

## **ATTACHMENT A**

**PLANNING PROPOSAL:  
904 BOURKE STREET, ZETLAND**

**DATED MAY 2015**

**POST EXHIBITION CHANGES  
MARKED IN RED**



# Planning Proposal

904 Bourke Street, Zetland

December 2014 May 2015

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Note: Post-exhibition changes to this Planning Proposal are illustrated by showing deleted text in ~~strike through~~ and new or replacement text in underlined red.

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## INTRODUCTION

This Planning Proposal explains the extent of, and justification for, proposed amendments to *Sydney Local Environmental Plan 2012* (Sydney LEP 2012) as it applies to 904 Bourke Street, Zetland (the site). This Planning Proposal has been prepared in accordance with Section 55 of the *Environmental Planning and Assessment Act 1979* (the Act) and guidelines published by the Department of Planning and Environment including 'A guide to preparing planning proposals' and 'A guide to preparing local environmental plans'.

Specifically, this Planning Proposal seeks to amend the building height and floor space ratio controls for the site as contained in Sydney LEP 2012. More detailed planning controls for the site will be contained within an amendment to Sydney Development Control Plan 2012 (Sydney DCP 2012) which has been prepared alongside this Planning Proposal. The proposed amendments to Sydney DCP 2012 will support the proposed changes to Sydney LEP 2012.

The land affected by this Planning Proposal is shown hatched in red in Figure 1.

## BACKGROUND

### Site Identification

904 Bourke Street, Zetland is a single landholding located in the Green Square Urban Renewal Area in the southern part of the City of Sydney Local Government Area. Table 1 details the land affected by this Planning Proposal and the proposed amendments.

Site	Property Description	Proposed Amendment
904 Bourke Street, Zetland	Lot 20 DP 807178, Lots 1-7 SP 49583	Changes to height in metres and floor space ratio controls

Table 1 – Site description and proposed amendment



Figure 1 – Land affected by this Planning Proposal

## Site Characteristics

904 Bourke Street is in the suburb of Zetland in the southern part of the City of Sydney Local Government Area and is within the Green Square Urban Renewal Area. It is situated to the north east of the proposed Green Square Town Centre and Green Square Train Station and to the west of the Victoria Park precinct and Emerald Park development.

It is an irregularly shaped site with a narrow 20 metre frontage to Bourke Street and a total site area of approximately 14,680 square metres. The site has been excavated and re-graded and is now generally flat resulting in significant changes in level to surrounding sites. The most significant level change is between the southern boundary of the site and McPherson Lane where there is a retaining wall of approximately 4 metres.

The southern and western boundaries of the site front McPherson Lane, a publicly accessible lane servicing the rear of properties on Merton Street and Elizabeth Street. The north eastern boundary fronts 890-898 Bourke Street, a site in Strata ownership which houses a number of commercial and industrial tenancies. The south eastern boundary fronts 13-17 Joynton Avenue, which is currently under redeveloped as a mixed use development known as 'Emerald Park'. On completion this will accommodate approximately 550 new dwellings and include the new public park known as Mary O'Brien Reserve.

904 Bourke Street was in strata ownership until late 2013 at which time it was sold. It is now under single ownership. There are currently a number of different commercial tenants operating on site. There are two other large sites (888 Bourke Street and 890-898 Bourke Street) in the same street block also under strata ownership. These two sites also house a number of commercial and light industrial units. The remainder of the street block is made up of the Emerald Park Development and smaller residential lots fronting Bourke Street.

The site is adjacent to the Zetland Estate Heritage Conservation Area. This conservation area contains a number of heritage items, two of which adjoin McPherson Lane and are in very close proximity to the site. The site also contains a Moreton Bay Fig tree which appears on the City of Sydney's Significant Tree Register. The tree is located on the western boundary of the site fronting McPherson Lane and is required to be retained and protected.

900 Bourke Street is a small lot situated between 904 Bourke Street and neighbouring 890-898 Bourke Street. It is owned by Sydney Water and contains a shaft which is used to periodically access underground infrastructure. The lot has no public road frontage so is accessed from Bourke Street via an easement over 904 Bourke Street. The easement follows the boundary of 900 Bourke Street to its south-eastern corner and terminates at that point. Sydney Water has confirmed that access to their asset via this easement is required irrespective of redevelopment plans.

