SSIAR or SSIAR Addendum 1. The resultant changes to the Rozelle interchange design through the need for longer ramps from the mainline tunnel would be investigated as the design of the interchange progresses and would be assessed in the EIS.

Mainline tunnel lane configuration

The four lane mainline tunnel configuration would not result in a change to the range of traffic and transport impacts identified or initially assessed in the SSIAR or SSIAR Addendum 1. The four lane mainline tunnel configuration would maintain the levels of service within the mainline tunnels in future years.

Easton Park

The removal of Easton Park from the project construction footprint would improve local traffic conditions in the vicinity of the park as it avoids impacts associated with the movement of construction vehicles to and from Easton Park. This would include heavy vehicles for spoil haulage and light vehicles for the construction workforce.

Further assessment for traffic and transport impacts would be undertaken during the preparation of the EIS and would include the current project design.

2.3 Air quality and human health

The SSIAR and SSIAR Addendum 1 consider the potential impact of the changes in traffic volumes as a result of the project on local air quality and human health. The SSIAR identified that the operation of the project has the potential for air quality impacts, and associated human health implications, including potential increase and decrease in near roadside air pollutant concentrations due to changes in traffic volumes on surface roads, or the introduction of new roads. Changes to anticipated potential air quality and human health impacts as a result of the design refinements are discussed below.

Rozelle interchange

The current Rozelle interchange design would not result in a change to the air quality and human health impacts identified or initially assessed in the SSIAR or SSIAR Addendum 1. The design change resulting in the majority of the interchange being underground would reduce surface emissions from vehicles. In-tunnel air quality in the longer ramps to and from the interchange and ventilation of tunnel emissions via ventilation outlets at the Rozelle Rail Yards would be assessed in the EIS.

The ramps and infrastructure for a proposed future Western Harbour Tunnel would be constructed above-ground within the Rozelle Rail Yards and would be generally consistent with potential air quality and human health impacts outlined in the SSIAR and SSIAR Addendum 1.

Camperdown interchange

The removal of the Camperdown interchange would avoid potential air quality impacts associated with the introduction of additional surface road traffic in the area of Parramatta Road at Forest Lodge and Broadway. The removal of the interchange also eliminates the need for a ventilation facility near the ramps to manage tunnel air quality and eliminates the potential air quality impacts associated with the ventilation facility.

The removal of the Camperdown interchange and the associated ventilation facility would involve a potential increase to emissions at the other ventilation facilities that are likely to be located at Haberfield, Rozelle and St Peters; however it would not result in an increase to the total emissions for the Project.

Mainline tunnel alignment

The realignment of the mainline tunnel will not result in a change to the range of air quality and human health impacts identified or initially assessed in the SSIAR.

Mainline tunnel lane configuration

The four lane mainline tunnel configuration would not result in a change to the range of air quality and human health impacts identified or initially assessed in the SSIAR.

Easton Park

The use of Easton Park for tunnelling and surface works during construction would be associated with potential air quality and human health impacts on surrounding residential properties. However, the removal of the park from the project construction footprint means activities from the construction of the Rozelle interchange and Iron Cove Link are largely contained to the former Rozelle Rail Yards, which is further removed from some of the residential areas surrounding Easton Park.

The SSIAR provides a preliminary assessment for the construction and operational impacts of air quality and human health generated from the project. Further assessment of air quality and human health impacts would be undertaken during preparation of the EIS and would include the current project design.

2.4 Noise and vibration

The SSIAR and SSIAR Addendum 1 outline the sensitive receivers that could potentially be impacted by noise and vibration generated from the construction and operation of the project. The SSIAR identifies that the construction of the project would likely result in noise and vibration issues including airborne noise from surface works including at the interchanges at Rozelle, Camperdown and St Peters.

Changes to anticipated potential construction and operational impacts as a result of the design refinements are discussed below. No additional sensitive receiver types would be impacted by noise from the construction and operation of the current project design.

Rozelle interchange

Potential impacts of the project from noise and vibration would generally be consistent with those outlined in the SSIAR for the current Rozelle interchange design. The tunnel connections, including the stub tunnels for a proposed future Western Harbour Tunnel, which extend underground and range in depth up to approximately 65 metres, would be associated with ground-borne noise and construction vibration impacts to receivers beyond the boundaries of the Rozelle Rail Yards. The extent of ground-borne noise and construction vibration effects would be investigated further in the EIS.

The ramps and infrastructure for a proposed future Western Harbour Tunnel would be constructed above-ground within the Rozelle Rail Yards and would be generally consistent with potential noise and vibration impacts outlined in the SSIAR and SSIAR Addendum 1.

Camperdown interchange

The construction of the interchange would be associated with airborne noise from surface works (mainly at the ramps, portals and construction compounds) and construction traffic and ground-borne noise from tunnelling activities. Operational noise impacts would be associated with the increase in vehicles exiting the Camperdown interchange on to Parramatta Road, near the intersection with Glebe Point Road. The removal of the Camperdown interchange would therefore avoid potential noise impacts on nearby sensitive receivers, including the University of Sydney, the RPA Hospital, St Joseph's Catholic Church and residential properties. The removal of the Camperdown interchange would also avoid construction and operational vibration impacts on sensitive equipment, such as at the RPA Hospital.

