Title of Proposal - Parramatta Light Rail (Stage 1) - Westmead to Carlingford, via Parramatta CBD

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Transport - Land

1.2 Provide a detailed description of the proposed action, including all proposed activities.

The proposed action for the purpose of this Referral comprises the first stage of the proposed Parramatta Light Rail network, comprising an alignment from Westmead to Carlingford, via Parramatta CBD in addition to the development of a stabling and maintenance facility at Camellia.

Proposed action key features

The proposed action would include the provision and operation of the following key features:
- A light rail network of around 12 kilometres in length (including approximately seven kilometres within the existing road corridor separated from general traffic and approximately five kilometres utilising the existing Carlingford Line heavy rail and Sandown Line for use as light rail corridors and replacing current heavy rail services).
- A total of 16 stops (subject to further design development). The stops would form a combination of side and island platforms depending on the final design of the proposed action and existing constraints at each stop location. Platforms would be approximately 45 metres long.
- Interchanges with existing rail, bus and/or ferry service facilities at Westmead, Parramatta CBD and Carlingford.
- Creation of two light rail and pedestrian zones (no general vehicle access) along Church Street (generally between Lennox Bridge and Macquarie Street) and Macquarie Street (generally between Horwood Place and Smith Street) within the Parramatta CBD.
- Light rail vehicle (LRV) driver amenities at light rail termini at Westmead and Carlingford and at the stabling and maintenance facility at Camellia.
- An integrated maintenance and stabling facility located in Camellia. The maintenance facility would consist of a number of elements including:
- Stabling area for storage of LRVs.
- A stabling and maintenance building including a workshop containing servicing tracks to undertake LRV inspections and administration facilities for managing the administration, operation and maintenance of the PLR Systems.
- An automatic train wash plant and sanding plant for replenishing LRV sand boxes and for testing sanding equipment.
- Provision of a number of new bridge structures along the alignment including over James

Ruse Drive and Clay Cliff Creek, Parramatta River (near the Cumberland Hospital), Kissing Point Road and Vineyard Creek, Rydalmere.
- Modification of Lennox Bridge (Church Street) and a number of existing bridge structures along the Carlingford Line (including Parramatta River, Adderton Road and Pennant Hills Road) to accommodate the light rail alignment and active transport links.
- Alterations to the existing road network to accommodate the proposed action, including line marking, additional traffic lanes and turning lanes, new traffic signals, and changes to traffic flows (e.g. creation of left-in, left-out arrangements etc.).
- Ancillary infrastructure including up to eight electricity substations and overhead lines and poles to allow for LRV operations.
- Active transport corridors and additional urban design features along sections of the alignment and at stop locations.
- Replacement of existing rail infrastructure along the former Sandown Line corridor, between the junction at Camellia Station and the stabling and maintenance facility, and removal of the remaining rail infrastructure, east of the stabling and maintenance facility.
- Closure of the existing Carlingford Line north of Parramatta Road including removal of existing rail assets at the existing level crossing (such as signalling and boom gates).

The proposed alignment for the proposed action is provided in Figure 1.

Services

Upon commencement of light rail operations, services would operate from 5 am to 1 am. Additional services would also be provided as required to meet demand for special events (e.g. New Year's Eve or events at the Western Sydney Stadium). Special event services may run beyond the standard hours of operations.
Services would operate on a 'turn up and go' basis, with higher service frequencies during and between the AM and PM peaks (7 am to 7 pm). The project would be integrated with Sydney's wider transport system with the Opal Card 'tap on, tap off' contactless system being provided for the light rail network.

Construction sites and compounds
Construction zone
Construction of the proposed action would take place generally within the existing road reserves and throughout the rail corridor between Camellia and Carlingford. Some utility, services and drainage works may require access and work in other areas within the vicinity of the proposed action alignment.

Construction compounds
Approximately 10 construction compounds would be established along the length of the proposed action, including existing open spaces, previously cleared urban areas and within sections of the existing Carlingford Line heavy rail and Sandown freight line corridors.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Disturbance footprint	1	-33.807996482814	150.9871930203
Disturbance footprint	2	-33.807916250809	150.98709646078
Disturbance footprint	3	-33.807305593637	150.98739150377
Disturbance footprint	4	-33.806962375649	150.98769191118
Disturbance footprint	5	-33.802264162454	150.992578896
Disturbance footprint	6	-33.802977380304	150.99378052564
Disturbance footprint	7	-33.80274112755	150.99409702631
Disturbance footprint	8	-33.801978873649	150.99654320093
Disturbance footprint	9	-33.801417208536	150.99816861959
Disturbance footprint	10	-33.801203239905	151.00188079687
Disturbance footprint	11	-33.800186881599	151.00427332731
Disturbance footprint	12	-33.802865940407	151.00555542322
Disturbance footprint	13	-33.803641559082	151.00595775457
Disturbance footprint	14	-33.805054593427	151.00597384783
Disturbance footprint	15	-33.806298222645	151.00592556806
Disturbance footprint	16	-33.807742414539	151.00565734716
Disturbance footprint	17	-33.808464501345	151.00541594835
Disturbance footprint	18	-33.808624964253	151.00553396555
Disturbance footprint	19	-33.809400530728	151.00537303301
Disturbance footprint	20	-33.809538705626	151.00535157533
Disturbance footprint	21	-33.809939857293	151.0051638207
Disturbance footprint	22	-33.810644096781	151.0047453961
Disturbance footprint	23	-33.810915985159	151.00453618379
Disturbance footprint	24	-33.812070386845	151.00402119966
Disturbance footprint	25	-33.815007578036	151.00307706209
Disturbance footprint	26	-33.816937422656	151.01160112234
Disturbance footprint	27	-33.815765258945	151.0119766316
Disturbance footprint	28	-33.816059415606	151.01303878637
Disturbance footprint	29	-33.816424881565	151.01407411905
Disturbance footprint	30	-33.816830457813	151.01495924803
Disturbance footprint	31	-33.817231575287	151.01564589354
Disturbance footprint	32	-33.817405392275	151.01609114023
Disturbance footprint	33	-33.817556924746	151.01692798944
Disturbance footprint	34	-33.817525726906	151.01731959196
Disturbance footprint	35	-33.816973077575	151.01758781286
Disturbance footprint	36	-33.817739654721	151.0214072785
Disturbance footprint	37	-33.81809619989	151.02289858671
Disturbance footprint	38	-33.818675582619	151.02372470709
Disturbance footprint	39	-33.81857753351	151.02396074148
Disturbance footprint	40	-33.818336867038	151.02407875868
Disturbance footprint	41	-33.815172485629	151.02537694784
Disturbance footprint	42	-33.814281089451	151.02581683012
Disturbance footprint	43	-33.813897786239	151.02469030233
Disturbance footprint	44	-33.813434254478	151.02493706556
Disturbance footprint	45	-33.813728419156	151.0259884915

Area	Point	Latitude	Longitude
Disturbance footprint	46	-33.813050947471	151.02648201795
Disturbance footprint	47	-33.811624673756	151.0275656304
Disturbance footprint	48	-33.81056386726	151.02840247961
Disturbance footprint	49	-33.809877456048	151.02908912512
Disturbance footprint	50	-33.808825542465	151.03010836454
Disturbance footprint	51	-33.8080856294	151.0304838738
Disturbance footprint	52	-33.806160042516	151.0311383328
Disturbance footprint	53	-33.804573183718	151.03187862249
Disturbance footprint	54	-33.804011535632	151.03269401403
Disturbance footprint	55	-33.802665348229	151.0357195458
Disturbance footprint	56	-33.801969958362	151.03782239767
Disturbance footprint	57	-33.801577684662	151.03838029714
Disturbance footprint	58	-33.800507838161	151.03936735006
Disturbance footprint	59	-33.799286413722	151.03993597837
Disturbance footprint	60	-33.798270032653	151.03965702863
Disturbance footprint	61	-33.796549289823	151.03934589239
Disturbance footprint	62	-33.794302464731	151.04081574293
Disturbance footprint	63	-33.792858046031	151.04196372839
Disturbance footprint	64	-33.792260655865	151.04302588316
Disturbance footprint	65	-33.791788090541	151.0442596993
Disturbance footprint	66	-33.791163943663	151.04504290434
Disturbance footprint	67	-33.790628957004	151.04538622709
Disturbance footprint	68	-33.790147466152	151.04551497312
Disturbance footprint	69	-33.789755138271	151.04546132894
Disturbance footprint	70	-33.789068560152	151.0451501927
Disturbance footprint	71	-33.787927223306	151.04468885275
Disturbance footprint	72	-33.787035543309	151.04443136068
Disturbance footprint	73	-33.786375694134	151.04443136068
Disturbance footprint	74	-33.785109482827	151.04493561598
Disturbance footprint	75	-33.784494204377	151.0451501927
Disturbance footprint	76	-33.783352806559	151.04562226148
Disturbance footprint	77	-33.782924778456	151.04610505911
Disturbance footprint	78	-33.780499245462	151.04804697843
Disturbance footprint	79	-33.780677595816	151.04850831838
Disturbance footprint	80	-33.783210130762	151.04627672048
Disturbance footprint	81	-33.784520955706	151.04547205778
Disturbance footprint	82	-33.786340026466	151.04484978529
Disturbance footprint	83	-33.786785871246	151.04478541227
Disturbance footprint	84	-33.787258464179	151.04489270063
Disturbance footprint	85	-33.788943727176	151.04554715963
Disturbance footprint	86	-33.789728388577	151.04585829588
Disturbance footprint	87	-33.790566541676	151.04577246519
Disturbance footprint	88	-33.791155027246	151.04542914243
Disturbance footprint	89	-33.791565181464	151.04507509084
Disturbance footprint	90	-33.792162576484	151.04428115698
Disturbance footprint	91	-33.792768883584	151.04284349294

