



Office Note:

PLANNING PROPOSAL

Traffic and Parking Impact Assessment

163-165 George Street, Parramatta

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Date: March 2018
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1.0 Introduction

This report has been prepared to accompany a Planning Proposal to Parramatta City Council to permit an additional use for commercial/public car parking on the consolidated site at 163 – 165 George Street, Parramatta (Figure 1).

The Paramatta CBD is amid an extensive urban regeneration process which will accompany the completion and operation of the Paramatta Light Rail. There are a number of impending and proposed major developments for the CBD including the Paramatta Square precinct along with its changes to the local pedestrian and access road system.

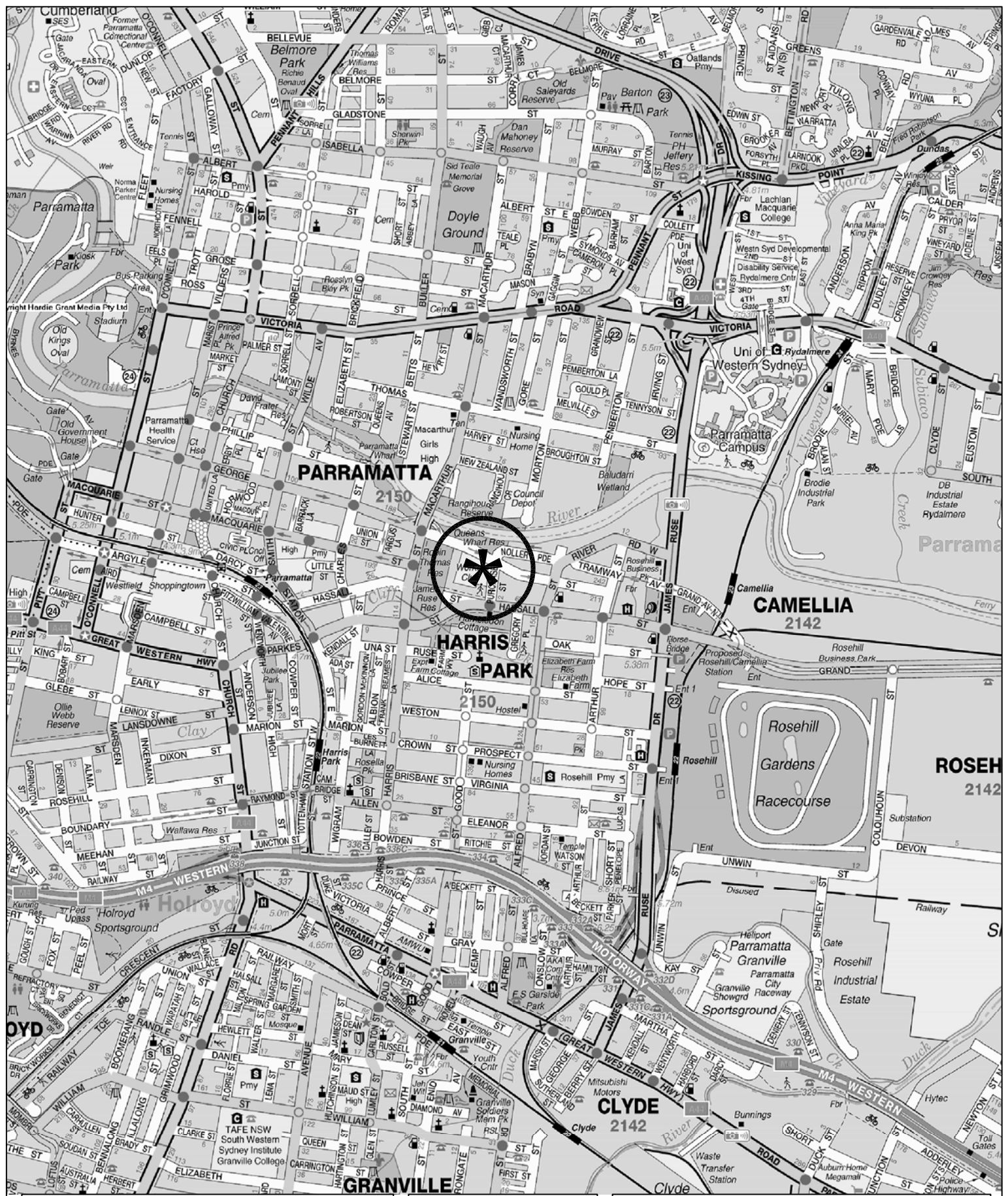
The former Parramatta Workers Club which occupies a large site on the eastern edge of the CBD with extensive frontages to George Street and Purchase Street was acquired by The Hellenic Orthodox Community of Parramatta and Districts (THOC) to be progressively developed to include various key functions to satisfy the needs of the community including:

- ❖ Place of Public Worship
- ❖ Church administration and ancillary functions
- ❖ Education establishment
- ❖ Function centre
- ❖ Public carpark (commercial carpark)

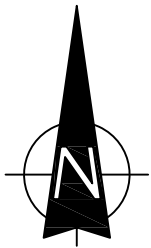
The planning proposal seeks permit to allow a staged establishment of a commercial carpark operation on the existing site.

The purpose of this report is to:

- ❖ describe the site, its context and the planning proposal outcome
- ❖ describe the existing road network and traffic conditions in the area and the impending future circumstances



LEGEND



LOCATION

FIG 1

Transport and Traffic Planning Associates

- ❖ assess and identify a suitable car parking provision for the commercial carparking operation with respect to the site's existing peak uses
- ❖ assess the suitability of the envisaged vehicles access strategy
- ❖ assessing potential traffic implications
- ❖ assess the suitability of the envisaged internal circulation and servicing arrangements

2.0 Planning Proposal

2.1 Site, Context and Existing Use

The site (Figure 2) is a consolidation of Lot 1 of DP 78716, Lot 1 in DP 113513, Lot 1 in DP 650704 and Lot 3 in DP 10735 which occupies an area of some 13,425 m² with frontages to George Street and Purchase Street some 400m east of the Parramatta CBD.

The existing former 2-level Parramatta Workers Club building of some 4,100m² extends through the south-central part of the site surrounded by open sealed car parking while there are 2 former bowling greens (disused) on the northern part of the site.

There is a total of 161 formal parking spaces currently provided on the site (excluding the temporary overflow use of the former bowling greens) with vehicle accesses provided on the George Street and Purchase Street frontages.

The existing uses on the site are:

- ❖ temporary use of part of the site for a Place of Public Worship by THOC including ancillary community uses as follows:
 - Childcare (80 places)
 - Afternoon Language School
 - Community Meetings
 - Community Hall and Function Centre
- ❖ use of part of the site as office and an indoor recreation facility by Parramatta National Rugby League Club

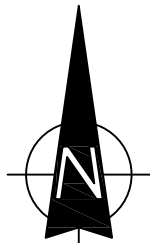
The surrounding uses comprise:

- ❖ the reserve which adjoins to the west
- ❖ the residential dwellings which adjoin to the south



SITE

LEGEND



SITE

FIG 2

- ❖ Parramatta River and Queens Wharf Reserve to the north
- ❖ the residential area extending to the east which includes medium density buildings
- ❖ the commercial uses extending to the west of Harris Street into the CBD

2.2 Existing Consents

The existing consents for use at the site comprise:

Office and Indoor Recreation Facility

DA 451/2015 was approved for the use of the western part of the first level of the building, with a total area of 923.5m² including 571m² for active recreation comprising:

- Offices
- Kitchen and lunchroom
- Store and amenities
- Gym
- Table tennis
- Carpet bowls
- Snooker tables
- Darts
- Lounge recreation

The facility is limited to League Club players/members and is not open to the public. The hours of operation are 7.30am to 6.30pm Monday to Saturday. It is not a licensed premise and the maximum number of people in attendance at peak periods is some 50 persons. It is understood that Parramatta Leagues Club is developing a new High-Performance Community Centre at North Parramatta for the players and this will render the George Street facility as superfluous.

Place of Public Worship (POPW)

DA 242/2015 was approved for the temporary use of part of the building (ground level) for a POPW for up to 200 persons to attend the premises for this use.

A Planning Proposal has subsequently been approved which formally permits a POPW use on the site.

Community Uses

DA 839/2015 was approved for an extensive alterations and additions scheme which involved demolition of some existing internal walls and fit out to provide for the following community uses:

- ❖ the Church (353m²) and Lobby
- ❖ the Community Hall and Function Centre (930m²) and entry foyer
- ❖ Childcare (80 Children/10 staff), terrace and outdoor play areas
- ❖ Kitchen
- ❖ Stores and amenities

In addition to the afore, the following auxiliary uses will also be provided on Level 1 of the building:

- ❖ Office and Administration area 880m²
- ❖ Staff kitchen and Lunch room
- ❖ Community and social welfare rooms and school 479m²
- ❖ Balcony

2.3 Envisaged Development Outcome

It is envisaged that a commercial carpark would be 'rolled out' over the 3 following stages with timings to be arranged to be in line with the establishment and operation of other proposed and approved elements on the site:

Stage 1 – 113 spaces

- Utilising the existing sealed open carpark (with sufficient provision reserved for anticipated existing uses) between Mondays and Fridays

Stage 2 – 233 spaces

- Stage 1 carpark plus
- Converting the disused bowling greens to provide additional carparking area
- The addition of a new access at George Street (the subject to DA approval)

Stage 3 – 484 spaces

- Construction of a 6-level basement carpark of 568 spaces which will accommodate for the needs of the entire site (including commercial carpark)

Vehicle accesses for the site's integrated basement carpark will be provided at Purchase Street and George Street.