Mainline tunnel alignment

The realignment of the mainline tunnel would avoid potential construction vibration impacts to sensitive equipment located at the RPA Hospital and the University of Sydney. The alignment is now around 0.5 kilometres away from the hospital campus and around one kilometre away from the university grounds.

Due to the depth of the tunnels, surface vibration impacts on residential properties are not expected. This would be investigated further and assessed in the EIS.

Mainline tunnel lane configuration

The four lane mainline tunnel configuration would not result in a change to the range of noise and vibration impacts identified or initially assessed in the SSIAR.

Easton Park

The use of Easton Park for tunnelling and surface works would be associated with potential noise impacts on surrounding residential properties. However, the removal of this land from the project construction footprint means noise generating activities from the construction of the Rozelle interchange and Iron Cove Link are largely contained within the former Rozelle Rail Yards, which is further removed from some of the residential areas surrounding Easton Park.

The SSIAR and SSIAR Addendum 1 provide a preliminary assessment of the construction and operational impacts of noise and vibration generated for the project. Further assessment of noise and vibration impacts would be undertaken during preparation of the EIS and would include the current project design.

2.5 Property and land use

The SSIAR and SSIAR Addendum 1 outline the impacts of property acquisition and impacts to land use. Changes to anticipated potential impacts of property acquisition and impacts to land use as a result of the design refinements are discussed below.

Rozelle interchange

The location of the underground components of the current Rozelle interchange design, and the stub tunnels for a proposed future Western Harbour Tunnel, that extend beyond the boundaries of the Rozelle Rail Yards would involve an associated change to the residential properties that tunnelling would occur beneath. For the current Rozelle interchange design and stub tunnels for a proposed future Western Harbour Tunnel, tunnelling would now occur beneath additional properties to the north of the Rozelle Rail Yards. Land uses above the tunnel connections as part of the interchange include low density residential and public recreation land uses.

The ramps and infrastructure for a proposed future Western Harbour Tunnel would be constructed above-ground within the Rozelle Rail Yards and would be generally consistent with potential land use impacts outlined in the SSIAR and SSIAR Addendum 1.

No additional surface property acquisitions are associated with the current Rozelle interchange design.

Camperdown interchange

The removal of the Camperdown interchange would avoid potential impacts associated with the construction and operation of the interchange on commercial and residential properties, and the Camperdown Education and Health Precinct, which includes the University of Sydney and the RPA Hospital. Potential impacts on properties and land use are associated with restricted or reduced access, temporary disturbance from with surface works, reduced visual amenity, and property acquisitions.

Potential property acquisitions associated with the Camperdown interchange including for construction sites and surface works, are no longer required.

Mainline tunnel alignment

The realignment of the mainline tunnel would involve an associated change to the residential properties that tunnelling would occur beneath. For the east-west section of the alignment, between the Wattle Street interchange and the Rozelle interchange, tunnelling would now occur beneath properties slightly to the north of the original alignment. For the north-south section of the alignment between the Rozelle interchange and the St Peters interchange, tunnelling would now occur beneath properties slightly to the west of the original alignment. Land uses above the realigned mainline tunnel primarily include low density residential and light industrial land uses. The regional zoning context of the project is shown on Figure 5.

No additional surface property acquisitions are associated with the realignment of the mainline tunnel.

As stated in the SSIAR, a number of construction compounds would be required to support the tunnelling and civil work for the tunnel construction. These compounds may require property acquisition or temporary leasing for the duration of the construction period. Roads and Maritime is in discussions with property owners and local councils about potential construction compound locations.