## Current Planning Controls

The site is zoned B4 Mixed Use under Sydney LEP 2012 which allows a wide range of uses including the commercial and light industrial uses for which the site is currently used and the residential use for which the site is proposed to be redeveloped.

A Floor Space Ratio (FSR) range is achievable on the site, dependent on delivering community infrastructure (refer to Clause 6.14 of Sydney LEP 2012) and demonstrating design excellence (refer to Clause 6.21 of Sydney LEP 2012). The FSR achievable is summarised in Table 2 below:

	Additional	Total FSR
Base	-	1.5:1
Community Infrastructure	up to 0.5:1	up to 2:1
Design Excellence	up to 10%	up to 2.2:1

Table 2 – FSR range available for 904 Bourke Street

Sydney LEP 2012 specifies a maximum building height of 15 metres across the whole site. An additional 10% height over and above the 15 metres control may be achieved where design excellence is successfully demonstrated (refer to clause 6.21 of Sydney LEP 2012). This clause specifies that either 10% height or 10% FSR, not both, may be achieved where design excellence is demonstrated

Sydney DCP 2012 requires provision of a setback to Bourke Street, a new 12 metre wide street and a public open space at 904 Bourke Street. The proposed 12 metre wide street connects with McPherson Lane in the south eastern corner of the site and continues north, running to the east of the Sydney Water owned site and through 890-898 Bourke Street where it connects with Bourke Street. Sydney DCP 2012 also requires a 20 metre wide street which runs through 890-898 Bourke Street and 888 Bourke Street and connects the proposed 12 metre wide street with O'Dea Avenue. The proposed 20 metre wide street does not require any land dedication from 904 Bourke Street.

## ***Planning Proposal***

In early 2014, JQZ approached the City of Sydney (the City) to discuss the redevelopment potential of 904 Bourke Street, Zetland. JQZ presented a scheme which sought to achieve an FSR of approximately 2:1 across the site via a Stage 1 and Stage 2 Development Application process. The schemes tabled for consideration were not compliant with the 15 metre height control as prescribed by Sydney LEP 2012. Given the degree of the non-compliance, the City advised JQZ that the most appropriate planning pathway was preparation of a Planning Proposal to amend the height controls in Sydney LEP 2012.

In April 2014 the City began the process of working with JQZ and their consultant team to develop this Planning Proposal. JQZ engaged a consultant team of planners, urban designers and traffic engineers to work with City staff. Supporting documentation prepared by the City and the consultant team is appended to this Planning Proposal



## PART 1 – OBJECTIVES AND INTENDED OUTCOMES

This Planning Proposal will:

- enable orderly redevelopment of 904 Bourke Street, Zetland for residential and storage uses;
- ensure that new development responds sympathetically to the neighbouring Zetland Estate Heritage Conservation Area and heritage items within this conservation area;
- ensure that new development is appropriate to the surrounding built form context and serves as a transition between taller development to the north of the site and lower scale development to the south of the site;
- allow for the delivery of significant public domain improvements including new public open space, a new street and pedestrian and cycle links; and
- ensure that existing neighbouring properties, new development and the newly created public open spaces receive adequate solar access.

## PART 2 – EXPLANATION OF PROVISIONS

To achieve the intended outcomes, this Planning Proposal seeks to amend planning controls in Sydney LEP 2012 as follows:

1. Amend Height of Buildings Map Sheets 17 and 18 of *Sydney Local Environmental Plan 2012* in accordance with the proposed Height of Buildings Map shown at Part 4 of this Planning Proposal
2. Amend Floor Space Ratio Map Sheets 17 and 18 of *Sydney Local Environmental Plan 2012* in accordance with the proposed Floor Space Ratio Map shown at Part 4 of this Planning Proposal
3. Include a new clause under 'Division 5 Site Specific Provisions' of *Sydney Local Environmental Plan 2012* to enable an additional 0.25:1 FSR above that shown in the Floor Space Ratio Map for development on the site for the purposes of 'commercial premises' and/or 'storage premises' provided that development is contained wholly within the basement and does not affect proposed building envelopes. It should be noted that the above clause:
  - is intended to operate in such a way that any additional floor space awarded through a competitive design process would be calculated as a percentage of the total floor space achieved on site including any commercial premises or storage premises floor space permissible under the new clause. It is anticipated that clauses relating to the award of design excellence floor space will need to be amended to ensure the intent of this Planning Proposal is realised in the LEP.
  - is intended to operate in a similar manner to clause 6.14 of Sydney LEP 2012 in that the additional 0.25:1 FSR for commercial premises or storage premises may only be achieved if the development of the land also includes development for the purposes of community infrastructure.