Details of the proposal are provided on the plans prepared by Design Delta Architects which accompany the Development Application and are reproduced in Appendix A.

3.0 Road Network and Traffic Conditions

3.1 Road Network

The road network serving Parramatta City Centre (Figure 3) comprises:

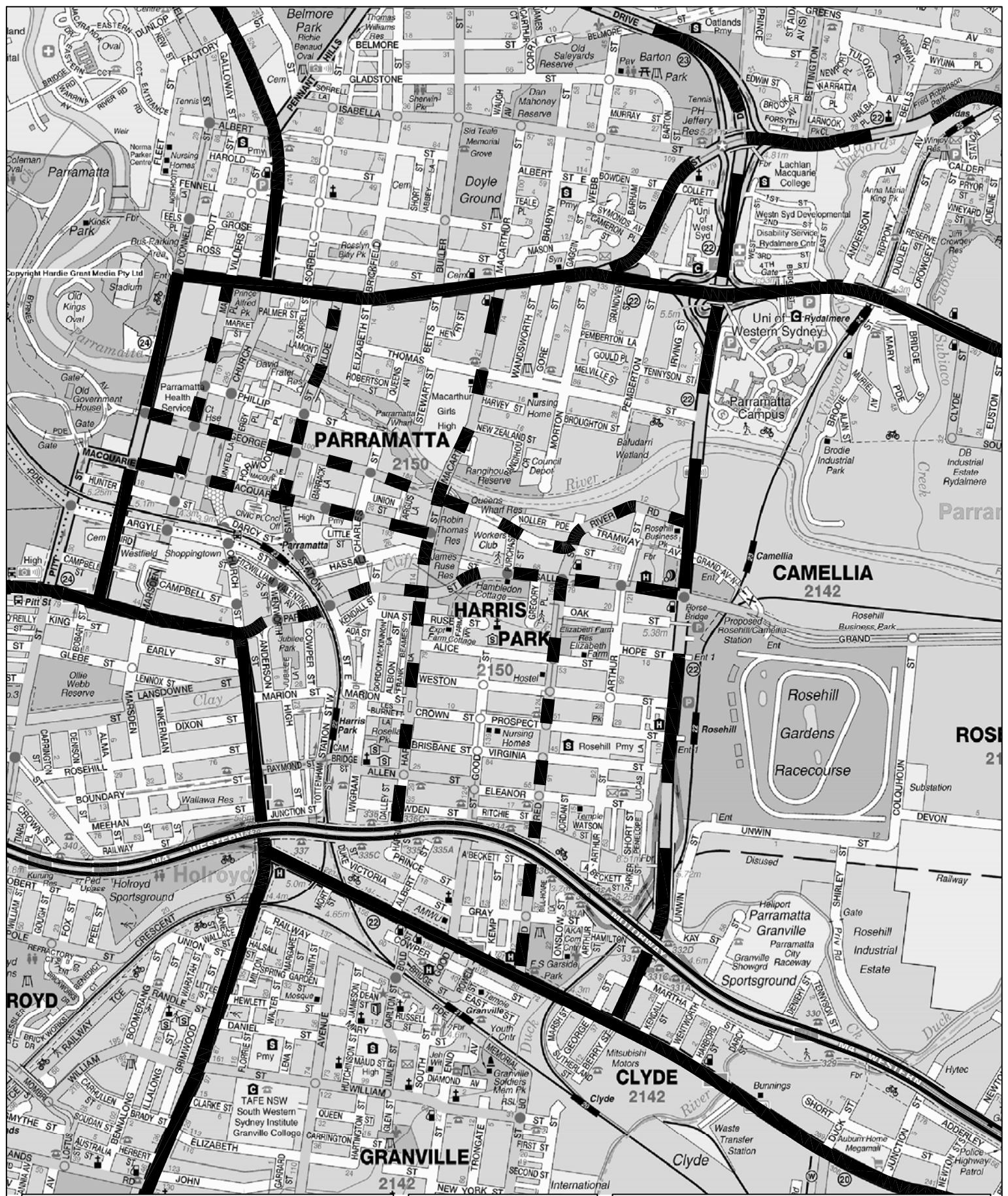
- ❖ an outer ring road formed by:
 - Great Western Highway – Parkes Street in the south
 - Victoria Road in the north
 - O’Connell Street / Pitt Street in the west
 - Harris Street / Macarthur Street in the east
- ❖ the principal east-west collector routes of George Street and Macquarie Street
- ❖ the north-south inner collector routes of Marsden Street and Station Street – Smith Street – Wylde Avenue
- ❖ the Purchase Street local access road connecting between George Street and Hassall Street

George Street and Purchase Street have relatively straight and level carriageways being some 12.8 metres wide.




3.2 Traffic Controls

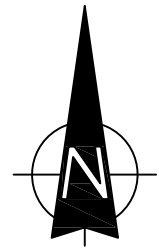
The traffic controls, which apply on the road system in the vicinity of the site, (Figure 4) include:

- ❖ the one-way east traffic flow in George Street
- ❖ the traffic signals at the Hassall Street/Purchase Street and Hassall Street/Alfred Street intersections
- ❖ the one-way west traffic flow in Macquarie Street



LEGEND

-  ARTERIAL
-  SUB-ARTERIAL
-  COLLECTOR



ROAD NETWORK

FIG 3

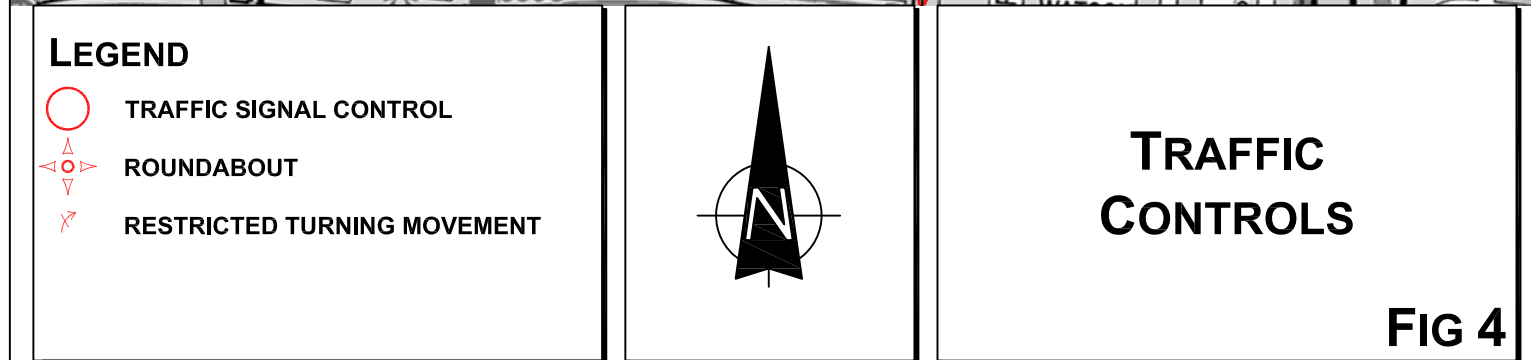


FIG 4

3.3 Traffic Conditions

An indication of the prevailing traffic conditions on the road system in the vicinity of the site is provided by data published by the RMS. The RMS data is expressed in terms of Annual Average Daily Traffic (AADT) and the most recent data indicates:

	AADT
Marsden Street at Phillip Street	16,874
O'Connell Street at Argyle Street	20,306

A further indication is provided by traffic surveys of the Hassall Street/Purchase Street signal intersection during the morning and afternoon peak periods. The results of these surveys are reproduced in Appendix B.

The intersection has been assessed using SIDRA traffic modelling program. Details of the modelling outcome indicating a satisfactory outcome are provided in Appendix C and summarised in the following while a guide to interpreting SIDRA results is provided overleaf.

AM			PM		
AVD	LOS	DS	AVD	LOS	DS
9.6s	A	0.31	15.5s	B	0.34

It is apparent that the intersection operates with ample spare capacity and minimal delays under prevailing peak traffic demand. Traffic conditions in the vicinity of the site are generally satisfactory and largely controlled by the traffic signals along the Macquarie Street and George Street routes.

3.4 Transport Services

The site is highly accessible to public transport being within 200m of the Parramatta "Rivercat" Wharf and between 600-800m from the Parramatta Railway Station and bus interchange, situated on the southern side of Darcy Street. The bus services, many of which have stops along Smith Street and Station Street provide connections to a wide range of local and more regional destinations to the north, south, east and west.