Mainline tunnel lane configuration

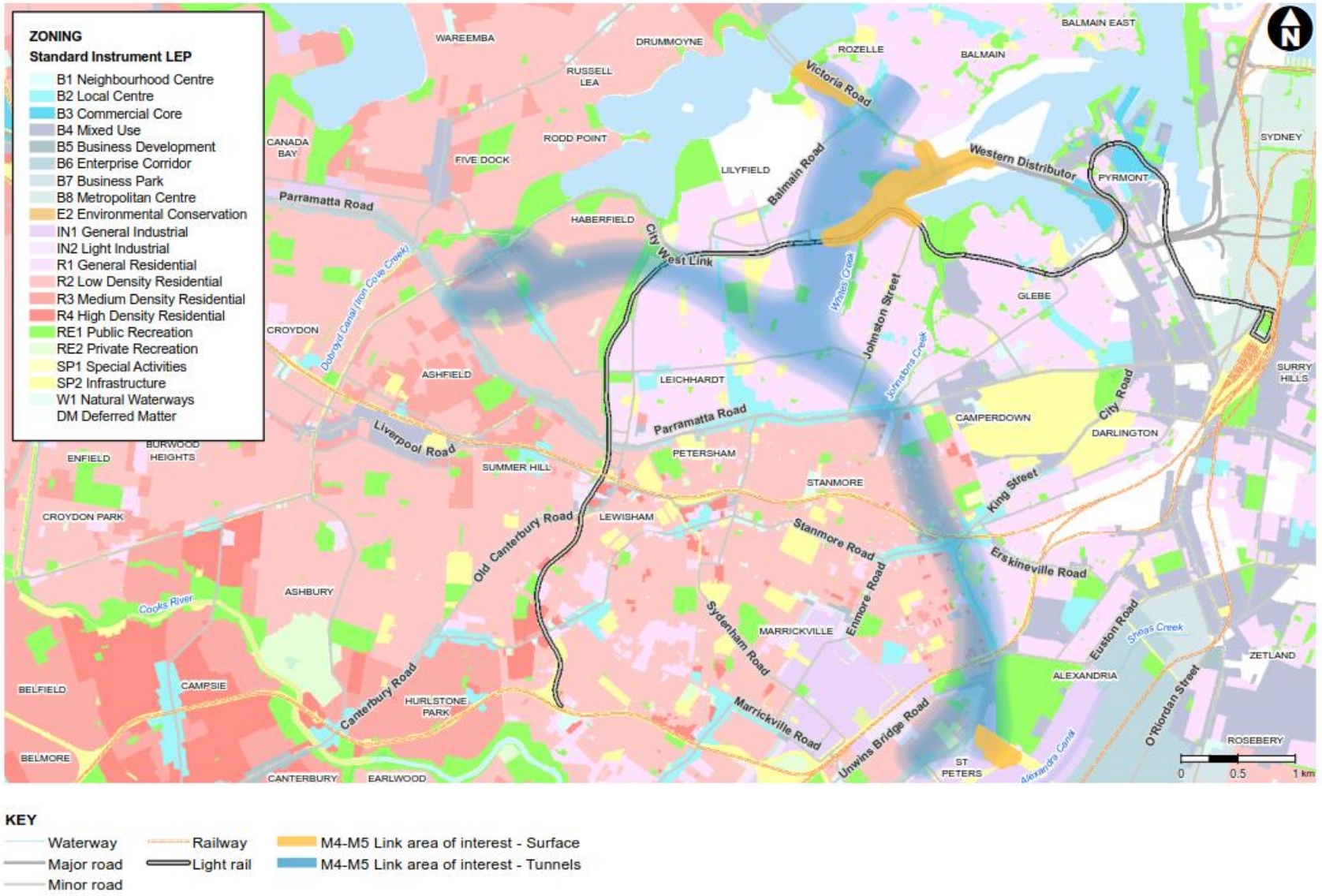
The four lane mainline tunnel configuration would not result in a change to the range of property and land use impacts identified or initially assessed in the SSIAR.

Easton Park

Easton Park is an important recreational area for local communities. The temporary use during project construction would have restricted access to the public for the duration of the construction period. The latest design refinements and relocation of the tunnel portals mean the park would not be directly impacted by construction works.

The SSIAR and SSIAR Addendum 1 provide a preliminary assessment of the impacts of property acquisition and impacts to land use. A detailed assessment of the potential impacts would be undertaken during preparation of the EIS and would include the current project design.

Figure 5 Regional zoning context



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2.6 Urban design and visual amenity

The SSIAR and SSIAR Addendum 1 identify several distinct landscape character zones and visual catchments in the vicinity of the project. The landscape character zones and visual catchments associated with current project design would be generally consistent with those originally identified in the SSIAR and SSIAR Addendum 1.

Changes to anticipated potential impacts to urban design and visual amenity as a result of the design refinements are discussed below.

Rozelle interchange

Potential impacts of the project to urban design and visual amenity would generally be consistent with those outlined in the SSIAR for the current Rozelle interchange design. The ramps and infrastructure for a proposed future Western Harbour Tunnel would be constructed above-ground within the Rozelle Rail Yards and would be generally consistent with potential urban design and visual amenity impacts outlined in the SSIAR and SSIAR Addendum 1.

By locating much of the Rozelle interchange, as well as the stub tunnels for a proposed future Western Harbour Tunnel underground, opportunities would be provided for the creation of new areas of public open space and active transport connections within the Rozelle Rail Yards.

Camperdown interchange

The removal of the Camperdown interchange (including ramps and tunnel portals), would avoid potential construction and operation impacts on urban design, visual amenity and heritage conservation areas of the Forest Lodge/Glebe/Camperdown landscape character zones and visual catchments. This would include avoiding urban design and visual amenity impacts to the University of Sydney, Victoria Park, the large stone retaining wall (heritage listed) and fence along the north side of Parramatta Road at Camperdown, street trees, and the Arundel Street carriageway.

Mainline tunnel alignment

Potential impacts of the project to urban design and visual amenity would generally be consistent with those outlined in the SSIAR for the realignment of the mainline tunnel. The mainline tunnel alignment would not require the construction or operation of additional surface infrastructure facilities.

Mainline tunnel lane configuration

Potential impacts of the project to urban design and visual amenity would generally be consistent with those outlined in the SSIAR for the four lane mainline tunnel configuration. The mainline tunnel alignment would not require the construction or operation of additional surface infrastructure facilities.

Easton Park

Easton Park provides views to the south towards Rozelle Bay. Use of the park as a construction site would impact visual amenity and landscape character. Removal of Easton Park from the project construction footprint will therefore reduce impacts on visual amenity and landscape character for local communities and park users.