## PART 3 - JUSTIFICATION

### *Section A – Need for the planning proposal*

#### **Q1. Is the planning proposal a result of any strategic study or report?**

In early 2014 the owner of 904 Bourke Street, JQZ, approached the City of Sydney (the City) to discuss redevelopment of the site for residential uses. Preliminary testing by JQZ illustrated that redevelopment which sought to achieve close to the maximum permissible FSR of 2:1 on the site while also dedicating land for public open space and street as required by Sydney Development Control Plan 2012, resulted in building heights which did not comply with the height control of 15 metres on the site and a poor urban design outcome. Likewise, a redevelopment scheme which complied with the maximum building height of 15 metres achieved an FSR of 1.4:1, significantly less than the maximum permissible 2:1.

The City advised JQZ that the most appropriate planning pathway to achieve closer to the maximum permissible density on the site was to prepare a Planning Proposal to amend the maximum height control. On this basis, in April 2014 JQZ engaged a consultant team to work with City staff to develop a master plan for the site.

The Urban Design Study at Appendix A to this Planning Proposal provides background on the context of the site and its constraints and details different design iterations that were considered as part of this master planning process. Throughout the process, the City and JQZ's consultant team examined and tested options for the layout of the future open space and street network and tested a number of different built form options to ensure building height, bulk and scale was appropriate to the context of the site and its surroundings. A Traffic Impact Assessment was prepared by Traffix Consultants in support of the proposed future street network and this is at Appendix B.

The result of this collaborative master planning process is this Planning Proposal. The Planning Proposal details how amendments to the current controls under Sydney LEP 2012, and associated changes to Sydney DCP 2012, can be realised with minimal adverse environmental impacts and demonstrable public benefits including a more legible public open space, greater activation of the site and development which respects neighbouring properties, particularly those within the Zetland Estate Heritage Conservation Area.

#### **Q2. Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?**

The master plan for the site supported by Council and the proponent is prohibited development as it exceeds the current height control under Sydney LEP 2012. A Planning Proposal is therefore required to amend the Sydney LEP 2012 height of buildings map.

Without this amendment, the master plan for the site cannot be realised despite it having significant merit and delivering significant public benefit. A Planning Proposal to progress an amendment of Sydney LEP 2012 is therefore the most effective way of allowing orderly and economic development of the land, allowing the community and surrounding landowners an opportunity to comment on changes to the controls and providing certainty for all affected stakeholders.

## Section B – Relationship to strategic planning framework

### Q3. Is the planning proposal consistent with the objectives and actions of the applicable regional or sub-regional strategy (including 'A Plan for Growing Sydney' and the exhibited draft strategies)?

In December 2014 the NSW Government published *A Plan for Growing Sydney*. Consistency with *A Plan for Growing Sydney* and the draft *Sydney City Subregional Strategy* is discussed below.

#### *A Plan for Growing Sydney*

*A Plan for Growing Sydney* outlines a strategic vision for Sydney over the next 20 years. It identifies key challenges facing Sydney including a population increase of 1.6 million by 2034, 689,000 new jobs by 2031 and a requirement for 664,000 new homes.

In responding to these and other challenges, the plan sets out four goals:

1. A competitive economy with world-class services and transport;
2. A city of housing choice with homes that meet our needs and lifestyles;
3. A great place to live with communities that are strong, healthy and well-connected; and
4. A sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources.

To achieve these goals, the plan proposes 22 directions and associated actions including; 1.7 Grow strategic centres; 2.1 Accelerate housing supply across Sydney; 2.2 Accelerate urban renewal across Sydney; 2.3 Improve housing choice to suit different needs and lifestyles and; 3.3 Create healthy built environments.

This Planning Proposal is consistent with the goals, objectives and actions of the plan in that it will facilitate the growth of Green Square as a strategic centre; allow the delivery of approximately 400 new dwellings of different types including apartments, SOHOs and low-rise terraces; and enable the delivery of approximately 2,700 square metres of public open space which will encourage social interaction and active and passive recreation.