Area	Point	Latitude	Longitude
Disturbance footprint	92	-33.793437599672	151.04201737257
Disturbance footprint	93	-33.795390220751	151.04053679319
Disturbance footprint	94	-33.796638448333	151.03986087652
Disturbance footprint	95	-33.797307134193	151.039764317
Disturbance footprint	96	-33.799330991563	151.04024711462
Disturbance footprint	97	-33.800347360032	151.03975358816
Disturbance footprint	98	-33.801274562845	151.03900256964
Disturbance footprint	99	-33.802005619518	151.03828373762
Disturbance footprint	100	-33.802718839523	151.03592339369
Disturbance footprint	101	-33.803200259666	151.0349148831
Disturbance footprint	102	-33.804180921951	151.03284421774
Disturbance footprint	103	-33.804911953797	151.03199663969
Disturbance footprint	104	-33.808611592357	151.03056970449
Disturbance footprint	105	-33.809342586351	151.03004399153
Disturbance footprint	106	-33.810840213077	151.02845612379
Disturbance footprint	107	-33.81445045544	151.02611723753
Disturbance footprint	108	-33.816429338457	151.02529111715
Disturbance footprint	109	-33.819156912979	151.02426114889
Disturbance footprint	110	-33.820003691296	151.03699627729
Disturbance footprint	111	-33.818666669068	151.03849831434
Disturbance footprint	112	-33.818354694208	151.03971067281
Disturbance footprint	113	-33.818559706387	151.03972140165
Disturbance footprint	114	-33.819067777931	151.03846612783
Disturbance footprint	115	-33.820422620627	151.03674951406
Disturbance footprint	116	-33.820262179849	151.03334847303
Disturbance footprint	117	-33.823961154585	151.03287640425
Disturbance footprint	118	-33.823747242333	151.03054824682
Disturbance footprint	119	-33.820074998561	151.03089156957
Disturbance footprint	120	-33.819611500276	151.02431479307
Disturbance footprint	121	-33.820208699523	151.02320972296
Disturbance footprint	122	-33.821322866075	151.02252307745
Disturbance footprint	123	-33.826617187145	151.02169695707
Disturbance footprint	124	-33.828916638631	151.02091375204
Disturbance footprint	125	-33.830146552411	151.02000180098
Disturbance footprint	126	-33.832650887368	151.01647201391
Disturbance footprint	127	-33.832499381644	151.01615014883
Disturbance footprint	128	-33.829816794655	151.01995888563
Disturbance footprint	129	-33.827766920618	151.02096739622
Disturbance footprint	130	-33.820743501278	151.02229777189
Disturbance footprint	131	-33.819121258969	151.02377835127
Disturbance footprint	132	-33.818122940716	151.02197590681
Disturbance footprint	133	-33.817178093064	151.01830664488
Disturbance footprint	134	-33.817837704789	151.01746979567
Disturbance footprint	135	-33.817374194379	151.01508799406
Disturbance footprint	136	-33.816892853986	151.0145944676
Disturbance footprint	137	-33.816037131045	151.012212666

Area	Point	Latitude	Longitude
Disturbance footprint	138	-33.817195920475	151.01178351255
Disturbance footprint	139	-33.815020948932	151.00272837492
Disturbance footprint	140	-33.808638336147	151.00517454954
Disturbance footprint	141	-33.805090253297	151.0058182797
Disturbance footprint	142	-33.803539035178	151.00562516066
Disturbance footprint	143	-33.800507838157	151.00412312361
Disturbance footprint	144	-33.801310224287	151.00182715269
Disturbance footprint	145	-33.801577684659	150.99813643309
Disturbance footprint	146	-33.802023450088	150.99710646482
Disturbance footprint	147	-33.803253750623	150.99378052565
Disturbance footprint	148	-33.802540535076	150.99260035368
Disturbance footprint	149	-33.806855398331	150.98837319227
Disturbance footprint	150	-33.80833523934	150.98815861555
Disturbance footprint	151	-33.807996482814	150.9871930203

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The proposed action would comprise an approximate 12 kilometre route through the existing urban environment from Westmead to Carlingford, via the Parramatta CBD. Between Westmead and Camellia, the proposed action would generally be located along existing streets within Westmead, the Parramatta CBD and the suburbs of Rosehill and Camellia. To the north of Camellia, the proposed action would be located within the existing Carlingford and Sandown Freight Line heavy rail corridors.

The route would generally respond to the existing topography of the existing streets and the alignment of existing rail line to Carlingford.

1.6 What is the size of the development footprint or work area?

The proposed action would have an impact footprint of approximately 80 hectares.

1.7 Is the proposed action a street address or lot?

Street Address

Hawkesbury Road
Westmead NSW 2145
Australia

1.8 Primary Jurisdiction.

New South Wales

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 06/2018

End date 06/2023

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

The proposed action is considered to be consistent with the current NSW and local government strategic planning framework for Western Sydney. A summary of the key strategic policies with respect to the proposed action is described below.

State planning policies

- *State and Premier priorities* – In September 2015, the NSW Premier released 30 'State priorities', including 12 'Premier priorities' and 18 state priorities to grow the economy, deliver infrastructure, and improve health, education and other services across NSW. Key priorities relevant to the proposed action include 'building infrastructure' and 'creating jobs'. Parramatta Light Rail is identified as a key infrastructure project as part of the NSW government's infrastructure investment program. Through investment in infrastructure such as the proposed action, new jobs and apprenticeships are being created for the construction sector. - *NSW 2021 – NSW 2021: A Plan to Make NSW Number One* (NSW 2021; NSW Department of Premier and Cabinet, 2011) is the NSW Government's 10 year strategic business plan to rebuild the NSW economy, provide quality services, renovate infrastructure, restore accountability, and strengthen local environment and communities. Parramatta Light Rail is expected to contribute to achieving a number of the long-term goals identified including:Improve the performance of the NSW economy (Goal 1); Reduce travel times (Goal 7); Grow patronage on public transport by making it a more attractive choice (Goal 8); Improve customer experience with transport services (Goal 9); and Invest in critical infrastructure (Goal 19). - *Towards our greater Sydney 2056* – This report outlines a draft amendment to the Sydney metropolitan planning strategy *A Plan for Growing Sydney* (NSW Government, 2014) which aligns with the vision established in the draft District Plans. The amendment reconceptualises Greater Sydney as a metropolis of three cities. The plan identifies that of the three cities, the developing Central City, with the

Greater Parramatta and the Olympic Peninsula (GPOP) at its heart, is anticipated to experience the most significant urban transformation over the next 10 to 15 years. Parramatta Light rail will form the core spine of GPOP and serve areas of high jobs growth at Westmead, Parramatta CBD and Rydalmere. It will also provide public transport access to Camellia, Telopea, Parramatta North and Rydalmere supporting new residential and mixed use precincts. - *Draft West Central District Plan* (Greater Sydney Commission, 2016) – The draft *West Central District Plan* provides a 20-year vision for the region to become an economic and employment powerhouse, a core hub for transport and services and the home of vibrant and diverse centres and communities. The West Central region will become the core of Greater Sydney's 'Central City'. The plan outlines the priorities and actions required to realise this vision. The draft Plan has a specific focus on the 4,000 hectare area of the GPOP and refers to its role within the West Central District and as the unifying heart and centre of Greater Sydney. - *Greater Parramatta to Olympic Peninsula* – The Greater Parramatta to Olympic Peninsula (GPOP was identified as a new priority growth corridor in the most recent metropolitan strategy *A Plan for Growing Sydney* (Department of Planning and Environment, 2014). The document outlines a vision for the 4,000 hectare area between GPOP to become the geographic and demographic centre of Greater Sydney (Greater Sydney Commission, 2016). Within the GPOP growth corridor, a number of precincts along the alignment of the proposed action are earmarked for future development including: Westmead Hospital Precinct; the Parramatta North Development (former Cumberland Hospital); Parramatta CBD; Camellia Precinct; Western Sydney University; Rydalmere (Property NSW); and Telopea. The Parramatta Light Rail will provide a key public transport backbone through GPOPP priority growth corridor.

Strategic transport infrastructure policy

- *NSW Long Term Transport Master Plan* – The NSW Long Term Transport Master Plan (Transport for NSW, 2012a) is the NSW Government's 20 year plan to improve the NSW transport system. A key element of the *NSW Long Term Transport Master Plan* is the need to increase the capacity of Sydney's rail network to meet existing customer needs and accommodate the additional travel demand created by Sydney's forecast population and economic growth.