The design refinements result in a reduction of potential impacts to urban design and visual amenity. Further assessment for urban design and visual amenity required for the project, including the assessment of opportunities for new areas of public open space and active transport connections at the Rozelle Rail Yards, would be undertaken during preparation of the EIS and would include the current project design.

2.7 Soil and water quality

The SSIAR and SSIAR Addendum 1 provide a preliminary assessment of the potential soil and water quality impacts associated with the construction and operation of the project. In general, the potential impacts of the current project design relating to soil and water quality would be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Changes to anticipated potential impacts to soil and water quality as a result of the design refinements are discussed below.

Rozelle interchange

The refinement of the Rozelle interchange to be largely underground beyond the boundaries of the Rozelle Rail Yards is likely to result in lower volumes of contaminated soil being removed for disposal. The ramps and infrastructure for a proposed future Western Harbour Tunnel would be constructed above-ground within the Rozelle Rail Yards and would be generally consistent with potential soil and water quality impacts outlined in the SSIAR and SSIAR Addendum 1.

Camperdown interchange

The removal of the Camperdown interchange would avoid potential impacts to soil and water quality associated with the construction and operation of the interchange. The removal of the interchange would not result in a change to the range of soil and water quality impacts identified or initially assessed in the SSIAR.

Mainline tunnel alignment

The topography, soils (including acid sulfate soils) and geology for the current project design are consistent with those outlined in the SSIAR. A review of the NSW Environment Protection Authority's Contaminated Land record identified one additional registered site of contamination (beyond that identified in the SSIAR) within 500 metres of the mainline tunnel realignment. The site is the former Unilever Detergent Factory located at Hyam, Foy, Reynolds, Palmer and Booth Streets, Balmain. This site will not be impacted by the project design refinements.

Mainline tunnel configuration

The four lane mainline tunnel configuration would not result in a change to the range of soil and water quality impacts identified or initially assessed in the SSIAR. Estimates for spoil generation and water treatment from the larger four lane tunnels would be provided in the EIS.

Easton Park

The SSIAR Addendum 1 stated that technical studies to inform the EIS would include an investigation into historic land uses such as the filling of Easton Park. The removal of Easton Park from the project construction footprint would remove the requirement for disturbance to the parklands for intrusive contamination investigations.

The SSIAR and SSIAR Addendum 1 provide a preliminary assessment of the construction and operational impacts of the project on soil and water quality. Further assessment for soils and water quality outlined would be undertaken during the preparation of the EIS and would include the current project design, including potential construction compound locations.

2.8 Flooding and drainage

The SSIAR and SSIAR Addendum 1 provide a preliminary assessment of the potential flooding and drainage impacts associated with the construction and operation of the project. In general, the potential impacts of the current project design relating to flooding and drainage would be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Changes to anticipated potential impacts to flooding and drainage as a result of the design refinements are discussed below.

The ramps and infrastructure for a proposed future Western Harbour Tunnel would be constructed above-ground within the Rozelle Rail Yards and would be generally consistent with potential flooding and drainage impacts outlined in the SSIAR and SSIAR Addendum 1.

Rozelle interchange

The refinement of the location of Rozelle interchange to underground beyond the boundaries of the Rozelle Rail Yards does not result in any change to the potential flooding and drainage impacts identified in the SSIAR – this is due to the Rozelle Rail Yards, which has a high potential to flood, irrespective of the design.

Camperdown interchange

Impacts on flooding associated with the Camperdown interchange were expected to be negligible as it was located outside the Probable Maximum Flood extent. Drainage upgrades and network connections for the interchange are no longer required.

Mainline tunnel alignment

Potential impacts of the project to flooding and drainage would generally be consistent with those outlined in the SSIAR for the realignment of the mainline tunnel. Drainage from the realigned mainline tunnels would be managed in accordance with industry practice. The project would identify suitable locations for water treatment plants to treat any drainage from the tunnels prior to discharge to a local water source, such as Iron Cove or Rozelle Bay.

Mainline tunnel configuration

Potential impacts of the project to flooding and drainage would generally be consistent with those outlined in the SSIAR for the four lane mainline tunnel configuration.

Easton Park

The removal of Easton Park from the construction footprint would avoid any drainage diversions within the park.

The design refinements do not result in any material change to potential impacts on flooding and drainage and are consistent with those outlined in the SSIAR and SSIAR Addendum 1. Further assessment for flooding and drainage would be undertaken during the preparation of the EIS and would include the current project design, including potential construction compound locations.

2.9 Groundwater

The SSIAR and SSIAR Addendum 1 provide a preliminary assessment of the potential groundwater impacts associated with the construction and operation of the project. In general, the potential impacts of the current project design relating to groundwater would be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Changes to anticipated potential impacts to groundwater as a result of the design refinements are discussed below.

Rozelle interchange

The refinement of the location of Rozelle interchange to underground beyond the boundaries of the Rozelle Rail Yards is likely to improve the management of potentially contaminated groundwater flows at the Rozelle Rail Yards, as outlined in the SSIAR.

The ramps and infrastructure for a proposed future Western Harbour Tunnel would be constructed above-ground within the Rozelle Rail Yards and would be generally consistent with potential flooding and drainage impacts outlined in the SSIAR and SSIAR Addendum 1.