Criteria for Interpreting Results of SIDRA Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good	Good
'B'	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
'C'	Satisfactory	Satisfactory but accident study required
'D'	Operating near capacity	Near capacity and Accident Study required
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
'F'	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below, which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals**¹ both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a **roundabout or GIVE WAY or STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

¹ the values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs

Trains which operate via Parramatta Station include those services on the Western, Blue Mountains and Cumberland lines. The Cumberland line connects between Blacktown and Campbelltown whilst the Western and Blue Mountains lines operate between the Sydney CBD and Richmond, Penrith/Emu Plains, Katoomba, Lithgow and as far west as Bathurst. The rail services which operate via Parramatta Station provide passengers with connections to the entire CityRail and Interurban networks at stations such as Granville, Lidcombe, Strathfield, Redfern, Central and Town Hall. Details of the public transport services including the ferry wharf on Parramatta River are reproduced in Appendix D.

3.5 Future Circumstances

Significant works have been undertaken in recent years on the development and refinement of the metropolitan strategies for growing Parramatta, through collaboration between various State and Local Government agencies including the Department of Planning and Environment, Urban Growth NSW, Greater Sydney Commission (GSC) and local Councils. This work has focused on addressing Sydney's significant forecast growth through identifying the needs this growth will generate, and how planning strategies should be developed and implemented to accommodate these needs.

Parramatta Square

Parramatta Square is one of the largest urban renewal initiatives in Australia and is set to transform the Parramatta's core into a highly accessible and vibrant mixed use centre that is built on the renewed transport interchange. This will also include the future Parramatta Light Rail (PLR) alignment which will run along the George Street frontage (elaborated in the following subsection). Planning criteria for the Parramatta Square redevelopments are contained in Part 4: Special Precincts chapter of the Parramatta DCP 2011.

Parramatta Light Rail

Parramatta Light Rail (PLR) is one of the NSW Government's major infrastructure projects and is intended to be delivered in 2 stages: Stages 1 and 2. Stage 1 will connect Westmead to Carlingford via Parramatta CBD and spans 12 km in length

while Stage 2, though yet to be finalised, is anticipated to connect between Rosehill and Strathfield via the Sydney Olympic Park. It is anticipated that construction for Stage 1 would commence in 2018 and would be completed and in operation by 2023.

The Stage 1 PLR route will have a stop 'Harris Street Station' located at the corner of Macquarie and Harris Streets just to the south of the Harris Street/Macarthur Street/George Street intersection i.e. some 300m west of the site.

Details of the most recently updated PLR publication, including its route map and proposed stations, are provided on the extracts reproduced in part in Appendix E.

Parramatta CBD Public Car Parking Strategy 2017-2023 (Draft)

The Parramatta CBD public carparking strategy has been adopted with a long-term view to reduce traffic and congestion while serving inner-city transport users who remain reliant on their vehicles. In keeping with the PLR and overall transport planning initiatives, Council seeks to implement the following relevant car parking strategies:

- ❖ Prioritise local businesses through shifting emphasis to shorter term parking within the CBD
- ❖ Shifting long-term public parking to the outer core and align with timing of light rail and other mass transit
- ❖ Seek to maintain sufficient supply of publicly available short-term parking spaces in close proximity to the CBD.

4.0 Future Road Circumstances

Comprehensive traffic and transport assessment for the Parramatta Light Rail (PLR) corridor by GTA Consultants¹ indicates that the immediate road network surrounding the site will be subject to reconfiguration and modification giving way to the envisaged PLR corridor.

On the eastern side of the CBD precinct, the PLR corridor would run along the eastern side of Harris Street between Macquarie Street and George Street (within Robin Thomas Reserve). The alignment continues along the southern side of George Street from Harris Street to Noller Parade/ Purchase Street and it is understood that easterly traffic will be maintained.

It is understood that the intersection of George Street/Purchase Street/Noller Parade will be upgraded with signals and George Street will be in part restricted to westerly traffic only. The GTA study indicated that a single westbound traffic lane will be provided between Purchase Street and the property access at 153 George Street and it is envisaged that the site's access could also share this access handle.

¹ Parramatta Light Rail, Operational Traffic and Transport Technical Assessment Report (Issue A), GTA Consultants, August 2017

5.0 Parking

5.1 Stage 1

The existing parking requirement on the site can be assessed based on the existing uses which comprise:

- ❖ use of part of the site for a Place of Public Worship by THOC including ancillary community uses as follows:
 - Childcare (80 places)
 - Afternoon Language School
 - Community Meetings
 - Community Hall and Function Centre
- ❖ use of part of the site as office and an indoor recreation facility by Parramatta National Rugby League Club

The Parramatta DCP does not specify parking criteria for POPW and is instead reliant on the outcome of site specific traffic and parking assessment to determine a suitable rate.

It is understood that the existing peak activities occur at the site include:

- ❖ the Church with upper limit attendances of 200 persons between 7.00am and 11.00am on Sundays' Mass
- ❖ the functions also with up to 200 persons at various potential times (but not concurrent with the Church or peak traffic periods)
- ❖ the child care centre with 80 children

Other minor activities which are also held at the site are:

- ❖ Church Liturgies of 20 to 80 persons with an average of 2 sessions per week between 8.00am – 10.00am / 7.00pm – 9.00pm

- ❖ Sunday schools (educational) sessions and community activities which occur alongside of the Church sessions on Sundays

Typical vehicle occupancy rate for POPW and ancillary community uses is higher being between 2.5 to 2.8 persons per vehicle (ppv) reflecting a more predominant group/family orientated attendance.

Adopting a more conservative rate of 2.5 ppv, the envisaged parking demand based on the maximum Church/function centre occupancy will be equivalent to 80 spaces.

Parking requirements for childcare centres are provided in the PDCP as follows:

Childcare	1 space per 4 children (in attendance)
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Application of the above criteria to the relevant development outcome would indicate the following:

Childcare (80 places)	20 spaces
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On this basis, the aggregated carparking requirement resultant from the various active uses on the site is 100 spaces.

As the Church/function centre peak uses will largely occur during the weekends or outside of business hours during the week it is reasonable to allocate some of these spaces for commercial parking purposes during the week and business hours. Having regard for the occasional uses of the church/function centre/community elements during the week it is quite appropriate to reserve 35% of the 80 spaces during the weekdays while the remainder could be allocated as commercial parking.

Because the childcare centre will operate during the week and its peak uses will overlap with commuter peak traffic periods, it is therefore not appropriate to allocate the childcare spaces as commercial parking.

On this basis, it is assessed that of the existing 161 spaces available on site, up to

113 spaces could be allocated for use as commercial parking in Stage 1 without adversely affecting the existing parking needs of the various functions at the site.

5.2 Stage 2

In Stage 2 the disused bowling greens will be demolished, leveled and sealed to provide additional commercial carparking provision within the site (i.e. and extension to Stage 1).

The anticipated number of car spaces which can be gained via these works is expected to be approximately 120 spaces bringing the total commercial carparking capacity to approximately **233 spaces**. Nevertheless, it is noted that the site operations and functions will remain as per existing circumstances during Stage 2 and as such its parking demands unchanged.

5.2 Stage 3

Stage 3 represents the 'ultimate' scheme and will involve the temporary decommissioning of the commercial carparking operation established under Stages 1 and 2 to facilitate the construction of a 6-level basement carpark of 568 spaces on the northern part of the site to accommodate the various intended ultimate uses on the site including (subject to separate DAs):

- ❖ Place of Public Worship (with 400 persons max)
- ❖ Church administration and ancillary functions
- ❖ Function centre (with 400 persons max)
- ❖ Education establishment (ancillary to Church masses)
- ❖ Public carpark (commercial carpark)

It is understood that all currently approved POPW and community uses such as Sunday school, dancing lessons and/or fellowships will be relocated to an envisaged new Church building and community centre at this time (subject to separate DA) however its operating principles will be largely similar to those currently exist on the site, albeit on a larger scale (i.e. higher upper occupancy limit).

Application of the same parking assessment principles to the 'scaled up' development outcome would therefore reflect the following:

Church/Function centre	182 spaces (non-overlapping)
Childcare centre	20 spaces
Education	Included in Church/community uses
Total	202 spaces

On this basis, the aggregated carparking requirement resultant from the various uses on the site currently will be increased to 202 spaces.

Similarly, reserving 35% of the Church/Function centre parking allocation for their weekday operating needs would reflect a total yield of up to **484 spaces** in the new basement carpark in Stage 3, while accommodating the anticipated weekdays needs of the Church/Function centre and child care uses on the site.