The *NSW Long Term Transport Master Plan* identifies a 'three-tiered network' approach to expand the capacity of Sydney's transport system. The key transport challenges for Parramatta identified in the *NSW Long Term Transport Master Plan* include:

* Peak period congestion around Parramatta's city centre affects bus services and amenity. * Local barriers to movement include Parramatta River, Parramatta Park, major arterial roads and rail lines. * Stronger transport connections to other parts of Greater Sydney are required. * Population growth to the west of Parramatta has led to increased travel demand and additional travel on the road network has affected travel times. The proposed action would form a key long-term action of the *NSW Long Term Transport Master Plan*, which would improve access and connectivity and improve travel times and capacity through the west. - *Sydney's Light Rail Future: Expanding public transport, revitalising our city – Sydney's Light Rail Future* (NSW Government, 2012b) is the NSW Government's plan to address road congestion by providing an effective public transport option that builds on the current transport network and is intended to grow public transport capacity, enhance commuter experiences and reduce congestion,

leaving more space for vital commercial traffic as well as pedestrians. Whilst *Sydney's Light Rail Future* is focused on expanding light rail services for the CBD and inner Sydney, it recognises the importance of light rail for Western Sydney and commits to working with Parramatta City Council on the development of a light rail focused on the Parramatta CBD.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

Stakeholder and community consultation for the proposed action forms an integral part of informing and scoping investigations for the Environmental Impact Statement.

In December 2015, the NSW Government announced the preferred network for Parramatta Light Rail. A comprehensive stakeholder engagement process commenced at this time, focussing on alignment of project objectives and consideration of route options. In August 2016, a community engagement process commenced, providing information about the project and seeking high level feedback on the project. Engagement with stakeholders and community will continue during the preparation of the Environmental Impact Statement.

Key stakeholders for the proposed action include (but are not necessarily limited to):

- Commonwealth agencies: Department of Environment and Energy. - State agencies including: Transport for NSW; Sydney Trains; Department of Planning and Environment; UrbanGrowth; Roads and Maritime Services; NSW Environmental - Protection Authority; NSW Office of Environment and Heritage; NSW Office of Water; Infrastructure NSW; and Health Infrastructure. - Local government; City of Parramatta Council. - Public utilities, and business and industry groups impacted by the proposed action. - Directly impacted local communities. - The broader community.

Consultation activities undertaken to date include:

- High level stakeholder engagement on the Parramatta Transport Corridor Strategy from October 2014 to July 2015. This consisted of a series of briefings and round table discussions with stakeholders to gain input to, and feedback on, the strategic needs assessment and corridor options for the proposed action (including shortlisted options). - Stakeholder engagement for the broader Parramatta Light Rail (including options development), which commenced following the announcement of the preferred network in December 2015. This consisted of stakeholder engagement (including meetings with government departments and agencies, organisations that manage key venues and destinations and local councils) focussed on explaining the vision and objectives of Parramatta Light Rail and establishing how these were aligned with stakeholder objectives. - Industry consultation commencing in March 2016. A formal industry briefing was held on 7 March 2016 which provided more detailed plans for Parramatta Light Rail, the scope of works and the process for industry to contribute to the project and take part in its delivery. This session was attended by approximately 500 industry representatives and industry experts. - Community engagement commencing in August 2016 and currently ongoing. This consultation was intended to inform people about the proposed action, understand how they might use light rail and identify issues that might influence the

design of the project. Contact points for consultation including community information phone number, project email address, project website, door knocking, and pop-up information sessions.

Consultation with Indigenous stakeholders

As part of the ongoing development of the proposed action, consultation with the Indigenous community is currently being undertaken in accordance with the requirements outlined in the NSW OEH *Aboriginal Cultural Heritage Consultation requirements for proponents 2010*. The aim of this consultation process is to ensure comprehensive Indigenous stakeholder consultation during the early stages of the proposed action, providing an opportunity to identify Indigenous cultural heritage sites, values and constraints and inform the ongoing design of the proposed action.

Consultation with Indigenous stakeholders to date has included:

- Advertising and notification process to identify and register Indigenous stakeholders (6 week process). - Consultation on, and provision of, the assessment methodology for assessment of Indigenous impacts and integration of information provided by Indigenous stakeholders to refine this methodology (28 day review).

Following assessment of the potential Indigenous impacts which may occur as a result of the proposed action, the Cultural Heritage Assessment Report would be provided to Indigenous stakeholder to allow for comments to be integrated into final report.

Proposed future consultation

As part of the ongoing development of the proposed action, continued consultation with the wider community and all relevant stakeholders through a variety of methods including:

- Public display of the Environmental Impact Statement. - Ongoing community and stakeholder consultation. - Provision of place managers as direct points of contact for the community. - Ongoing consultation throughout the construction process (subject to approval of the proposed action).

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

The proposed action will be assessed under Part 5.1 of the NSW EP&A Act.

It is intended that the NSW Minister for Planning will declare the proposed action to be State significant infrastructure (SSI) and critical SSI under sections 115U(4) and 115V of the EP&A Act, respectively. Schedule 5 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) is also proposed to be amended to include the project as a critical SSI project.

Project approval

An SSI application and supporting document was submitted to the Secretary of the NSW Department of Planning and Environment (DP&E) on 27 February 2017 with the intention of seeking Secretary environmental assessment requirements (SEARs) for the proposed action. The Secretary issued the SEARs for the project on 19 April 2017.

Transport for NSW is currently preparing an Environmental Impact Statement to address the requirements in addition to the requirements of Schedule 2, Part 3 of the *Environmental Planning and Assessment Regulation 2000*. The Environmental Impact Statement will then be displayed for community and stakeholder comment, and all submissions addressed in a submissions report.

The DP&E will then assess the proposed action. Approval from the Minister for Planning would be required before Transport for NSW can proceed with construction and operation of the proposed action.

Other relevant state and local legislation

The following environmental planning instruments have been considered as relevant to the proposed action:

- State Environmental Planning Policy (Infrastructure) 2007. - State Environmental Planning Policy (State and Regional Development) 2011. - Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005. - State Environmental Planning Policy No. 55 – Remediation of Land. - Parramatta Local Environmental Plan 2011.

Ancillary approvals and licences

In accordance with Section 115ZG of the EP&A Act, some State planning legislation does not apply to critical State significant infrastructure or must be applied consistently with an approved critical infrastructure project. Section 115ZG of the EP&A Act specifies approvals that are not required for approved State significant infrastructure under Part 5.1 of the EP&A Act.

Approvals that may otherwise be required for the proposed action but for the provisions under Part 5.1 would be:

- Concurrence under Part 3 of the *Coastal Protection Act 1979* of the Minister administering that Part of the Act. - Permits under Sections 201, 205 and 219 of the *Fisheries Management Act 1994.* - Approvals under Part 4, excavation permits under Section 139 and Division 8 of Part 6 of the *Heritage Act 1977.* - Aboriginal heritage impact permits under Section 90 of the *National Parks and Wildlife Act 1974.* - Various approvals under the *Water Management Act 2000*, including water use approvals under Section 89, water management work approvals under Section 90, and activity approvals (other than aquifer interference approvals) under Section 91. - An environment protection notice under Chapter 4 of the *Protection of the Environment Operations Act 1997.*

Under Section 115ZH of the EP&A Act, the following relevant approvals cannot be refused if necessary for the carrying out of an 'approved project' and are to be substantially consistent with an approval to carry out the proposed action given under Part 5.1:

- An environment protection licence under Chapter 3 of the *Protection of the Environment Operations Act 1997*. - A consent under section 138 of the *Roads Act 1993*.

The approval in item (f) is likely to be required for the proposed action. Consent from the relevant roads authority for the erection of a structure, or the carrying out of work in, on or over a public road, or the digging up or disturbance of the surface of a road in accordance with section 138 of the *Roads Act 1993* would be required as part of the project.

Should the Commonwealth identify the proposed action to be a controlled action, Transport for NSW would seek to apply the bilateral assessment process for assessment and approval of the proposed action.

1.15 Is this action part of a staged development (or a component of a larger project)?

Yes

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action.

As described in section 1.1, the proposed action is intended as part of the future development of a broader Parramatta Light Rail network.

The proposed action (as described in this Referral) would ultimately become a component of a larger action – that being the full Parramatta Light Rail network – which would ultimately include additional stages of light rail added to the currently proposed stage.

A description of the potential interdependency between the proposed action and future stages is outlined below

<u>Staging options for the Parramatta Light Rail Network</u>

Following a review of the expected timing for urban renewal along the preferred light rail network corridor and the ongoing development of transport planning to support the GPOP priority growth area, the option to stage the delivery of Parramatta Light Rail network was investigated by Transport for NSW. The options included the initial delivery of:

- A route between Westmead and Parramatta CBD. - A route between Westmead and Carlingford via Parramatta CBD. - A route between Westmead and Sydney Olympic Park via Parramatta CBD and Camellia (excluding Carlingford). - A route between Westmead and Sydney Olympic Park via Parramatta CBD and Camellia including Carlingford.