Camperdown interchange

The removal of the Camperdown interchange would avoid potential groundwater impacts associated with the construction of the interchange.

Mainline tunnel alignment

Potential groundwater impacts of the project would generally be consistent with those outlined in the SSIAR for the realignment of the mainline tunnel. The geology and groundwater profile for the mainline tunnel realignment is similar to the previous alignment.

Mainline tunnel lane configuration

Potential groundwater impacts of the project would generally be consistent with those outlined in the SSIAR for the four lane mainline tunnel configuration.

Easton Park

The removal of Easton Park from the project construction footprint would not result in any change to potential groundwater impacts identified in the SSIAR.

Further assessment for potential impacts to groundwater would be undertaken during preparation of the EIS and would include the current project design, including potential construction compound locations.

2.10 Resource management and waste minimisation

The SSIAR and SSIAR Addendum 1 provide a preliminary assessment of the potential resource management and waste impacts associated with the construction and operation of the project. In general, the potential impacts of current project design relating to resource management and waste minimisation would be consistent with those outlined in the SSIAR and SSIAR Addendum 1 and mainly relate to spoil generation and management. Changes to anticipated potential impacts relating to resource management and waste minimisation as a result of the design refinements are discussed below.

Rozelle interchange

The refinement of the location of much of the Rozelle interchange to underground beyond the boundaries of the Rozelle Rail Yards would likely improve the management of contaminated soils that would be potentially disturbed at the Rozelle Rail Yards, as outlined in the SSIAR.

The ramps and infrastructure for a proposed future Western Harbour Tunnel would be constructed above-ground within the Rozelle Rail Yards and would be generally consistent with potential resource management and waste impacts outlined in the SSIAR and SSIAR Addendum 1.

Camperdown interchange

The removal of the Camperdown interchange would avoid potential impacts relating to resource management and waste minimisation associated with the construction and operation of the interchange. However, the removal of the interchange would not result in a change to the range of waste types or potential impacts associated with resource use and waste generation identified or initially assessed in the SSIAR.

Mainline tunnel alignment

Potential impacts relating to resource management and waste minimisation for the project would generally be consistent with those outlined in the SSIAR for the realignment of the mainline tunnel. The realignment of the mainline tunnel would not result in a change to the range of waste types or range of potential impacts associated with resource use and waste generation identified or initially assessed in the SSIAR.

Mainline tunnel lane configuration

Potential impacts relating to resource management and waste minimisation for the project would generally be consistent with those outlined in the SSIAR for the four lane mainline tunnel realignment. The four lane mainline tunnel configuration would not result in a change to the range of waste types or range of potential impacts associated with resource use and waste generation identified or initially assessed in the SSIAR.

Easton Park

The removal of Easton Park from the project construction footprint would reduce impacts associated with the management of potentially contaminated soils associated with the historic filling of Easton Park, as outlined in the SSIAR Addendum 1.

Further assessment regarding resource management and waste minimisation would be undertaken during the preparation of the EIS and would include the current project design, including potential construction compound locations.

2.11 Social and economic

In general, the potential impacts of the current project design relating to the socio-economic environment would be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Changes to anticipated potential impacts to the socio-economic environment as a result of the design refinements are discussed below.

Rozelle interchange

Potential social and economic impacts of the project would generally be consistent with those outlined in the SSIAR for the current Rozelle interchange design. The location of the current Rozelle interchange design underground beyond the boundaries of the Rozelle Rail Yards would provide the opportunity for new areas of public open space and active transport connections. The ramps and infrastructure for a proposed future Western Harbour Tunnel would be constructed above-ground within the Rozelle Rail Yards and would be

generally consistent with potential social and economic impacts outlined in the SSIAR and SSIAR Addendum 1.

Camperdown interchange

The removal of the Camperdown interchange would avoid potential impacts associated with the construction and operation of the interchange on local residents and business owners in terms of traffic, noise and vibration, air quality and human health impacts. Activities that would have resulted in impacts are associated with the construction and operation of the Camperdown interchange and a ventilation facility near the interchange and property acquisition for construction compounds.

Mainline tunnel alignment

The realignment of the mainline tunnel between the Rozelle interchange and the St Peters interchange further to the west avoids impacts to sensitive equipment at the RPA Hospital and University of Sydney. The public had raised a number of concerns about the potential impacts on these sensitive receivers.

The mainline tunnel realignment may be of concern to residents and property owners under whose properties the tunnel traverses; however the tunnel is at sufficient depth to not directly impact properties (see section 2.5). No additional surface property acquisition is associated with the mainline tunnel realignment however the acquisition and lease of properties would be required for construction compounds to support tunnel construction and operations.

Mainline tunnel lane configuration

Potential social and economic impacts of the project would generally be consistent with those outlined in the SSIAR for the four lane mainline tunnel configuration.

Easton Park

As described in section 2.5 and section 2.6, the use of Easton Park as a construction site would cause a temporary reduction in visual amenity and loss of public access to open spaces/recreational areas. The removal of Easton Park from the project construction footprint therefore reduces the social impacts experienced by local communities and park users.

Further assessment of the potential socio-economic impacts associated with the project, including the assessment of opportunities for new areas of public open space and active transport connections at the Rozelle Rail Yards would be undertaken during the preparation of the EIS and would include the current project design, including potential construction compound locations.