On this basis, it is recommended that the delivery and implementation of the commercial carpark is phased as follows:

Stage 1	up to 113 spaces
Stage 2	up to 233 spaces
Stage 3	up to 484 spaces

6.0 Traffic

Traffic generation assessment for this site would have regard for the various non-overlapping features in the following manner:

Function	Peak Usage
Church/Sunday schools etc	Sunday mornings
Functions/events	Weekend afternoons/nights
Childcare centre	AM and PM peak periods (weekdays)
Commercial carpark	AM and PM peak periods (weekdays)

The AM and PM peak traffic generation rates for childcare have been surveyed and published by RMS as follows:

Childcare Centre	AM	0.51 vtpm per child
	PM	0.29 vtpm per child

The traffic generation characteristics of commercial carpark are guided by an extensive survey undertaken by TTPA in 2009 of 20 comparable sites across Sydney Metropolitan 'CBDs' with 8 sites in the Parramatta precinct, 6 in Chatswood and 6 in North Sydney. The aggregated survey results indicate average traffic generation outcome of 0.29 (AM) and 0.30 vtpm (PM) per space for the Parramatta sites (extract provided overleaf) and if the upper range is applied to the ultimate commercial carpark proposed under this Planning Proposal (Stage 3) then the envisaged peak traffic generation would be:

$$484 \text{ spaces @ } 0.30 \text{ vtpm/space} = 145 \text{ vtpm}$$

Having regard for the above it is anticipated that the site will have the following peak hour traffic generation outcome:

Church/Sunday schools		Not Applicable
Functions/events		Not Applicable
Childcare Centre (80)	AM	41 vtp
	PM	23 vtp
Commercial carpark	AM	145 vtp
	PM	145 vtp
Total:	AM	186 vtp
	PM	168 vtp

Details of the George Street/Purchase Street signals upgrade are not yet available at the time of this assessment however if it is conservatively assessed that majority of traffic (65%) would approach/depart the site from the Hassall Street/Purchase Street signal intersection then the following distribution would apply at Purchase Street:

	AM	PM
North (George St)	60	58
South (Hassall St)	126	110

The intersection is assessed using Traffic Modelling program SIDRA for the post-development circumstances. The results of the assessment indicating a satisfactory outcome are provided in Appendix C and summarised in the following:

	AM Peak			PM Peak		
	DS	LOS	AVD	DS	LOS	AVD
Existing	0.31	A	9.6s	0.34	B	15.5s
Post Development	0.36	B	11.8s	0.38	B	16.9s

The assessment indicates that even with more of the development traffic being distributed south the Hassall Street/Purchase Street intersection will continue to operate with available spare capacity.

On this basis, it is assessed that the ultimate development scheme will not have any material impact on the existing road network and infrastructure provisions.

	AM		PM	
	IN	OUT	IN	OUT
<u>PARRAMATTA</u>				
10-14 Smith Street - 167 parking spaces	44 0.29 vtpH/space	5	11 0.30	39
18 Smith Street - 78 parking spaces	21 0.31	3	1 0.35	26
80 George Street - 103 spaces	25 0.27	3	2 0.25	24
3 Horwood Place - 94 spaces	27 0.29	0	1 0.33	30
Smith Street - 28 spaces	7 0.25	-	1 0.25	6
100 George Street - 114 spaces	32 0.28	-	4 0.32	33
20 Smith Street - 191 spaces	61 0.33	2	4 0.27	47
Octagon – 300 spaces	80 0.30	16	25 0.33	80
<u>CHATSWOOD</u>				
799 Pacific Highway – 505 spaces	139 0.29	5	6 0.19	8
815 Pacific Highway – 111 spaces	24 0.32	2	- 0.25	28
12 Help Street – 194 spaces	57 0.30	1	- 0.30	58
10 Help Street – 50 spaces	15 0.30	-	- 0.30	15
465 Victoria Avenue – 65 spaces	22 0.35	1	1 0.34	21
475 Victoria Avenue – 325 spaces	99 0.33	5	1 0.31	101

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	AM		PM	
	IN	OUT	IN	OUT
<u>NORTH SYDNEY</u>				
141 Walker Street – 208 spaces	48 0.23	2	6 0.31	58
ABC Arthur Street – 25 spaces	9 0.36	-	- 0.28	7
99 Walker Street – 283 spaces	95 0.34	1	-	96
Cnr Mount Street/Arthur Street – 35 spaces	11 0.31	-	- 0.34	12
100 Arthur Street – 141 spaces	38 0.28	1	1 0.32	44
90 Arthur Street – 100 spaces	33 0.35	2	- 0.28	28

7.0 Access, Internal Circulation and Servicing

7.1 Access

Vehicle access will be provided by the existing driveways located on the Purchase Street (main) and George Street frontages. The driveways will be designed to accord with the requirements of AS2890.1. The accesses will be located where adequate sight distances are available for pedestrians and vehicle alike.

7.2 Internal Circulation

Access to the basement will involve a generous two-way aisle and ample passing opportunity will be available for vehicles travelling in opposite directions.

The internal circulation arrangements in the carpark including aisle widths, ramp grades and parking bay dimensions will be designed to accord with the requirements of AS2890.1.

7.3 Servicing

The normally minor refuse removal will be undertaken by privately contracted waste vehicles. Occasional servicing activities including small furniture vehicles will be satisfied by use of a dedicated loading area in the basement which is adequate for a development of this nature.

8.0 Conclusion

The traffic and parking assessment undertaken for the Planning Proposal to permit the additional use for commercial carpark at 163 George Street, Paramatta has concluded that:

- ❖ the traffic generation of the envisaged development will be quite imperceptible to the surrounding intersections and road system.
- ❖ the envisaged access, internal circulation and servicing arrangements will be appropriate to current design standards.
- ❖ the envisaged parking provision will be in line with the envisaged development demand and accord with Council's DCP requirements.
- ❖ the parking assessment indicates that provision of some 86 spaces for commercial uses can be readily available in Stage 1 with up to 484 spaces in the ultimate stage while retaining appropriate provision for the needs of the existing church/function centre and childcare elements
- ❖ the commercial parking stations will be in line with Council's long-term parking strategy

Appendix A

Architectural Plans

Appendix B

Traffic Surveys

Location Purchase Street
Hassell Street
-
Hassell Street
Suburb PARRAMATTA

Duration 0700 - 0900
1600 - 1800
-
Day/Date Friday, 17 November 2017
Weather -

All Vehicles	NORTH				EAST				SOUTH				WEST				
Time Per 15 Mins	Purchase Street				Hassell Street				-				Hassell Street				
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	TOTAL
7:00 - 7:15	16		7	23		129	1	130					2	150		152	305
7:15 - 7:30	13		10	23		143	0	143					2	192		194	360
7:30 - 7:45	16		8	24		166	1	167					2	165		167	358
7:45 - 8:00	23		23	46		179	0	179					2	197		199	424
8:00 - 8:15	24		22	46		203	1	204					3	153		156	406
8:15 - 8:30	18		18	36		212	2	214					4	158		162	412
8:30 - 8:45	30		21	51		188	0	188					7	166		173	412
8:45 - 9:00	29		17	46		199	3	202					1	175		196	444
Period End	169		126	295		1419	8	1427					23	1356		1399	3121
16:00 - 16:15	46		15	61		144	0	144					9	117		126	331
16:15 - 16:30	30		14	44		157	0	157					3	153		156	357
16:30 - 16:45	49		11	60		187	2	189					1	147		148	397
16:45 - 17:00	54		16	70		184	0	184					2	154		156	410
17:00 - 17:15	60		18	78		149	4	153					2	163		165	396
17:15 - 17:30	45		17	62		156	1	157					0	194		194	413
17:30 - 17:45	49		10	59		168	2	170					5	138		143	372
17:45 - 18:00	45		11	56		143	3	146					7	139		146	348
Period End	378		112	490		1288	12	1300					29	1205		1234	3024

Traffic Information Specialists

ABN: 42 613 389 923

Email info@trafficinfospecialist.com.au

Location Purchase Street
Hassell Street
-
Hassell Street
Suburb PARRAMATTA

Duration 0700 - 0900
1600 - 1800
-
Day/Date Friday, 17 November 2017
Weather -

<u>All Vehicles</u> Time Per Hour	NORTH <i>Purchase Street</i>				EAST <i>Hassell Street</i>				SOUTH <i>-</i>				WEST <i>Hassell Street</i>				TOTAL
	<u>L</u>	<u>I</u>	<u>R</u>	<u>TOTAL</u>	<u>L</u>	<u>I</u>	<u>R</u>	<u>TOTAL</u>	<u>L</u>	<u>I</u>	<u>R</u>	<u>TOTAL</u>	<u>L</u>	<u>I</u>	<u>R</u>	<u>TOTAL</u>	TOTAL
7:00 - 8:00	68		48	116		617	2	619					8	704		712	1447
7:15 - 8:15	76		63	139		691	2	693					9	707		716	1548
7:30 - 8:30	81		71	152		760	4	764					11	673		684	1600
7:45 - 8:45	95		84	179		782	3	785					16	674		690	1654
8:00 - 9:00	101		78	179		802	6	808					15	652		687	1674
Period End	421		344	765		3652	17	3669					59	3410		3489	7923
16:00 - 17:00	179		56	235		672	2	674					15	571		586	1495
16:15 - 17:15	193		59	252		677	6	683					8	617		625	1560
16:30 - 17:30	208		62	270		676	7	683					5	658		663	1616
16:45 - 17:45	208		61	269		657	7	664					9	649		658	1591
17:00 - 18:00	199		56	255		616	10	626					14	634		648	1529
Period End	987		294	1281		3298	32	3330					51	3129		3180	7791