#### *Draft Sydney City Subregional Strategy*

The NSW Government's draft Sydney City Subregional Strategy sets directions and actions for the implementation of the Metropolitan Strategy at a more detailed local level. Subregional planning provides a framework for coordinating planning, development, infrastructure, transport, open space networks and environmental actions across local and state government agencies. This Planning Proposal is consistent with the Sydney City Draft Subregional Strategy as demonstrated in the below table.

Consistency with Sydney City Draft Subregional Strategy	
Strategy B: Centres and Corridors	
Directions	Consistency
<p>B2: Increase densities in centres while improving liveability.</p> <p>B6: Focus development in renewal corridors to maximise infrastructure use where demand and opportunities exist.</p>	<p>The current height control for the site acts as a constraint to the site realising close to its maximum permissible density of 2:1 FSR. This Planning Proposal seeks to amend the height controls on the site to allow redevelopment to achieve closer to this maximum permissible FSR while still delivering significant public benefit and a high quality urban design outcome.</p> <p>Furthermore this Planning Proposal will facilitate upgrades to the public domain, including the provision of public open space and in doing so will improve the liveability of the area.</p>

Consistency with Sydney City Draft Subregional Strategy	
Strategy C: Housing	
Directions	Consistency
<p>C1: Ensure adequate supply of land and sites for residential development.</p> <p>C2: Plan for a housing mix near jobs, transport and services.</p> <p>C3: Renew local centres.</p> <p>C4: Improve housing affordability.</p> <p>C5: Improve the quality of new development and urban renewal.</p>	<p>This Planning Proposal will facilitate residential development on the site via increased height controls.</p> <p>The urban design study which underpins this Planning Proposal focussed on delivering a high quality built form outcome while minimising impacts on the amenity of surrounding properties including the Zetland Estate Heritage Conservation Area. As such, this Planning Proposal will ensure high quality new development.</p>
Strategy D: Transport	
Directions	Consistency
D3: Influence travel choices to encourage more sustainable travel.	This Planning Proposal will facilitate redevelopment of the site to include the delivery of a new internal street and pedestrian and cycle connections. These and other improvements to the public domain including new public open space will encourage more trips by active transport.
Strategy E: Environment and Resources	
Directions	Consistency
<p>E2: Protect Sydney's natural environment.</p> <p>E6: Conserve Sydney's cultural heritage.</p>	<p>The master plan that can be realised through the amendments sought by this Planning Proposal allows for the protection of a mature Moreton Bay Fig Tree on the western boundary of the site. This tree is listed in the City of Sydney's Protected Tree Register. This Planning Proposal and the associated DCP amendment provide an adequate curtilage to the tree to ensure its future health and protection.</p> <p>Due consideration has been given to the neighbouring Zetland Estate Conservation Area and key heritage items contained within during the preparation of this Planning Proposal. The master plan seeks to ensure that the amenity and significance of the heritage conservation area are not detrimentally affected. The DCP amendment contains a greater level of detail on how impacts of redevelopment on the conservation area will be mitigated.</p>
Strategy F: Parks and Public Places	
Directions	Consistency
<p>F1: Increase access to quality parks and public places.</p> <p>F2: Provide a diverse mix of parks and public places.</p>	<p>This Planning Proposal provides for the delivery of new public open space of approximately 2,700 square metres. Consideration has been given to the location of the park to ensure that it is legible as a public space, receives excellent year-round solar access and is accessible and as part of a wider open space network throughout the Green Square Urban Renewal Area.</p>

#### **Q4. Is the planning proposal consistent with a council's local strategy or other local strategic plan?**

The City's Sustainable Sydney 2030 Strategic Plan is the vision for the sustainable development of the City to 2030 and beyond. It includes 10 strategic directions to guide the future of the City, as well as 10 targets against which to measure progress. This Planning Proposal is consistent with the key directions of Sustainable Sydney 2030 as demonstrated in the below table.

Consistency with Sustainable Sydney 2030	
Direction	Comment
Direction 1 – A globally competitive and innovative city	This Planning Proposal does not contain any aspects which are inconsistent with this direction.