The assessment considered the need to:

- Meet the Parramatta Light Rail network objectives and the State Government's objectives for the GPOP priority growth area. - Prioritise areas that would be subject to growth in the short to medium term (five to 10 years) but currently have transport networks with limited capacity to support this growth. - Maximise integration with existing and future transport network projects, such as the future Sydney Metro West which is currently under investigation. - Remain cost effective and deliver transport outcomes in the short and long term.

The assessment concluded that the delivery of Parramatta Light Rail network would be best delivered in stages, with the first stage consisting of the network between Westmead to Carlingford, via the Parramatta CBD (the currently proposed action). The proposed action would support the more immediate planned growth in Westmead, Parramatta CBD and along the Carlingford Line precincts in the next five to 10 years. In particular it would:

- Support significant short- to medium-term benefits to the Westmead health precinct, Parramatta North Urban Transformation, Parramatta CBD, Western Sydney Stadium redevelopment, Museum for Arts and Sciences, and the Parramatta CBD schools precinct. All of these key precincts are currently being further developed or expanded and require improved transport options in the short term. - Address deficiencies in the existing transport networks in Westmead and Parramatta CBD that would limit capacity to support growth – in particular, it would address the lack of good intermediate connections between residential, commercial, health, educational and entertainment precincts. - Facilitate more frequent services that are required along the Carlingford Line to respond to forecast growth over the next 10 years.

The rollout of further stages of the Parramatta Light Rail network is dependent on:

- Resolving the timing of the land-use planning in the eastern section of the preferred network, including finalisation of the Camellia Masterplan, Sydney Olympic Park Masterplan and Sydney Markets land-use strategy. - The final alignment and station locations for Sydney Metro West to ensure the Parramatta Light Rail Project and metro are integrated.

Planning work continues for Stage 2 of the network with consideration of other strategic transport projects (such as Sydney Metro West). This work is expected to be completed by the end of 2017.

Interdependency between the proposed action and the larger action

Based on the current design of the proposed action and independent nature of the action, it is considered that the currently referred action would represent a 'stand-alone' action and the potential impacts identified as a result of the referred action would not change due to any potential future action resulting from the development of any subsequent light rail alignments associated with the broader Parramatta Light Rail network development.

Further consideration of the independent nature of the proposed action is discussed in Table 1 below.

Table 1 Consideration of the proposed action as part of a larger action

Issues for consideration

Response

Can the referred action stand-alone?

Yes. The development of a light rail between Westmead and Carlingford via Camellia (including the construction of a new stabling and maintenance facility) has been designed to be a stand-alone project and would not require the construction or operation of any future light rail stages to operate.

Are the referred action and related actions co-dependent?

No. Future development of the Parramatta Light Rail network would not depend on the development of the proposed action. Future addition(s) of Parramatta Light Rail, once developed, would form an extension of the initial phase of the light rail between Westmead and Carlingford.

What is the timeframe between the referred action and the related action?

Design of the alignment between Camellia and Strathfield is currently ongoing, however, the current timing for future extension(s) of Parramatta Light Rail have not been determined.

What is the geographical relationship between the referred action and the related action?

While the overall development of the proposed action would provide a connected transport corridor between Westmead and Camellia and Carlingford. Future components of the overall light rail network would be geographically distinct. The stops and track works associated with each of the components would be geographically separated and the impacts on specific protected matters would not be related. Potential matters of NES for the proposed action primarily relate to heritage issues whilst potential matters of NES for future extension(s) would need to be determined based on these alignment(s).

Is there an overall plan or vision for the larger action and does that plan encompass the referred action?

The overall plan for the larger action (Parramatta Light Rail network) is to provide a new light rail transport corridor connecting key existing and proposed development sites within the GPOP. Whilst this plan encompass the referred action, this stage is considered to be able to operate and be justified independently of the overall plan.

With respect to the potential for extension of the light rail alignment between Camellia and Strathfield (as described above), it is anticipated that (subject to determination of the final alignment) that this section of the light rail network may be required to be referred as a potentially controlled action. This referral would be undertaken as a separate proposed action following determination of the final alignment and identification of potential environmental for this stage.

Are the actions authorised by a single local government or State/Territory permit, licence or other authorisation?

As described in section 2.5, the proposed action will be assessed under Part 5.1 of the NSW EP&A Act. While the NSW Department of Planning and Environment would be the overall determining authority for the Parramatta Light Rail, it is proposed that the proposed action and any future extension(s) would be assessed independently as separate planning approvals.

Is it preferable to assess and approve the larger action as a whole? Can the impacts of Part 3 matters only be assessed through the consideration of a larger action?

No. Any future extension(s) will be subject to a separate assessment and approvals process including a separate referral once the details of the project are more developed. Assessing both the currently proposed action and any future extension(s) as a combined project would not change the assessment on relevant matters of NES compared to assessing as separate projects. Relevant matters of NES for any future extension(s) are expected to be different and not of a cumulative nature to the matters of NES relevant to the currently proposed action.

If required, any future extension(s) will be referred to the Commonwealth once details of these action(s), including alignment(s), have been further developed.

The acceptance of a referral of the first stage of the proposed light rail network would not limit the scope of decision-making under the EPBC Act for any future staged at a later date.

Will the action be financed from a single funding source?

As this time, funding for the Parramatta Light Rail has been secured for the first stage only.

1.16 Is the proposed action related to other actions or proposals in the region?

No

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to impact on the values of any World Heritage properties?

Yes

2.1.1 Impact table

Properties	Impact
Old Government House and Domain	The proposed action would have no direct impact on the World Heritage Listed property of Old Government House and Domain. Some minor works (consisting of line marking within the existing road corridor only) would be required within the buffer zone of the property at the intersection of O'Connell Street with George Street and the intersection of O'Connell Street with Macquarie Street. However, the existing setting and significant views are contributory attributes to the significance of these heritage items. Consideration of the potential impacts of the setting and significant views of the item is discussed below. Some road works are proposed along O'Connell Street (generally to

Properties	Impact
	the north of Victoria Road) however it is not anticipated that these works would impact on world heritage property. Overall the proposed action is not expected to result in any significant impacts to the World Heritage values of the Old Government House and the Domain or buffer zone World Heritage property. Further details regarding the proposed action with respect to potential impacts on the World Heritage Listed property of Old Government House and Domain is provided as Appendix B.

2.1.2 Do you consider this impact to be significant?

No

2.2 Is the proposed action likely to impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to impact on the members of any listed threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Subtropical and Temperate Coastal Saltmarsh	A small area (approximately 7 metres x 2 metres) of the vegetation community, Mangrove Forests in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion, contains a dense ground layer of the saltmarsh species Sarcocornia quinqueflora immediately south of the mangroves on the southern bank of the Parramatta River, near the University of Western Sydney site. Given this vegetation's

Species	Impact
	isolation from any areas of mapped or known Coastal Saltmarsh, the dominance of mature grey mangrove (Avicennia marina) canopy layer, and evidence of vegetation clearing and importation of fill, this area is considered to be disturbed Mangrove Forests in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion as opposed to Coastal Saltmarsh, and therefore inconsistent with definitions of Coastal Saltmarsh as listed under the EPBC Act. Further details are provided in Appendix E
Turpentine-Ironbark Forest in the Sydney Basin Bioregion	The TEC, Turpentine-Ironbark Forest in the Sydney Basin Bioregion listed as CE under the EPBC Act has the potential to occur within the referral area as a number of fragmented patches of the floristically similar vegetation type, Turpentine – Ironbark open forest on shale in the lower Blue Mountains, Sydney region occur within the study area (refer to Figure 4). In addition to having the floristic characteristics of the TEC, patches of Turpentine-Ironbark Forest in the Sydney Basin Bioregion are required to meet as a minimum the following condition criteria; - Presence of characteristic native plant species present in all structural layers - A tree canopy cover greater than10 per cent and a patch area greater than 1 hectare, or - A tree canopy cover less than 10 per cent, a patch area greater than 1 hectare and patch is located within native vegetation with an area greater than 5 hectares (Threatened Species Scientific Committee 2005). Detailed field survey and mapping of this vegetation in the study area has revealed that none of the Sydney Turpentine-Ironbark Forest potentially affected by the proposed action meets the condition criteria for inclusion in the EPBC Act listed Turpentine-Ironbark Forest in the Sydney Basin Bioregion community. Further details are provided in Appendix E
Grey-headed Flying-fox	Removal of winter-foraging habitat including: - Approximately 0.59 hectares of forest dominated by winter-flowering Eucalyptus spp. - Isolated individual trees including; Eucalyptus robusta, Corymbia citriodora, C. maculata, and E. sideroxylon). Removal of general habitat for