Traffic Information Specialists

ABN: 42 613 389 923

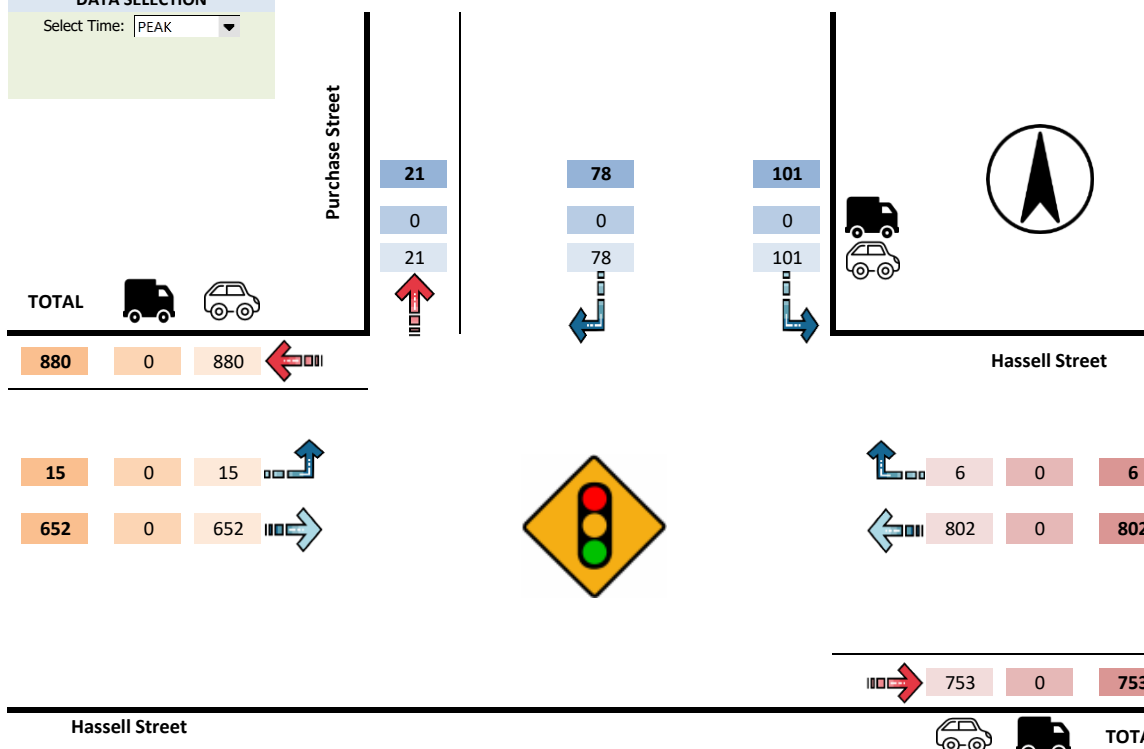
Email info@trafficinfospecialist.com.au

Location Purchase Street
Hassell Street
-
Hassell Street
Suburb PARRAMATTA

Duration 0700 - 0900
1600 - 1800
-
Day/Date Friday, 17 November 2017
Weather -

DATA SELECTION
Select Time: PEAK

TIME RANGE		
PEAK	-	AM
PEAK		
8:00	-	9:00



Traffic Information Specialists

ABN: 42 613 389 923

Email info@trafficinfospecialist.com.au

Appendix C

SIDRA Results

MOVEMENT SUMMARY

Site: 101 [Hassell St/Purchase St Intersection AM EX]

Hassell St/Purchase St Intersection

Signals - Fixed Time Isolated Cycle Time = 90 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Hassell Street											
5	T1	802	0.0	0.305	5.8	LOS A	7.0	48.8	0.42	0.37	54.7
6	R2	6	0.0	0.305	11.4	LOS B	6.8	47.5	0.42	0.38	50.3
Approach		808	0.0	0.305	5.9	LOS A	7.0	48.8	0.42	0.37	54.7
North: Purchase Street											
7	L2	101	0.0	0.306	41.1	LOS D	4.0	27.7	0.91	0.77	29.0
9	R2	78	0.0	0.236	40.5	LOS D	3.0	21.1	0.90	0.76	29.0
Approach		179	0.0	0.306	40.8	LOS D	4.0	27.7	0.91	0.76	29.0
West: Hassell Street											
10	L2	15	0.0	0.249	11.1	LOS B	5.4	37.8	0.40	0.36	50.5
11	T1	652	0.0	0.249	5.6	LOS A	5.4	37.9	0.40	0.36	54.9
Approach		667	0.0	0.249	5.7	LOS A	5.4	37.9	0.40	0.36	54.8
All Vehicles		1654	0.0	0.306	9.6	LOS A	7.0	48.8	0.47	0.41	51.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	North Full Crossing	50	6.8	LOS A	0.0	0.0	0.39	0.39	
P4	West Full Crossing	50	39.3	LOS D	0.1	0.1	0.94	0.94	
All Pedestrians		100	23.1	LOS C			0.66	0.66	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 101 [Hassell St/Purchase St Intersection PM EX]

Hassell St/Purchase St Intersection

Signals - Fixed Time Isolated Cycle Time = 90 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Hassell Street											
5	T1	676	0.0	0.335	12.7	LOS B	8.6	60.2	0.61	0.53	49.6
6	R2	7	0.0	0.335	18.3	LOS B	8.3	58.0	0.61	0.53	43.9
Approach		683	0.0	0.335	12.8	LOS B	8.6	60.2	0.61	0.53	49.5
North: Purchase Street											
7	L2	208	0.0	0.336	29.9	LOS C	6.9	48.2	0.80	0.78	33.5
9	R2	62	0.0	0.100	27.7	LOS C	1.9	13.1	0.72	0.72	34.4
Approach		270	0.0	0.336	29.4	LOS C	6.9	48.2	0.78	0.77	33.7
West: Hassell Street											
10	L2	5	0.0	0.319	18.1	LOS B	8.1	56.7	0.60	0.52	44.1
11	T1	658	0.0	0.319	12.6	LOS B	8.1	56.8	0.60	0.52	49.7
Approach		663	0.0	0.319	12.6	LOS B	8.1	56.8	0.60	0.52	49.7
All Vehicles		1616	0.0	0.336	15.5	LOS B	8.6	60.2	0.63	0.56	47.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	North Full Crossing	50	13.4	LOS B	0.1	0.1	0.55	0.55	
P4	West Full Crossing	50	27.3	LOS C	0.1	0.1	0.78	0.78	
All Pedestrians		100	20.3	LOS C			0.66	0.66	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY



Site: 101 [Hassell St/Purchase St Intersection AM PEAK POST DEV]

Hassell St/Purchase St Intersection

Signals - Fixed Time Isolated Cycle Time = 90 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Hassell Street											
5	T1	802	0.0	0.357	7.6	LOS A	8.9	62.2	0.49	0.44	53.1
6	R2	38	0.0	0.357	13.4	LOS B	7.7	54.0	0.50	0.47	47.8
Approach		840	0.0	0.357	7.9	LOS A	8.9	62.2	0.49	0.44	53.0
North: Purchase Street											
7	L2	133	0.0	0.339	38.7	LOS D	5.1	35.4	0.89	0.78	29.8
9	R2	110	0.0	0.281	38.1	LOS D	4.1	28.9	0.88	0.77	29.9
Approach		243	0.0	0.339	38.4	LOS D	5.1	35.4	0.89	0.78	29.9
West: Hassell Street											
10	L2	47	0.0	0.274	12.4	LOS B	6.3	44.3	0.45	0.44	48.6
11	T1	652	0.0	0.274	6.9	LOS A	6.4	44.6	0.45	0.41	53.6
Approach		699	0.0	0.274	7.3	LOS A	6.4	44.6	0.45	0.41	53.4
All Vehicles		1782	0.0	0.357	11.8	LOS B	8.9	62.2	0.53	0.48	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Pedestrian ped	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	North Full Crossing	50	8.0	LOS A	0.1	0.1	0.42	0.42	
P4	West Full Crossing	50	36.5	LOS D	0.1	0.1	0.90	0.90	
All Pedestrians		100	22.3	LOS C			0.66	0.66	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: TRANSPORT AND TRAFFIC PLANNING ASSOCIATES | Processed: Monday, 5 March 2018 2:03:26 PM

Project: T:\WORK17\17122 - 163 GEORGE STREET, PARRAMATTA\MODELLING\HASSELL.PURCHASE INTERSECTION.sip7

MOVEMENT SUMMARY



Site: 101 [Hassell St/Purchase St Intersection PM POST DEV]