2.12 Non-Aboriginal heritage

Given the amendments to the project footprint for the latest design refinements, a further review of relevant statutory and non-statutory heritage databases was undertaken in November 2016 to inform this SSIAR Addendum 2.

A number of heritage items were identified within 100 metres of the project footprint (refer to Figure 6). Of these, 13 items were identified as being of State significance and are listed on the State Heritage Register (refer to Table 1).

Table 1 State heritage listed sites located in proximity to the project footprint

SHR #	Name	Location
0144	Hunter Baillie Memorial Presbyterian Church	Johnston Street, Annandale
1101	Whites Creek Aqueduct	Lilyfield
0462	St Stephen's Anglican Church and Cemetery	187 – 189 Church Street, Newtown
0032	St Peter's Anglican Church	187 – 209 Princes Highway, St Peters
0747	Uniting Church and Pipe Organ	280a King Street, Newtown
1325	Johnston's Creek Sewer Aqueduct	Annandale
1034	Glebe Railway Viaduct	Federal Park, Glebe
1250	St Peters Railway Station group	Princes Highway, St Peters
1213	Newtown Railway Station group and Former Newton Tramway Depot	King Street, Newtown
1379	Yasmar	185 Parramatta Road, Haberfield

SHR #	Name	Location
1015	White Bay Power Station	Victoria Road, Rozelle
1630	Pressure Tunnel and Shafts	-
0818	Callan Park Conservation Area & Buildings	Lilyfield

The remaining items are of local significance (approximately 195 items listed as locally significant on Local Environmental Plans (LEPs) and/or listed on Section 170 Heritage and Conservation registers. Easton Park is listed as a landscape item under the Leichhardt LEP 2013.

The design refinements would avoid impacts to state heritage listed items identified in the SSIAR including the RPA Hospital – Victoria & Albert Pavilions (ID 0829), RPA Hospital – Admission Block (ID 0830) and University Hall & Cottages (ID 0128). Direct impacts to the University of Sydney and Victoria Park, which are both nominated for state heritage listing, are also avoided by the removal of the Camperdown interchange.

The design refinements reduce the potential impacts from surface works on non-Aboriginal heritage. These potential impacts primarily include changes to visual setting and landscape character and are associated with the Camperdown interchange and use of Easton Park during construction.

Seventeen heritage conservation areas (HCAs) are located within or in the vicinity of the updated project footprint, which is summarised by local government area in Table 2. The total number of HCAs impacted by the project has reduced from that described in the SSIAR, primarily due to the removal of the Camperdown interchange from the project.

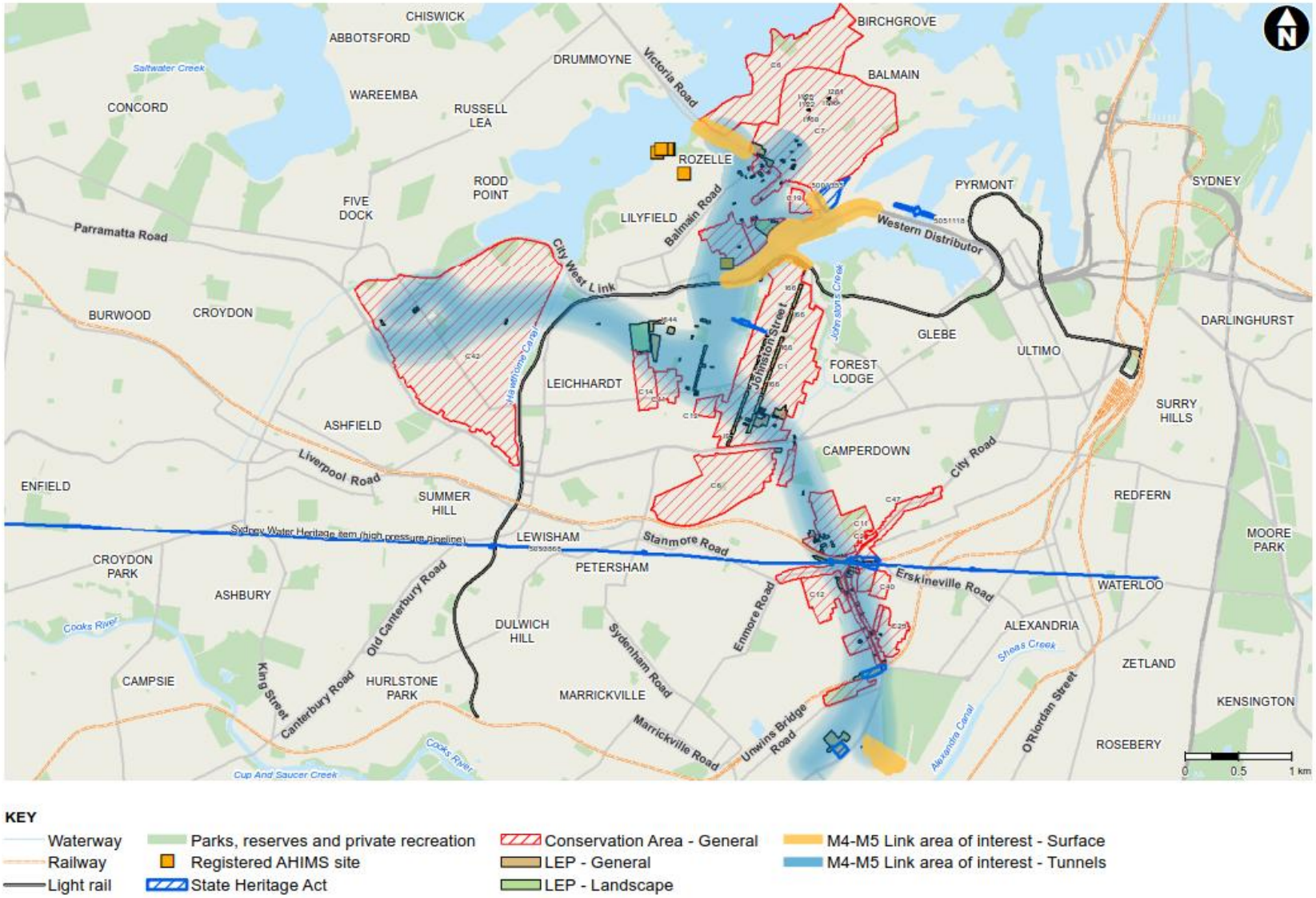
Table 2 HCAs located within or in the vicinity of the project footprint