Species	Impact
	foraging and roosting including: - Approximately 0.62 hectares of native vegetation communities. - Collision/electrocution of individuals on new overhead wiring. The Grey-headed Flying-fox camp known from Parramatta Park approximately <1km from the site is not impacted directly or considered likely to be indirectly impacted by the project. Further details are provided in Appendix E
Swift Parrot	Removal of potential marginal foraging habitat including: - Approximately 0.59 hectares of forest dominated by winter-flowering Eucalyptus spp. - Isolated individual trees including; Eucalyptus robusta, Corymbia citriodora, C. maculata and E. sideroxylon). Removal of general habitat for foraging and roosting including: - Approximately 0.62 hectares of native vegetation communities. - Collision/electrocution of individuals on new overhead wiring. Further details are provided in Appendix E
Black Rock Cod	Impacting estuarine habitats (mangroves) surrounding the existing rail truss across the Parramatta River south of the University of Western Sydney Parramatta campus. Further details are provided in Appendix E

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
Rufous Fantail	Removal of approximately 0.62 hectares of potential marginal foraging habitat consisting of native vegetation communities. Negligible impact on the species' life cycle as it is unlikely

Species	Impact
	to breed on the site. Further details are provided in Appendix E
Satin Flycatcher	Removal of approximately 0.62 hectares of potential marginal foraging habitat consisting of native vegetation communities. Negligible impact on the species' life cycle as it is unlikely to breed on the site. Further details are provided in Appendix E
Black-faced Monarch	Removal of approximately 0.62 hectares of potential marginal foraging habitat consisting of native vegetation communities. Negligible impact on the species' life cycle as it is unlikely to breed on the site. Further details are provided in Appendix E
Oriental Cuckoo	Removal of approximately 0.62 hectares of potential marginal foraging habitat consisting of native vegetation communities. Negligible impact on the species' life cycle as it does not breed in Australia. Further details are provided in Appendix E

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action likely to impact on any part of the environment in the Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Will there be any impact on a water resource related to coal / gas / mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to impact on any part of the environment in the Commonwealth marine area?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

The proposed action would be located in a highly urbanised environment. Almost all of the original vegetation and other natural features of the project area have been removed or modified. Consequently, the biodiversity values of the area have been greatly reduced. However, some natural features still remain. The total extant of the combined remnant native vegetation and habitats potentially affected by the proposed action is approximately 0.62 hectares.

With respect to the proposed action, a small patch of Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion has been mapped to the south of the alignment in North Parramatta, Smooth-barked Apple - Turpentine - Blackbutt tall open forest on enriched sandstone slopes and gullies of the Sydney region has been mapped adjacent to the route at Dundas and patches of Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion have been mapped adjacent to the route at Rydalmere and Telopea.

Mangrove Forests in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion is also present along the Parramatta River at Camellia, Queens Wharf Reserve and Rydalmere. There is also a patch of Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion and Flax-leaved Paperbark open to closed mesic forest on alluvial riverflats in the Sydney region along the Parramatta River to the south of Rydalmere.

Threatened flora species

Given the generally low native flora habitat values of the proposed action locality, there is a low likelihood of threatened plant species occurring.

Threatened fauna species

The following fauna species listed under the EPBC Act are considered to have a high or moderate likelihood of occurrence at one or more locations in the area of the proposed action:

Grey-headed Flying-fox (vulnerable TSC Act and EPBC Act) – natural vegetation, street trees, and gardens in the surrounding area would provide a foraging resource for this species, particularly individuals from the nearby nationally important Parramatta Park camp and the Duck River (Clyde) and Gladesville camps.Swift Parrot (critically endangered EPBC Act and endangered TSC Act) - moderate potential to forage sporadically in winter-flowering trees on

the site. Recorded foraging in Parramatta in urban vegetation in 2015 and recorded within 1-2 km of the Rydalmere bridge site in 2013. Swift parrots were regular visitors to two urban sites approximately 5-6 km away in Meadowbank/West Ryde for at least the 6 years until 2012.

Further details are provided in Appendix E.

3.2 Describe the hydrology relevant to the project area (including water flows).

The proposed action is located within the Parramatta River catchment, which covers an area of about 266 square kilometres and is divided into 10 sub-catchments. Parramatta River is the main tributary of Sydney Harbour catchment and extends from Blacktown Creek to the confluence of Lane Cove River at Clarkes Point. Parramatta River is tidal to Charles Street Weir in Parramatta.

A number of creeks and modified drainage lines drain to Parramatta River or its tributaries. Major tributaries of Parramatta River within proximity to the proposed action include:

- Toongabbie Creek

- Darling Mills Creek

- Clay Cliff Creek

- Vineyard Creek

- Subiaco Creek

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. Initiatives are being implemented by key stakeholders in the catchment to improve water quality and catchment health, with initiatives being coordinated through the Parramatta River Catchment Group (a regional organisation of local councils, State agencies and community representatives).

The proposed action has been identified to be subject to potential flooding, with areas of flood risk during the 1 in 100 year ARI event corresponding to low lying areas located along Parramatta River and its tributaries, such as areas in the Parramatta CBD and Camellia.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

<u>Geology</u>

The proposed action is located within the Sydney Basin, a large depositional geological feature

that spans from Batemans Bay to the south, Newcastle to the north and Lithgow to the west. The *Sydney 1:100,000 Geological Series Sheet 9130* (NSW Department of Mineral Resources, 1983) and *Penrith 1:100,000 Geological Series Sheet 9030* (NSW Department of Minerals and Energy, 1991) indicates that the project is underlain by the broad geological formations as described below.

- Qha – Silty to peaty quartz sand, silt and clay. Ferruginous and humic cementations in places. Common shell layers (Camellia). - Rwa – Wianamatta group, black to dark grey shale and laminate (Parramatta, Westmead). - Rh – Wianamatta group, medium to coarse grained quartz sandstone, very minor shale and laminite lenses (Northmead, Rydalmere). - Rwa – Wianamatta group, black to dark grey shale and laminate (Rydalmere to Carlingford).

Soils

Based on the *Sydney 1:100,000 Soil Landscape Series Sheet 9130* (Soil Conservation of NSW, 1966) and the *Penrith 1:100,000 Soil Landscape Series Sheet 9030* (Soil Conservation of NSW, 1989) the project is located soil landscapes as described below.

- Disturbed Terrain (xx) – Mass movement hazard, unconsolidated low wet-strength materials, impermeable soil, poor drainage, localised very low fertility and toxic materials (Camellia). - Birrong (bg) – Localised flooding, high soil erosion hazard, saline subsoils, seasonal water logging, very low soil fertility (Harris Park). - Blacktown (bt) – Moderately reactive highly plastic sub soil, low soil fertility, poor soil drainage (Harris Park). - Blacktown (bt) – Moderately reactive highly plastic sub soil, low soil fertility, poor soil drainage (Westmead, Rydalmere). - Lucas Heights (lh) – stony soil, low soil fertility, low available water capacity (Westmead). - Glenorie (gn) – High soil erosion hazard, localised impermeable highly plastic sub soil, moderately reactive (Rydalmere to Carlingford).

Acid Sulfate Soils

High risk acid sulfate soils (ASS) have been identified as potentially occurring at the following locations:

- Parramatta River crossing at Lennox Bridge, Parramatta (Class 1 ASS). - East of Thackery Street, Camellia (Class 3 ASS). - Parramatta River, Rydalmere (Class 1 ASS).

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

The area in which the proposed action is proposed does not contain any outstanding natural features, such as significant landforms, or geological formations. There are however features of potential heritage and ecological importance which have been identified and which have been addressed within other sections of this referral including and/or would be addressed in more detail as part of the preparation of the EIS for the preferred action:

- World Heritage: Australian Convict Sites (Old Government House and Domain) and buffer

zone. - National Heritage: Old Government House and the Government Domain. - Nationally threatened species and ecological communities including. * Proposed works close to Parramatta Park camp (Grey-headed Flying-fox (Vulnerable). * The alignment would impact small areas of Sydney Turpentine Ironbark Forest on the Carlingford Line near Western Sydney University and near Kissing Point Road. - The Parramatta Sand Body: A portion of the sand body is listed on the NSW State Heritage Register and contains significant Aboriginal archaeology

3.5 Describe the status of native vegetation relevant to the project area.

The proposed action is largely restricted to highly urbanised areas of disturbance within existing road and rail corridors. While the majority of the study areas consisted of cleared areas and exotic/ planted non-Indigenous vegetation a number of small and isolated patches of native vegetation community were also observed (refer to Figure 4). The total extant of the combined remnant native vegetation potentially affected by the proposed action is approximately 0.62 hectares.

The vegetation potentially affected by the proposed action includes the following communities:

- Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion (PCT 835/BVT ME018) - Mangrove Forests in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion (PCT 920/BVT ME024). - Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion (PCT 1234/ BVT ME023). - Turpentine – Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion (PCT 1281/ BVT ME041). - Flax-leaved Paperbark open to closed mesic forest on alluvial riverflats in the Sydney region (PCT 1795/BVT ME102). - Smooth-barked Apple - Turpentine - Blackbutt tall open forest on enriched sandstone slopes and gullies of the Sydney region (PCT 1841/BVT ME58).

While the vegetation species listed above do not constitute vegetation types which are listed under the EPBC Act, these areas of vegetation within the study area do provide potential important habitat for threatened species listed under the EPBC Act as discussed in Table 7 previously.