Hassell St/Purchase St Intersection

Signals - Fixed Time Isolated Cycle Time = 90 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Hassell Street											
5	T1	676	0.0	0.384	14.2	LOS B	10.2	71.3	0.65	0.57	48.4
6	R2	35	0.0	0.384	20.5	LOS C	8.7	60.7	0.66	0.59	41.8
Approach		711	0.0	0.384	14.5	LOS B	10.2	71.3	0.65	0.57	48.2
North: Purchase Street											
7	L2	236	0.0	0.374	29.5	LOS C	7.8	54.7	0.80	0.79	33.7
9	R2	90	0.0	0.141	27.3	LOS C	2.7	19.0	0.72	0.74	34.5
Approach		326	0.0	0.374	28.9	LOS C	7.8	54.7	0.78	0.77	33.9
West: Hassell Street											
10	L2	33	0.0	0.340	18.9	LOS B	8.7	61.0	0.62	0.56	43.1
11	T1	658	0.0	0.340	13.3	LOS B	8.8	61.3	0.62	0.55	49.0
Approach		691	0.0	0.340	13.6	LOS B	8.8	61.3	0.62	0.55	48.8
All Vehicles		1728	0.0	0.384	16.9	LOS B	10.2	71.3	0.66	0.60	45.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back Pedestrian ped	of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P3	North Full Crossing	50	13.9	LOS B	0.1	0.1	0.56	0.56	
P4	West Full Crossing	50	26.5	LOS C	0.1	0.1	0.77	0.77	
All Pedestrians		100	20.2	LOS C			0.66	0.66	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

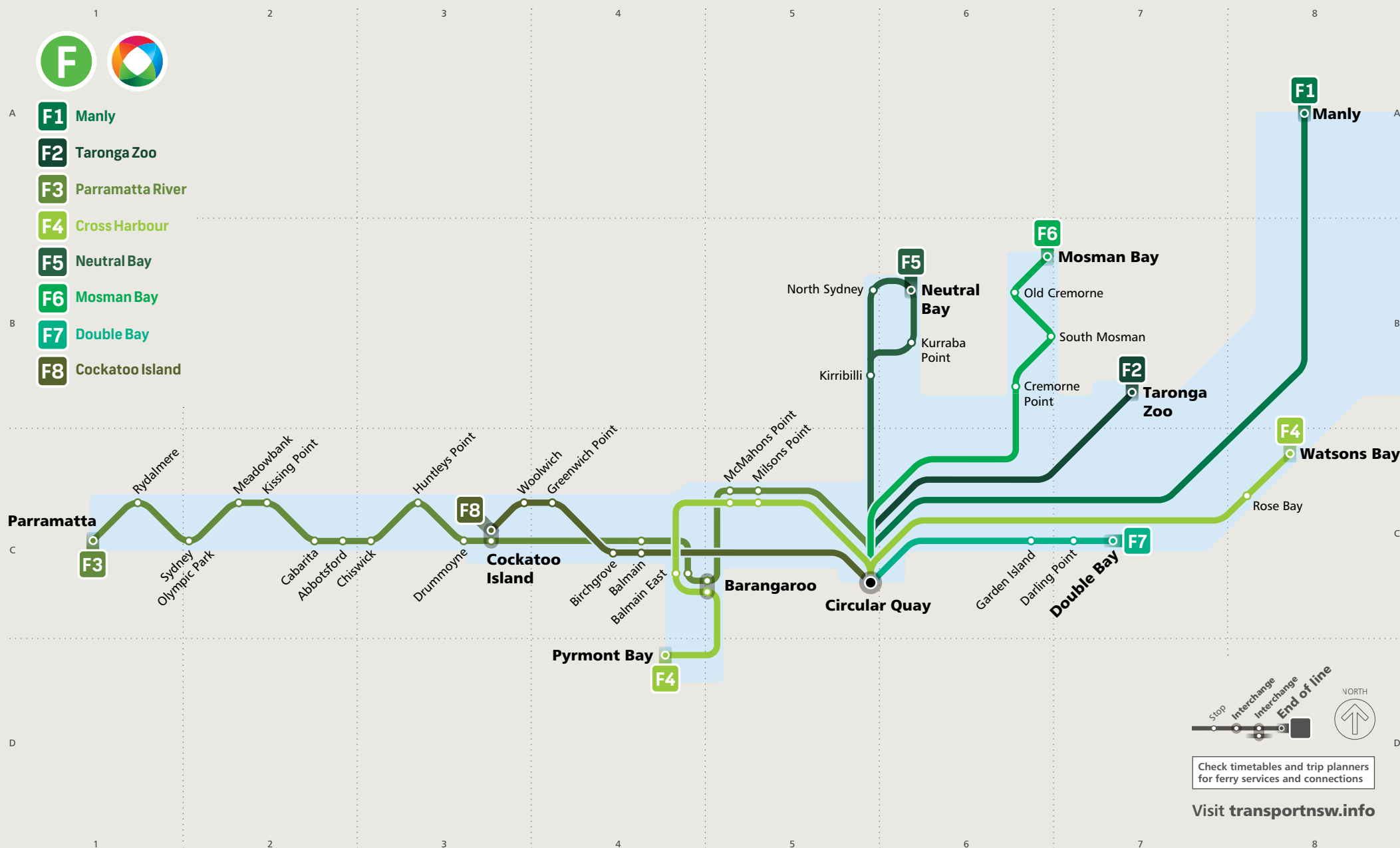
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix D

Transport Services

Sydney Ferries Network



Sydney Ferries Network Key

Key













Wheelchair access

Assistance may be required at low tide

The following Sydney Ferries Network information includes an alphabetical list of wharves, its map grid references, wheelchair access and connecting ferry service details where applicable.

Abbotsford	C2	
Balmain	C4	
Balmain East	C4	
Barangaroo	C5	
Birchgrove	C4	
Cabarita	C2	
Chiswick	C3	
Circular Quay	C5	
Cockatoo Island	C3	
Cremorne Point	B6	
Darling Point	C7	
Double Bay	C7	
Drummoyne	C3	
Garden Island	C6	
Greenwich Point	C4	
Huntleys Point	C3	
Kirribilli	B5	
Kissing Point	C2	
Kurraba Point	B6	
Manly	A8	

McMahons Point	C5	
Meadowbank	C2	
Milsons Point	C5	
Mosman Bay	B6	
Neutral Bay	B6	
North Sydney	B5	
Old Cremorne	B6	
Parramatta	C1	
Pyrmont Bay	D4	
Rose Bay	C8	
Rydalmere	C1	
South Mosman	B6	
Sydney Olympic Park	C2	
Taronga Zoo	B7	
Watsons Bay	C8	
Woolwich	C3	

Sydney Trains Network



Sydney train lines



T1 North Shore, Northern & Western Line
North Shore
Western
Richmond
Epping



T3 Bankstown Line
Liverpool
Lidcombe
City



T5 Cumberland Line
Leppington
Richmond



T7 Olympic Park Line
Olympic Park
Lidcombe



T2 Inner West & Leppington Line
Inner West
Leppington
City



T4 Eastern Suburbs & Illawarra Line
Eastern Suburbs
Illawarra
Cronulla



T6 Carlingford Line
Carlingford
Clyde



T8 Airport & South Line
Airport
South
City



Check timetables and trip planners for train services and connections

Visit transportnsw.info

Sydney Trains Network Key


































Key

Wheelchair access

The following Sydney Trains Network information includes an alphabetical list of stations, its map grid references, wheelchair access and connecting train service details where applicable.

Allawah	E5	
Arncliffe	D5	
Artarmon	B5	
Ashfield	D4	
Asquith	A4	
Auburn	C3	
Banksia	D5	
Bankstown	D3	
Bardwell Park	D4	
Beecroft	B4	
Belmore	D4	
Berala	D3	
Berowra	A4	
Beverly Hills	E4	
Bexley North	E4	
Birrong	D3	
Blacktown	C2	
Bondi Junction	C6	
Burwood	D4	
Cabramatta	D2	
Camellia	C3	
Campbelltown	F2	
Campsie	D4	
Canley Vale	D2	
Canterbury	D4	
Caringbah	F6	
Carlingford	B3	
Carlton	E5	
Carramar	D2	
Casula	E2	
Central	C5	
Chatswood	B5	
Cheltenham	B4	
Chester Hill	D3	
Circular Quay	C5	
Clarendon	B1	
Clyde	C3	
Como	E5	
Concord West	C3	
Cronulla	F6	