Local government area	Conservation Area
Inner West Council	Ashfield: · Haberfield Conservation Area
	Leichhardt: · Annandale Heritage Conservation Area · Iron Cove Heritage Conservation Area · Easton Park Heritage Conservation Area · The Valley Heritage Conservation Area · Leichhardt Street / Stanley Street Conservation Area · Scarvell Estate Heritage Conservation Area · Brennan's Estate Heritage Conservation Area · Hornsey Street Heritage Conservation Area
	Marrickville: · Goodsell Estate Heritage Conservation Area · King Street / Enmore Road Heritage Conservation Area · North Kingston Estate · Cardigan Street Conservation Area · Holmwood Estate · Enmore Conservation Area
City of Sydney	· King Street Heritage Conservation Area · Newman and Gibbes Streets Heritage Conservation Area

There are no World Heritage, National Heritage or Commonwealth Heritage Places recorded within the project footprint.

Further assessment for items of non-Aboriginal heritage significance would be undertaken during preparation of the EIS and will include the updated project design, including potential construction compound locations.

Figure 6 Heritage items in the vicinity of the project footprint



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3 Other environmental issues

3.1 Overview

Other environmental issues listed below are being taking into account in the scope of the project, the existing environment and the implementation of standard and best practice management and mitigation measures.

3.2 Biodiversity

Given the amendments to the project footprint for the latest design refinements, a further review was undertaken of the NSW BioNet Atlas of Wildlife and the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) Protected Matters Search Tool in November 2016 to inform this SSIAR Addendum 2. There are no additional threatened species or populations to that identified in the SSIAR or SSIAR Addendum 1.

The majority of the vegetation within the project area has been mapped as urban native and exotic cover, as part of the Native Vegetation of the Sydney Metropolitan Area dataset (NSW Office of Environment and Heritage, 2014). The removal of Easton Park from the construction footprint means there will be no impact to the trees within the park.

Potential impacts of the current project design relating to biodiversity would be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Further assessment of potential biodiversity impacts associated with the project would be undertaken during preparation of the EIS and would include the current project design, including potential construction compound locations.

3.3 Greenhouse gas

The SSIAR identifies the combustion of fuel for road transport as a key contributor to greenhouse gas emissions in Australia. The design refinements relating to the mainline tunnel realignment and mainline tunnel lane configuration are not expected to be a material change to that assessed previously in the preliminary assessment for the SSIAR.

Potential impacts of the current design relating to greenhouse gases would therefore be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Further assessment of greenhouse gas impacts associated with the project would be undertaken during preparation of the EIS and would include the current project design.

3.4 Aboriginal heritage

Given the amendments to the project footprint for the latest design refinements, a further review of the Aboriginal Heritage Information Management System (AHIMS) database was undertaken in November 2016 to inform this SSIAR Addendum 2. A total of seven sites were identified within 500 metres of the project comprising four rock shelter sites, one midden site, one engraving site and one artefact scatter site (refer to Figure 6). The project would not have any direct impact on these sites.

Potential impacts of the current design relating to Aboriginal heritage would be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Further assessment of items of Aboriginal heritage significance would be undertaken during preparation of the EIS. The AHIMS data will be confirmed at this time by field inspection.

3.5 Climate change risk and adaptation

The SSIAR identifies potential risks to the project (and road infrastructure in general) as a result of climate change.

The SSIAR provides a preliminary assessment of the potential impacts of climate change to the project. Potential impacts of the current project design relating to climate change risk and adaptation would be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Further assessment of climate change risk and adaptation for the project would be undertaken during preparation of the EIS and would include the current project design, including potential construction compound locations.

3.6 Hazards and risk

As outlined in the SSIAR, hazard and risk impacts associated with the project have the potential to affect the surrounding environment and human health.