No remnant vegetation within the study area is a TECs listed under the EPBC Act.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

Parramatta is situated within in a relatively flat low-lying region within the Sydney coastal basin. The topography of the proposed action is generally flat across a majority of the proposed alignment. At its lowest point, the proposed action would be less than 10 metres above Australian Height Datum (mAHD) where it crosses the Parramatta River, increasing to around 100 mAHD at Carlingford.

3.7 Describe the current condition of the environment relevant to the project area.

As described previously, the proposed action would be located in a highly urbanised environment, generally consisting of existing road reserves between Westmead and Camellia and the existing heavy rail corridor between Camellia and Carlingford.

The subject environment has been subject to a long history of disturbance and limited natural areas remain along the route. The predominant land cover outside of the immediate road reserve includes a mix of predominantly residential, commercial and industrial land uses. Much of the open green space that is present is dedicated to recreational use (e.g. public parks, golf courses, etc.). Almost all of the original vegetation and other natural features of the project area have been removed or modified as a result of previous development. Consequently, some of the existing environmental values of the area have been greatly reduced. However, some significant natural features still remain.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

Existing environment

The Parramatta region is the second oldest area of British settlement in New South Wales. It is rich in terms of both historic buildings and other structures that date from the late eighteenth and early to mid-nineteenth century. Parramatta is also of archaeological importance, with remnants of this settlement uncovered throughout the region by way of archaeological features such as building footings, roads, pathways, walls, cisterns, wells and other archaeological deposits.

Heritage listed items

Old Government House and the Government Domain, which is listed on the UNESCO World Heritage, Commonwealth Heritage List, National Heritage List and the State Heritage Register is located adjacent to the alignment of the proposed action. The listing includes a defined buffer, and there are a number of viewpoints and vistas associated with Old Government House and Domain that extent beyond the curtilage. An additional Commonwealth heritage item, the Lancer Barracks Precinct, is also located approximately 1000 metres south of the proposed alignment within the Parramatta CBD.

A review of existing heritage registers also identified a number of items having heritage value including:

- Ten items listed on the State Heritage Register including:

  * Cumberland District Hospital Group.

  * St. Patrick's Roman Catholic Cemetery.

* Lennox Bridge (Church Street, Parramatta).

* Robin Thomas Reserve - Ancient Aboriginal and Early Colonial Landscape (corner of Harris Street and George Street).

* St John's Anglican Cathedral.

* HMAS Parramatta shipwreck and memorials.

* Sewage Pumping Station 67.

* Rydalmere Hospital Precinct (former).

* Dundas Railway Station group

- Approximately 70 locally listed heritage items within and adjacent to the alignment of the proposed action.

- Five Section 170 heritage register items including:

* Lennox Bridge.

* Camellia (Parramatta River) Underbridge Abutments.

* Sewage Pumping Station No 67.

* Dundas Railway Station Group.

* Carlingford Produce Store.

3.9 Describe any Indigenous heritage values relevant to the project area.

Evidence of Aboriginal occupation within Parramatta dates back around 30,000. The language group spoken across Sydney was known as Darug. The Darug language group is thought to have covered the area south from Port Jackson, north from Botany Bay, and west from Parramatta (Attenbrow, 2010). The people who lived in and around Parramatta were known as the Burramattagal, or Booramedigal when the landscape was first explored by the British in March and April 1788, an inland clan of the larger Darug language group.

It appears that the Burramattagal spoke a common dialect with other groups who lived on the lands between Sydney Cove and Parramatta at the time of European contact, and that local distinctions most likely existed in this language between people on the coast and those who lived within interior territories. Parramatta was a focal point for Aboriginal occupation as the natural landscape was rich in resources.

Previously registered Aboriginal heritage sites

There is potential for Aboriginal objects to occur across the landscape. The underlying geology and proximity of water sources indicate the potential for the occurrence of artefact sites and / or midden sites. Elevated landscapes close to the Parramatta River would have provided varied riverine and hinterland resources to Aboriginal people, and evidence for Aboriginal use of the wider Parramatta area exists primarily in the form of stone artefacts, middens and scarred trees. The majority of these have been located close to waterways such as Domain Creek, and along the shale ridges overlooking bends of the Parramatta River.

Extensive searches of the NSW Office of Environment and Heritage's (OEH) Aboriginal Heritage Information Management System identified 40 previously recorded Aboriginal heritage sites in the study area for the proposed action. The most commonly recorded sites are Potential Archaeological Deposits followed by stone artefact scatters, concentrations and sites entitled 'open camp sites'. The density of sites within the Parramatta CBD is evidence of the amount of development that has occurred there, as well as the presence of the Parramatta Sand Body.

Parramatta Sand Body

The Parramatta Sand Body is a body of sand which formed a levee along the south bank of Parramatta River. Archaeological investigations of the Sand Body have uncovered evidence of long term Aboriginal occupation that may date to 30,000 years ago (JMcDCHM 2005). These investigations have contributed to understandings of Aboriginal land use, raw material preference and technologies and how these changed over time. The Sand Body is also of cultural significance to the local Aboriginal community. A section of the Sand Body at Robin Thomas Reserve, Harris Park has been listed on the State Heritage Register under Ancient Aboriginal and Early Colonial Landscape and is a dedicated conservation area.

Archaeological potential and significance

Due to the rich resources in the area, there would almost certainly be Aboriginal sites located within the project corridor. As a result, the potential for unrecorded artefact scatters and midden sites to be buried within the vicinity of the project corridor is also extremely high. This would depend on the level of modern impacts that have occurred at a given location, with the excavation of building basements or car parks substantially lowering the potential of intact archaeological deposit.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

As described, the proposed action would comprise a mix of both on-street and dedicated corridor alignment. The proposed action would impact on a number of roads under the ownership of NSW Roads and Maritime Services including Church Street, O'Connell Street, Harris Street and James Ruse Drive. All remaining roads are under the ownership of Parramatta City Council. With respect to the sections of the light rail alignment which are within existing rail corridors, these areas are under the ownership of Sydney Train/RailCorp.

Where the proposed action is located outside the existing road and rail corridor, the tenure of

this land would be predominantly freehold (existing private properties) or some crown land (such as Prince Alfred Park and Robin Thomas Reserve) and crown waterways (Parramatta River crossing at Westmead).

3.11 Describe any existing or any proposed uses relevant to the project area.

Existing uses of the area

The predominant land uses of the proposed impact area for the proposed action are road corridor and rail corridor uses. Within the existing road corridor, development is minimal, and typically consists of the main road corridor, pedestrian footpaths, cycle ways and other road-related infrastructure such as road signals. Similarly, in the vicinity of the proposed action within the existing rail corridor there is minimal development with the exception of the existing train stations at Rydalmere, Telopea, Dundas and Carlingford; commuter car parks at Rydalmere, Dundas, and Carlingford stations; and other rail-related infrastructure such as signalling equipment and power transmission infrastructure.

Land uses either side of the proposed action are typical of a highly urbanised centre and include a combination of urban environments such as low and high density residential development, commercial and business land uses and open space areas.

Any proposed uses of area of proposed action

A review of the relevant strategic land use planning strategies (such as the draft *West Central District Plan* and the GPOP vision document) in addition to the current Parramatta LEP 2011 indicates that existing land uses generally coincide with the existing and potential future land use zones in this instrument. This means that it is unlikely for land uses along the alignment of the proposed action to dramatically change (with the exception of the instances outlined below).

Known areas where land use changes are proposed in the vicinity of the proposed action include the Parramatta North Urban Renewal area (current Cumberland Hospital site) and the land to the east of the existing Carlingford heavy rail corridor at Camellia. These areas have been identified for future urban renewal as part of future strategic planning as area of higher density development for residential and commercial/mixed use developments.

More broadly, the State Government’s vision for Sydney includes growing the Greater Parramatta region to be Sydney’s second CBD and establishing a series of additional priority growth area for the GPOP to cater for a significant proportion of Sydney’s growth in residents and jobs. This strategic planning mean that there is potential for increased density of residential and commercial/business development throughout the region, with an associated future increase in population along the length of the proposed action.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

5.1 Avoidance of impacts

This proposed action follows the general principles of Avoid, Minimise and Mitigate to minimise impacts to biodiversity, and endeavours to, in order of consideration:

- Avoid impacts on habitat, through the planning process. - Minimise impacts on habitat, through the planning process. - Mitigate impacts on habitat, though the use of a range of mitigation measures.

The avoidance of impacts has been achieved primarily through the planning process. This process involves a preliminary examination of a number of possible route options and their potential impacts on the environment and other factors (for example, operational, constructability, economic and social considerations). Those potential routes that best fit these considerations are then short-listed.

This was conducted for the proposed action through the early examination of options prior to selection of the preferred option. As described above, high value heritage (World and National heritage sites) and ecological constraints (including Sydney Turpentine Ironbark Forest) were identified in the vicinity of the proposed action and considered throughout the proposed action’s development and design phases.

The proposed action has adopted this approach through reducing the loss of habitat or significant species as far as practicable and avoiding direct impact to the heritage values of significant items along the alignment of the light rail and the active transport links. Through detailed surveys and visual inspections, it has been possible to refine the proposed alignment and the width of the footprint to minimise loss of important vegetation communities or habitats, avoid significant flora species or habitat features and avoid direct impact to heritage properties and their associated buffer zones (where applicable).