Croydon	D4	
Denistone	C3	
Domestic Airport	D5	
Doonside	C2	
Dulwich Hill	D4	
Dundas	C3	
East Hills	E3	
East Richmond	A1	
Eastwood	B3	
Edgecliff	C6	
Edmondson Park	E1	
Emu Plains	C1	
Engadine	F5	
Epping	B4	
Erskineville	D5	
Fairfield	D2	
Flemington	D3	
Glenfield	E2	
Gordon	B4	
Granville	C3	
Green Square	D5	
Guildford	D2	
Gymea	F5	
Harris Park	C3	
Heathcote	F5	
Holsworthy	E3	
Homebush	D3	
Hornsby	A4	
Hurlstone Park	D4	
Hurstville	E5	
Ingleburn	E2	
International Airport	D5	
Jannali	F5	
Killara	B4	
Kings Cross	C6	
Kingsgrove	E4	
Kingswood	C1	
Kirrawee	F5	
Kogarah	E5	
Lakemba	D4	
Leightonfield	D3	
Leppington	E1	
Leumeah	F2	
Lewisham	D4	
Lidcombe	D3	
Lindfield	B4	
Liverpool	E2	
Loftus	F5	
Macarthur	F2	

Macdonaldtown	D5	
Macquarie Fields	E2	
Macquarie Park	B4	
Macquarie University	B4	
Marayong	B1	
Marrickville	D4	
Martin Place	C5	
Mascot	D5	
Meadowbank	C3	
Merrylands	D2	
Milsons Point	C5	
Minto	F2	
Miranda	F6	
Mortdale	E5	
Mount Colah	A4	
Mount Druitt	C1	
Mount Kuring-gai	A4	
Mulgrave	B1	
Museum	C5	
Narwee	E4	
Newtown	D4	
Normanurst	A4	
North Ryde	B4	
North Strathfield	C3	
North Sydney	C5	
Oatley	E5	
Olympic Park	C3	
Padstow	E3	
Panania	E3	
Parramatta	C3	
Pendle Hill	C2	
Pennant Hills	B4	
Penrith	C1	
Penshurst	E5	
Petersham	D4	
Punchbowl	D3	
Pymble	B4	
Quakers Hill	B1	
Redfern	D5	
Regents Park	D3	
Revesby	E3	
Rhodes	C3	
Richmond	A1	
Riverstone	B1	
Riverwood	E4	
Rockdale	D5	
Rooty Hill	C2	
Rosehill	C3	
Roseville	B4	

Rydalmere	C3	
Schofields	B1	
Sefton	D3	
Seven Hills	C2	
St James	C6	
St Leonards	B5	
St Marys	C1	
St Peters	D5	
Stanmore	D4	
Strathfield	D4	
Summer Hill	D4	
Sutherland	F5	
Sydenham	D5	
Telopea	B3	
Tempe	D5	
Thornleigh	B4	
Toongabbie	C2	
Town Hall	C5	
Turrumurra	B4	
Turrella	D4	
Villawood	D3	
Vineyard	B1	
Wahroonga	B4	
Waitara	B4	
Warrawee	B4	
Warwick Farm	D2	
Waterfall	F5	
Waverton	C5	
Wentworthville	C2	
Werrington	C1	
West Ryde	C3	
Westmead	C2	
Wiley Park	D4	
Windsor	B1	
Wolli Creek	D5	
Wollstonecraft	C5	
Woolooware	F6	
Wynyard	C5	
Yagoona	D3	
Yennora	D2	

Appendix E

Parramatta Light Rail Details

Parramatta Light Rail Stage 1



Transport
for NSW



See the
map inside!

Parramatta Light Rail – Stage 1 Connecting great places

Parramatta Light Rail is one of the NSW Government's latest major infrastructure projects being delivered to serve a growing Sydney. Parramatta Light Rail Stage 1 will connect Westmead to Carlingford via Parramatta CBD with a two-way track spanning 12 kilometres.

This will be the first stage of the Parramatta Light Rail project and is expected to open in 2023. Parramatta Light Rail will connect the community with great places and help both locals and visitors move around and explore what the region has to offer.

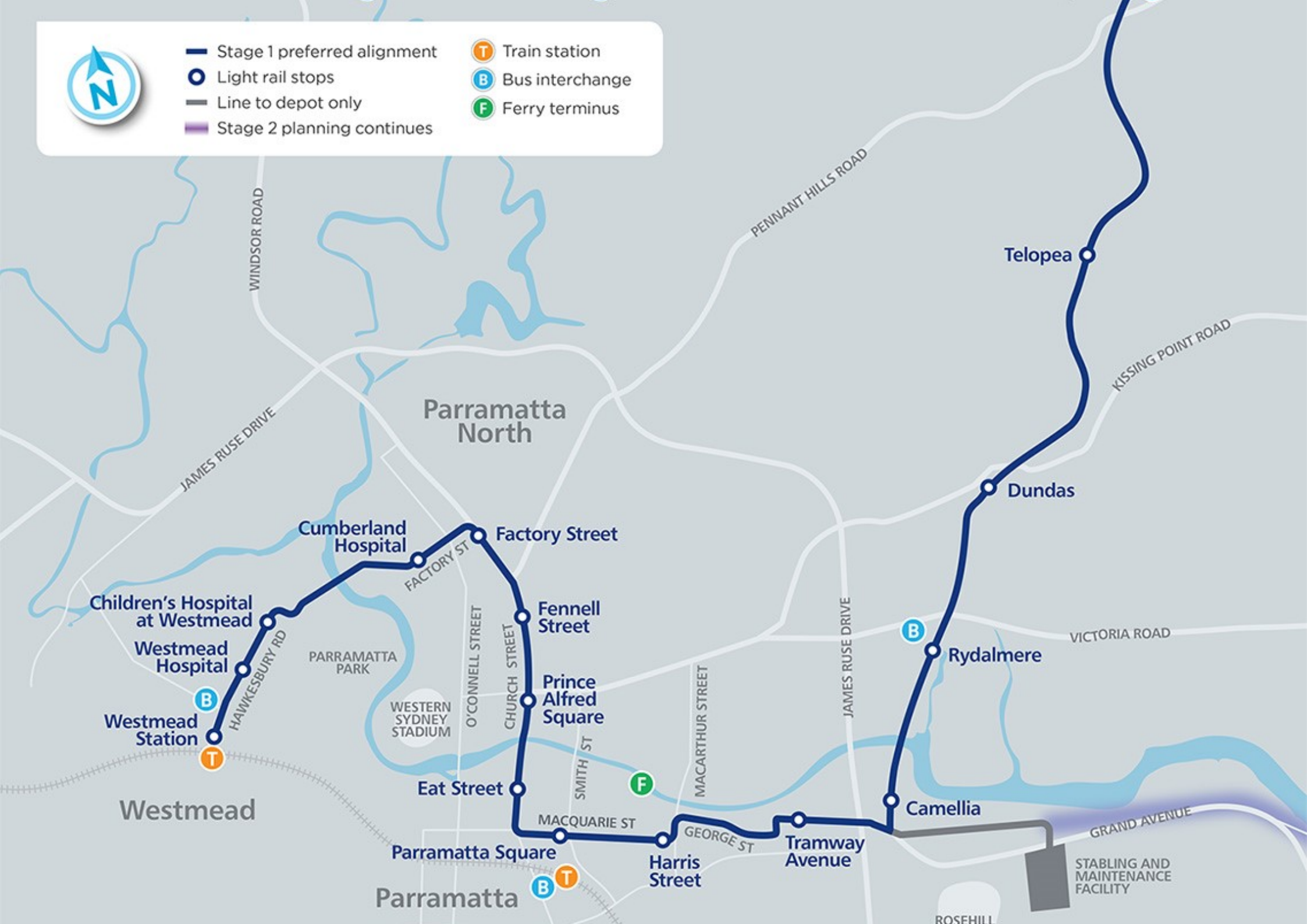
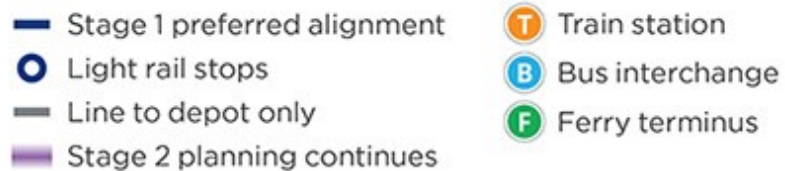
With an additional one million people set to call Western Sydney home in the next 20 years, Parramatta Light Rail will make moving around new and existing centres and communities easier.

Currently, there is \$8 billion worth of private and public works underway or planned in and around Parramatta's CBD. Parramatta Light Rail will enhance connectivity and accessibility to the region's city centres including Parramatta, where

more than 25 developments, both commercial and residential, are scheduled for construction.

The route will link Parramatta's CBD and Parramatta Train Station to the Westmead Health precinct, Parramatta North Urban Transformation Program, the new Western Sydney Stadium, the relocated Powerhouse Museum, the private and social housing redevelopment at Telopea, Rosehill Racecourse and three Western Sydney University campuses.

Transport for NSW is also preparing a plan to ensure traffic and transport flows smoothly during and after construction. Planning work for Stage 2 of the project – from Camellia to Strathfield via Sydney Olympic Park – is being developed in collaboration with Sydney Metro West.