The SSIAR provides a preliminary assessment of the hazards and risks associated with the project. Potential impacts of the design refinements relating to hazards and risk would be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Further assessment of hazards and risks would be undertaken during preparation of the EIS and would include the current project design, including potential construction compound locations.

3.7 Cumulative impacts

The SSIAR and SSIAR Addendum 1 outlines the key developments that are expected to interact with the project. Other components of the WestConnex program and key projects/strategies that are expected to interact with the current project design include, as a minimum:

- WestConnex New M5
- WestConnex M4 East
- Proposed Sydney Gateway project
- Proposed future Western Harbour Tunnel project
- The Bays Precinct Transformation Plan
- Parramatta Road Urban Transformation Strategy
- Sydney Metro City and Southwest
- CBD and South East Light Rail
- Proposed Victoria Road Bus Rapid Transit.

There are no material changes to the cumulative impact assessment approach arising from the design refinements. Further assessment of potential cumulative impacts would be undertaken during preparation of the EIS.

3.8 Sustainability

As outlined in the SSIAR, the project will be designed to achieve an Infrastructure Sustainability rating of 'Excellent' for the design and construction and would be undertaken in accordance with the WestConnex Sustainability Strategy (the Sustainability Strategy) (WestConnex Delivery Authority, 2015).

As the avoidance of impacts to heritage items/areas and open space are considerations in the assessment of sustainability impacts, the potential project impacts would be minimised through the design refinements. This would be achieved through a reduction on impacts to non-Aboriginal heritage at Camperdown and a reduction of open space impacts from the removal of Easton Park from the construction footprint.

The SSIAR provides a preliminary assessment of the impacts of the project on sustainability. Potential impacts of the design refinements relating to sustainability would be consistent with those outlined in the SSIAR and SSIAR Addendum 1. Proposed further assessment of sustainability would be undertaken during preparation of the EIS.

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4 Conclusion

Roads and Maritime is the proponent for the M4-M5 Link project and has formed the opinion that the project is likely to significantly affect the environment. Accordingly, the project is State significant infrastructure under Part 5.1 of the EP&A Act. Approval from the NSW Minister for Planning is required for the project.

In January 2016, Roads and Maritime prepared a SSIAR for the project under section 115X of the EP&A Act. References to the SSIAR in this report therefore refer to the January 2016 report. The SSIAR describes the project, considers the potential environmental issues for the project and identifies the key environmental issues. The purpose of the SSIAR was to assist the formulation of the SEARs by DP&E under section 115Y of the EP&A Act, which would inform the preparation of an EIS for the project. On 3 March 2016, SEARs for the project were issued by DP&E.

In September 2016, preliminary design development informed further refinement of the project design in the form of a tunnel connection from the eastern abutment of the Iron Cove Bridge to the proposed Rozelle interchange (the Iron Cove Link). The Iron Cove Link was not considered (or assessed) in the SSIAR. Since the preparation of the SSIAR, Roads and Maritime has also identified site management works proposed to be undertaken at part of the former Rozelle Rail Yards.

To address these items, Roads and Maritime prepared and submitted an SSIAR Addendum (SSIAR Addendum 1) to DP&E on 22 September 2016 which provided a preliminary environmental assessment of the potential impacts of the Iron Cove Link and for clarity excluded the separate site management works at part of the former Rozelle Rail Yards from the SSI application. Revised SEARs were issued by DP&E on 9 November 2016.

Since submission of the SSIAR Addendum 1, the project design and scope has developed further, with the following design refinements and scope changes being incorporated in the ongoing development of the project:

- Refinement of the Rozelle interchange design to include tunnel connections which extend beyond the boundaries of the Rozelle Rail Yards, including civil construction of stub tunnels linking to a proposed future Western Harbour Tunnel. The current interchange design also includes civil construction of infrastructure for, and above-ground ramps into, a proposed future Western Harbour Tunnel within the Rozelle Rail Yards
- Removal of the road interchange at Camperdown
- Realignment of the mainline tunnels
- Amendment of the mainline tunnel configuration from three lanes to four lanes
- Removal of Easton Park from the project construction footprint.

The scope of the separate site management works at part of the former Rozelle Rail Yards has also been refined since lodgement of the SSIAR Addendum 1.

These design refinements and scope changes were not considered or assessed in the SSIAR or the SSIAR Addendum 1. This SSIAR Addendum 2 has therefore been prepared to describe design refinements and scope changes to the M4-M5 Link project (as described in the SSIAR and SSIAR Addendum 1) and to undertake preliminary environmental assessment of those refinements and changes. The proposed design refinements the subject of this addendum could potentially result in a further revision to the project SEARs.

This SSIAR Addendum 2 provides a preliminary assessment of the potential environmental impacts associated with the current project design. During preparation of the EIS, these and other potential impacts will be further investigated. The EIS will consider any additional SEARs provided by the Secretary of DP&E.

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5 References

NSW Office of Environment and Heritage (2014) Native Vegetation of the Sydney Metropolitan Area (VIS_ID 3817), metadata date 2013-10-11

Transport for NSW (2016) Draft NSW Road Planning Framework

WestConnex Delivery Authority (WDA) (2015) WestConnex Sustainability Strategy Summary, WestConnex Delivery Authority

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