It has been necessary to survey and assess a worst case scenario to provide flexibility for alterations in the design process. The design would progress with the aim of trying to reduce the

area to be disturbed. The proposed action has demonstrated the avoidance approach by ensuring throughout the design process that there would be minimal clearing of existing remnant native vegetation (approximately 0.5 hectares).

5.2 Mitigation of impacts

To address the potential impacts of the proposed action, a series of mitigation measures have been developed for implementation. These measures are detailed in the following sections.

Biodiversity

Minimising impacts involves reducing the loss of habitat or significant species as far as practicable. Through detailed surveys, the proposed action (alignment and width of footprint) would be further fine-tuned to minimise loss of important vegetation communities or habitats and avoid significant plant species or habitat features. The final footprint is also subject to engineering constraints and safety standards. Residual impacts that cannot be avoided or minimised would be mitigated wherever possible. Depending on vegetation and project type, mitigation measures generally employed during construction would include the following:

- Landscaping and revegetation. - Site rehabilitation.

In order to address the potential impacts of the proposed action on biodiversity, the following mitigation measures (Table 12) are recommended.

Table 12 Environmental Outcomes for Matters of NES

Measure

Environmental Outcome

Protected Matters Benefited

Pre-clearance surveys and a tree felling procedure

Minimisation of fauna death and injury as a result of vegetation clearance.

Minimisation of clearing during works

Grey-headed Flying-fox (*Pteropus poliocephalus*)Swift Parrot *(Lathamus discolor)*

Weed management during construction and operation

Minimisation of weed spread into native vegetation communities and habitats.

All MNES

These measures will be further detailed in the project Environmental Impact Statement and

subsequent construction environmental management plan (CEMP). The CEMP will include the above measures with environmental outcomes that will be detailed with reference to the SMART (specific, measureable, achievable, relevant and time-bound) criteria as outlined in the draft *Outcomes-based Conditions Policy 2015* and *Outcomes-based Conditions Guidance 2015* (DoE 2015).

These measures are unlikely to decrease the direct impacts of the proposed action, however, would aim to decrease the indirect impacts.

Heritage

Potential mitigation to minimise impacts on EPBC Act heritage-listed items associated with the proposed action would include:

The Public Domain Guidelines as set out in the *Parramatta North Historic Sites Conservation Management Plan* would be considered as part of the design of the proposed action.The *Draft Canopy Replenishment Strategy and Arboricultural Study* would be consulted in regards to potential impacts to mature or cultural plantings between Bridge Road and Fleet Street.Where possible, avoidance of any cultural landscape components, including plantings, fountains, plinths, garden beds, ponds, garden edges, kerbs, retaining walls, and other ornamental structures, is the preferred management strategy between the Parramatta River (Crown land boundary) and Fleet Street.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

The proposed action would be sensitively and carefully designed to ensure the landscape character of the local area would be reinstated as part of the proposed action and the heritage values associated with the existing and nominated World and National Heritage properties located in the vicinity of the alignment are conserved. The proposed action is not expected to result in any significant impacts to the World Heritage values of the Old Government House and the Domain or the buffer zone of the World Heritage property. The final design of the proposed action would seek to minimise impacts to the cultural landscape elements within the broader setting of this precinct, however the expected impacts are anticipated to be mitigated so as to result in only minor potential impacts.

Similarly, the proposed action is largely restricted to highly urbanised areas of disturbance within existing road and rail corridors. The total extent of the combined remnant native vegetation potentially affected by the proposed action is approximately 0.5 hectares. As such it is anticipated that the proposed action would not result in any significant environmental outcomes.

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

The proposed action is not expected to result in any significant impacts to the World Heritage values of the Old Government House and the Domain or to the buffer zone of this World Heritage property. The final design of the proposed action would also seek to minimise impacts to the cultural landscape elements within the broader setting for this, precinct and any residual impacts are expected to be minor.

Construction would result in the clearing of up to about 0.5 hectares of native vegetation. The proposed action would not result in the clearing of threatened ecological communities listed under the EPBC Act. Mitigation measures would be implemented as part of the CEMP to limit the potential for indirect impacts on threatened communities to be retained.

Construction of the proposed action would remove up to 0.5 hectares of potential foraging habitat (native and exotic vegetation) for the Grey-headed Flying-fox and 0.5 hectares of potential foraging habitat for the Swift Parrot. The habitat loss would however be spread out over the extent of the proposed action and would be limited to the potential loss of thin linear strips of potential habitat at some locations. No breeding habitat for these species would be removed.

Construction and operation of the project would also not impact on any known parcels of commonwealth land.

Given the above the proposed action is unlikely to significantly affect any identified matters of national environmental significance, and is therefore not considered to be a controlled action.

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Yes.

Transport for NSW is the lead State Government entity responsible for the delivery of major transport projects, and has a strong history of working to ensure projects minimise, mitigate and offset impacts.

Transport for NSW has a robust Environmental Management System and is committed to achieving good environmental outcomes. Examples of best practice undertaken by Transport for NSW in environmental management include:

- An environmental management system externally certified as meeting the requirements of *ISO 14001 – Environmental Management Systems*. - No prosecutions under any environmental statute. - A detailed guide to environmental planning and assessment. - A Planning and Environment Compliance Monitoring System implemented across Transport for NSW's transport infrastructure activities. - Regular environmental inspections of construction works for all projects. - Representatives or independent environmental management representatives for all projects.

Transport for NSW has engaged appropriately qualified and experienced specialists to undertake environmental assessments for the proposed action to ensure impacts to the environment are comprehensively considered and impacts avoided or minimised wherever possible.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

Not applicable. No proceedings recorded.

6.3 Will the action be taken in accordance with the corporation's environmental policy

and planning framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

A copy of the Transport for NSW Environmental Policy is provided as Attachment D.

As detailed in section 6.1, the Transport for NSW Environmental Management System is externally certified as meeting the requirements under ISO 14001. The proposed action would be undertaken in Environmental Management System.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

- Parramatta Rail Link, referred in May 2002. EPBC reference number 2002/673. Determined to be a ‘non-controlled action’ on 24 June 2002.

- Quakers Hill to Vineyard referred in May 2009. EPBC reference number 2009/4872. Determined to be a ‘non-controlled action’ on 1 June 2009.

- Waterfall Commuter Car Park referred in November 2009. EPBC reference number2009/5206. Determined to be a ‘non-controlled action’ on 17 December 2009.

- North West Rail Link referred in April 2012. EPBC reference number 2012/6360. Determined to be a ‘controlled action’ on 21 May 2012.

- Epping to Thornleigh Third Track referred in February 2013. EPBC reference number 2013/6760. Determined to be a ‘non-controlled action’ on 21 May 2013.

- New Intercity Fleet Maintenance Facility referred in March 2016. EPBC reference number 2016/7681. Determined to be a ‘controlled action on 4 August 2016.

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Attenbrow, V. 2010, Sydney's Aboriginal Past: Investigating the archaeological and historical records, UNSW Press.	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
JMcDCHM. 2005. Archaeological salvage excavation of site CG1 (NPWS #45-5-2648), at the corner of Charles and George Streets, Parramatta, NSW. Report for Meriton Apartments Pty Ltd.	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
Department of Environment, 2013. EPBC Act Policy Statement 1.1 Principal Significant Impact Guidelines	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
Department of Environment, 2015. Outcomes-based Conditions Policy 2015 and Outcomes-based Conditions Guidance 2015.	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
NSW Department of Premier and Cabinet 2011, NSW 2021: A Plan to Make NSW Number One, Sydney.	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
NSW Government 2014, A Plan for Growing Sydney: A strong global city, a great place to live, Sydney.	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral

Reference Source	Reliability	Uncertainties
		and suitable for use to support the preparation of this referral.
NSW Office of Environment and Heritage, 2013, The Native Vegetation of the Sydney Metropolitan Area.	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
NSW Department of Mineral Resources, 1983. The Sydney 1:100,000 Geological Series Sheet 9130	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
NSW Department of Minerals and Energy, 1991. Penrith 1:100,000 Geological Series Sheet 9030	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
Parramatta City Council, 2013. Western Sydney Light Rail Network - Part 2 Feasbility Report	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
Parramatta Park Trust, 2007. Parramatta Park Conservation and Management Plan, Vol. 1	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
Soil Conservation of NSW, 1966. Sydney 1:100,000 Soil Landscape Series Sheet 9130	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
Soil Conservation of NSW, 1989. Penrith 1:100,000 Soil Landscape Series Sheet 9030	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
TDK Architects 2016. Parramatta North Historic Sites	Reliable - prepared by suitably qualified consultants with	No known uncertainties. The information utilised is

Reference Source	Reliability	Uncertainties
Conservation Management Plan Part C – Public Domain Guidelines, prepared for Urban Growth NSW	experience in their specific areas of expertise	considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
Transport for NSW 2012a, NSW Long Term Transport Master Plan	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
Transport for NSW 2012b, Sydney's Rail Future: Modernising Sydney's Trains	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.
WSP | Parsons Brinckerhoff, 2015. Parramatta Transport Corridor Strategy Feasibility Design Report, on behalf of Transport for NSW	Reliable - prepared by suitably qualified consultants with experience in their specific areas of expertise	No known uncertainties. The information utilised is considered to be current as of the preparation of this referral and suitable for use to support the preparation of this referral.