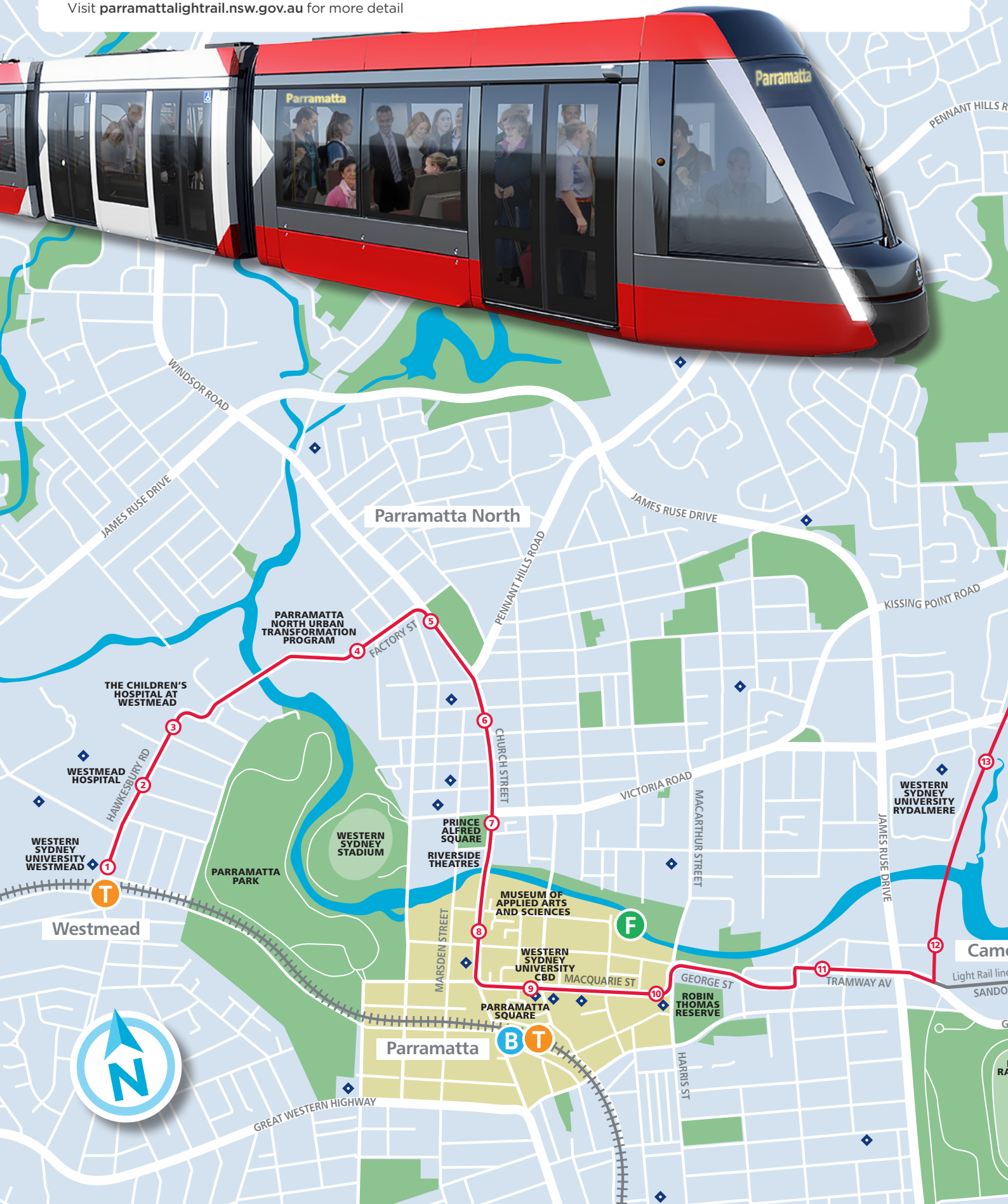


Parramatta Light Rail Preferred route – Stage 1

Visit parramattalightrail.nsw.gov.au for more detail



Transport
for NSW



— Stage 1 preferred route ○ Light rail stops T Train stations F Ferry terminus B Bus interchange ■ Parkland ■ CBD



Indicative light rail stop names and locations

- 1 WESTMEAD STATION
- 2 WESTMEAD HOSPITAL
- 3 WESTMEAD CHILDREN'S HOSPITAL
- 4 CUMBERLAND HOSPITAL
- 5 FACTORY STREET
- 6 FENNEL STREET
- 7 PRINCE ALFRED SQUARE
- 8 EAT STREET
- 9 PARRAMATTA SQUARE
- 10 HARRIS STREET
- 11 TRAMWAY AVENUE
- 12 CAMELLIA
- 13 RYDALMERE
- 14 DUNDAS
- 15 TELOPEA
- 16 CARLINGFORD

Parramatta Light Rail key features



High frequency services – seven days a week, early morning to late at night



Modern and comfortable light rail vehicles including stops with easy access



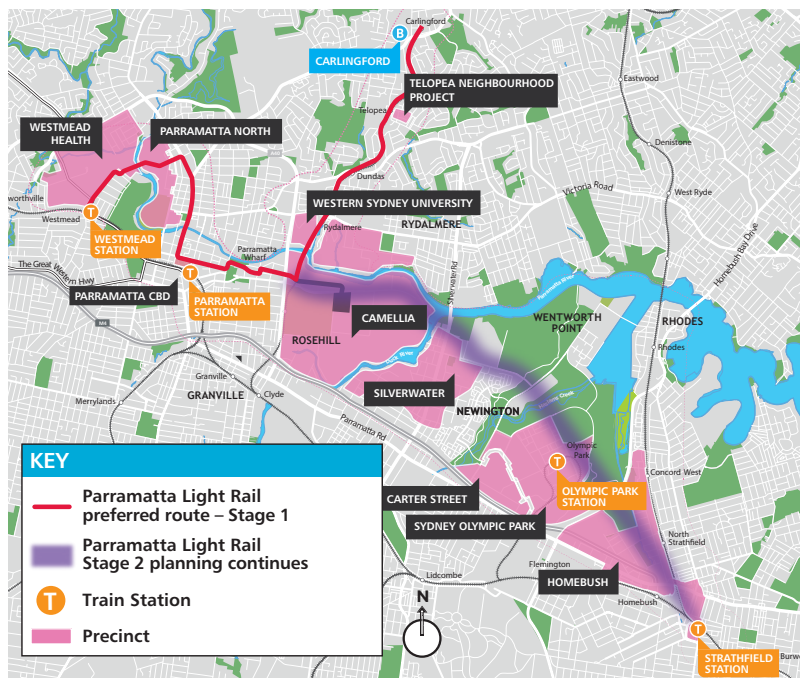
Integrated with the Opal ticketing system



16 stops connecting other transport, including bus, trains and ferries

Parramatta Light Rail Stage 2

Planning work for Stage 2 from Camellia to Strathfield via Sydney Olympic park is being developed in collaboration with Sydney Metro West.



Find out more at www.parramattalightrail.nsw.gov.au
Or call 1800 684 490

Project milestones

Late 2015

Announcement of preferred network

2016

Engagement with key stakeholders begins
Community engagement begins
Project team moves to Parramatta

Early 2017

Public announcement of the preferred route
Community engagement continues

Mid 2017

Environmental Impact Statement will go on display for community consultation and feedback
Final business case and assessment of preferred network completed

Late 2017

Commencement of procurement of companies responsible for delivery and operations of the project

Early 2018

Planning approval expected

2018

Stage 1 construction expected to begin

2023

Stage 1 (Westmead to Carlingford) opens



Translating and Interpreting Service

If you need an interpreter, please call the Translating and Interpreting Service (TIS National) on **131 450** and ask them to telephone Parramatta Light Rail on 1800 684 490.

Arabic

إذا كنتم بحاجة إلى مترجم، الرجاء الاتصال بخدمة الترجمة الخطية والشفهية (TIS National) على الرقم **131 450**، والطلب منهم الاتصال بـ Parramatta Light Rail على الرقم 1800 684 490.

Cantonese

如果你需要口譯員，請致電 **131 450** 聯絡翻譯和口譯服務署 (TIS National)，要求他們致電 1800 684 490 聯絡 Parramatta Light Rail。

Mandarin

如果你需要口譯員，請致電 **131 450** 联系翻译和口译服务署 (TIS National)，要求他们致电 1800 684 490 联系 Parramatta Light Rail。

Korean

통역사가 필요하시면 번역통역서비스 (TIS National)에 **131 450** 으로 연락하여 이들에게 1800 684 490 번으로 Parramatta Light Rail에 전화하도록 요청하십시오.

Hindi

इस दस्तावेज में आपके इलाके के सार्वजनिक परिवहन परियोजनाओं के बारे में महत्वपूर्ण जानकारी सम्मिलित है। यदि आपको दुभाषिणी की सेवा की आवश्यकता है तो कृपया **131 450** पर टेलीफोनिक फंड इनटरप्रेटिंग सर्विस से संपर्क करें और उन्हें 1800 684 490 पर टेलीफोनिक फॉर पारामट्टा लाइट रेल को फोन करने के लिए कहें। उसके बाद दुभाषिणी आपको अनुवाद करने में सहायता देगा।