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

As part of the ongoing development of the Parramatta Light Rail network, a number of alternatives to the current design of the proposed action were investigated. A summary of the strategic options assessment undertaken to date is described below.

Western Sydney Light Rail feasibility study

The former Parramatta City Council (now City of Greater Parramatta) completed a feasibility study into a potential Western Sydney light rail network in 2013. Part 1 of the study identified 15 possible corridors in a 15 kilometre radius from Parramatta for light rail. Part 2 of the study recommended that the first stage of the Western Sydney Light Rail should be provided, consisting of two lines, the first of which connected the Westmead Health precinct, Parramatta CBD, Western Sydney University at Rydalmere, Eastwood town centre and Macquarie Park and the second line connecting Parramatta to Castle Hill. The subsequent phases of this proposed network included a connection between Parramatta, Camellia and Rhodes via Sydney Olympic Park and a line to Bankstown via Chester Hill (Parramatta City Council, 2013).

Corridor options

In 2014, Transport for NSW commenced preparation of the Parramatta Transport Corridor Strategy, which explored the feasibility of rapid transit – including light rail – along 13 transport routes across nine priority transport corridors, all of which connected to Parramatta. These corridors included the two recommended in Parramatta City Council's 2013 feasibility study.

In October 2014, the Government announced four short-listed corridors for light rail: to Castle Hill; to Macquarie Park; to Strathfield via Sydney Olympic Park; and to Bankstown. Common to all four corridors is a core spine running through Greater Parramatta between Westmead and Camellia (refer to Figure 3).

The Parramatta Transport Corridor Strategy, and the subsequent Strategic Business Case, investigations assessed transport demand, and dwelling and employment growth along each of these shortlisted corridors, in addition to the potential benefits, environmental impacts, technical constraints and high-level costs associated with delivering a new light rail.

These key conclusions of the assessment of the four short-listed corridors are summarised below:

- The Parramatta to Macquarie Park and Parramatta to Strathfield corridors were identified as

the two strongest performing corridors

- The Parramatta to Strathfield Corridor would offer the greatest medium term land use potential, with a new connection to Sydney Olympic Park through Camellia. This corridor links priority renewal precincts (Camellia and Sydney Olympic Park) and the Sydney Olympic Park sports precinct with Parramatta CBD and Greater Parramatta

- The Parramatta to Macquarie Park corridor would provide the greatest forecast patronage and has the potential to extend the Global Economic corridor by linking two major employment centres, two universities and two hospitals

- The Parramatta to Macquarie Park corridor provides a good opportunity for staged delivery and to replace the existing Carlingford Line with light rail. However parts of the line would duplicated the current Epping to Chatswood line (soon to be the Sydney Metro (North West) line), and would be technically challenging. As such, a light rail extension beyond Epping to Macquarie Park was considered a lower priority

- The Parramatta to Macquarie Park corridor would have similar capital cost to the Parramatta to Strathfield corridor with a similar Benefit Cost Ratio

- The Parramatta to Bankstown corridor would not deliver the same level of transport benefits to customers and would not result in similar uplift to employment opportunities when compared to other corridors. Further, it was found that improved bus services could best serve short term demands along this corridor

- The Parramatta to Castle Hill via the Old Northern Road corridor had limited capacity to accommodate a light rail corridor on the existing road network, and would present difficulties during construction and operation. It also presented lower transport demand and less potential for urban renewal when compared to other options

- The Parramatta to Macquarie Park and Parramatta to Strathfield corridors outperformed both the Parramatta to Castle Hill and Parramatta to Bankstown corridors in terms of the Benefit Cost Ratio.

In December 2015, the NSW Government announced the preferred network corridor for the first stage of Parramatta Light Rail. Key factors considered in the selection of the preferred network corridor when compared to other options were:

- Combined the two strongest performing corridors as assessed in the Strategic Business Case and will support strategic precincts with the highest growth and forecast demand of future population and employment

- Provided a good opportunity for staged delivery by initially replacing the existing Carlingford Line with light rail

- Created an integrated transport network by providing customers with connections to two transport interchanges at Parramatta and Strathfield, improving connections to and from businesses, homes and major events

- The repurposing of Carlingford Line would provide strong benefits, located within state owned land with limited impact on the community

- A future extension to Epping would have the benefit of linking the Parramatta Light Rail with a key activity centre and transport hub.

Consequences of not proceeding with the Parramatta Light Rail (do nothing)

The no build option would effectively result in the continued development of the existing road network and bus system. This option was dismissed as not acceptable as there is insufficient capacity in Parramatta CBD for continued road expansion, and this would not support future growth in the peninsula. Without investment in public transport for the area the following key issues would be faced:

- Inability to accommodate planned growth

- Limited accessibility

- Congestion

- Capacity constraints

- Service level constraints.

Without a major intervention in the form of improved public transport services, many of these problems would remain unresolved and much of the forecast growth within major urban renewal precincts and key employment centres would not eventuate or would not be adequately supported. It would also place an unacceptable load on the constrained road network, further compounding the challenges facing Parramatta and Sydney.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Program Director

9.2.2 First Name

Tim

9.2.3 Last Name

Poole

9.2.4 E-mail

plr.environment@transport.nsw.gov.au

9.2.5 Postal Address

130 George Street
Parramatta NSW 2150
Australia

9.2.6 ABN/ACN

ABN

18804239602 - TRANSPORT FOR NSW

9.2.7 Organisation Telephone

02 8265 6962

plr.environment@transport.nsw.gov.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: .....

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, TIMOTHY POOLE, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature: Tim Poole Date: 8 June 2017

I, TRANSPORT FOR NSW, the person proposing the action, consent to the designation of TRANSPORT FOR NSW as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature: Tim Poole Date: 8 June 2017

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

Organisation

9.5 Organisation

9.5.1 Job Title

Program Director

9.5.2 First Name

Tim

9.5.3 Last Name

Poole

9.5.4 E-mail

plr.environment@transport.nsw.gov.au

9.5.5 Postal Address

130 George Street
Parramatta NSW 2150
Australia

9.5.6 ABN/ACN

ABN

18804239602 - TRANSPORT FOR NSW

9.5.7 Organisation Telephone

02 8265 6962

9.5.8 Organisation E-mail

plr.environment@transport.nsw.gov.au

Proposed designated proponent - Declaration

I, _____, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:…… Date: ……

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Program Director

9.8.2 First Name

Tim

9.8.3 Last Name

Poole

9.8.4 E-mail

plr.environment@transport.nsw.gov.au

9.8.5 Postal Address

130 George Street
Parramatta NSW 2150
Australia

9.8.6 ABN/ACN

ABN

18804239602 - TRANSPORT FOR NSW

9.8.7 Organisation Telephone

02 8265 6962

9.8.8 Organisation E-mail

plr.environment@transport.nsw.gov.au

Referring Party - Declaration

Organisation

9.8 Organisation

9.8.1 Job Title

Program Director

9.8.2 First Name

Tim

9.8.3 Last Name

Poole

9.8.4 E-mail

plr.environment@transport.nsw.gov.au

9.8.5 Postal Address

Australia

9.8.6 ABN/ACN

ABN

18804239602 - TRANSPORT FOR NSW

9.8.7 Organisation Telephone

02 8265 6962

9.8.8 Organisation E-mail

plr.environment@transport.nsw.gov.au

Referring Party - Declaration

I, TIMOTHY POOLE ON BEHALF OF TRANSPORT FOR NSW, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature: Tim Poole Date: 8 June 2017

9.5 Organisation

9.5.1 Job Title

Program Director

9.5.2 First Name

Tim

9.5.3 Last Name

Poole

9.5.4 E-mail

plr.environment@transport.nsw.gov.au

9.5.5 Postal Address

Australia

9.5.6 ABN/ACN

ABN

18804239602 - TRANSPORT FOR NSW

9.5.7 Organisation Telephone

02 8265 6962

9.5.8 Organisation E-mail

plr.environment@transport.nsw.gov.au

Proposed designated proponent - Declaration

I, TIMOTHY POOLE ON BEHALF OF TRANSPORT FOR NSW, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: Tim Poole Date: 8 June 2017

9.6 Is the Referring Party an Organisation or Individual?

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. appendix_a_referral_heritage_memo.pdf
2. appendix_b_liklihood_tables.pdf
3. appendix_c_epbc_sig_assessments.pdf
4. appendix_d_tfnsw_environment_and_sustainability_policy.pdf
5. appendix_e_overview_of_potential_impacts_to_epbc_act_species.pdf
6. figure_1_key_features.pdf
7. figure_2_lat_long_points.pdf
8. figure_3_short_listed_options.pdf
9. figure_4_matters_of_nes.pdf
10. figure_5_world_heritage_area.pdf
11. plr-newsletter_april_2017.pdf
12. plralignment_stage1_disturbance_footprint_20170522_v14.zip