Consistency with Sustainable Sydney 2030	
Direction	Comment
Direction 2 – A leading environmental performer	Redevelopment of the site, facilitated by this Planning Proposal, will deliver new building stock with significantly better environmental performance than the current industrial buildings.
Direction 3 – Integrated transport for a connected city	<p>The site is approximately 400 metres from Green Square Train Station which offers regular services to the airport and central Sydney. The site is also serviced by bus services which connect it to central Sydney and neighbouring areas.</p> <p>Maximum car parking rates as specified in <i>Sydney Local Environmental Plan 2012</i> apply to the site and will assist with managing car travel demand.</p>
Direction 4 – A city for walking and cycling	<p>This Planning Proposal will facilitate the delivery of new dwellings in close proximity to a range of existing and future services and in doing so encourage active transport. It will also facilitate delivery of a new street, pedestrian links and public open space on the site. These have been designed to reflect existing desire lines and encourage short trips to be taken by bicycle and by foot.</p> <p>The creation of open space and redevelopment to provide residential development will lead to greater activation of the public domain and a greater sense of security, encouraging further pedestrian activity.</p> <p>Individual entries to residential development at ground floor will further activate the public domain and provide an environment more conducive to active transport.</p>
Direction 5 – A lively and engaging city centre	This Planning Proposal does not contain any aspects which are inconsistent with this direction.
Direction 6 – Vibrant local communities and economies	This Planning Proposal will facilitate the redevelopment of a large area of land for residential purposes. A new public park will lead to a new vibrancy and will meet a variety of recreational and community needs.
Direction 7 – A cultural and creative city	This Planning Proposal does not contain any aspects which are inconsistent with this direction.
Direction 8 – Housing for a diverse population	This Planning Proposal will facilitate the provision of approximately 400 new dwellings by the private market in accordance with objective 8.1. Development on the site will also be subject to the Green Square Affordable Housing Contributions levy required under Sydney LEP 2012.
Direction 9 – Sustainable development, renewal and design	<p>This Planning Proposal seeks to establish new street and pedestrian links which will enhance the pedestrian experience in accordance with objective 9.2 of Direction 9.</p> <p>The built form envisaged by the master plan includes a variety of heights throughout the precinct, enhancing pedestrian amenity and legibility, visual interest and good solar access within the public domain.</p>
Direction 10 – Implementation through effective partnerships	This Planning Proposal does not contain any aspects which are inconsistent with this direction.

**Q5. Is the planning proposal consistent with applicable State Environmental Planning Policies (SEPPs)?**

The consistency of this Planning Proposal with applicable State Environmental Planning Policies (SEPPs) is outlined in the table below. SEPPs which have been repealed or were not finalised are not included in this table.

Consistency with SEPPs	
State Environmental Planning Policy (SEPP)	Comment
SEPP No 1—Development Standards	Consistent - This Planning Proposal does not contradict or hinder application of this SEPP.

Consistency with SEPPs	
State Environmental Planning Policy (SEPP)	Comment
SEPP No 4—Development Without Consent and Miscellaneous Exempt and Complying Development	Not applicable.
SEPP No 6—Number of Storeys in a Building	Consistent - This Planning Proposal does not contradict or hinder application of this SEPP.
SEPP No 10—Retention of Low Cost Rental Accommodation	Not applicable.
SEPP No 14—Coastal Wetlands	Not applicable.
SEPP No 15—Rural Landsharing Communities	Not applicable.
SEPP No 19—Bushland in Urban Areas	Not applicable.
SEPP No 21—Caravan Parks	Not applicable.
SEPP No 22—Shops and Commercial Premises	Consistent - This Planning Proposal does not contradict or hinder application of this SEPP.
SEPP No 26—Littoral Rainforests	Not applicable.
SEPP No 29—Western Sydney Recreation Area	Not applicable.
SEPP No 30—Intensive Agriculture	Not applicable.
SEPP No 32—Urban Consolidation (Redevelopment of Urban Land)	Consistent - This Planning Proposal does not contradict or hinder application of this SEPP.  This Planning Proposal presents an opportunity for urban renewal of a key site in the Green Square Urban Renewal Area.
SEPP No 33—Hazardous and Offensive Development	Consistent - This Planning Proposal does not contradict or hinder application of this SEPP.
SEPP No 36—Manufactured Home Estates	Not applicable.
SEPP No 39—Spit Island Bird Habitat	Not applicable.
SEPP No 41—Casino Entertainment Complex	Not applicable.
SEPP No 44—Koala Habitat Protection	Not applicable.
SEPP No 47—Moore Park Showground	Not applicable.
SEPP No 50—Canal Estate Development	Not applicable.
SEPP No 52—Farm Dams and Other Works in Land and Water Management Plan Areas	Not applicable.
SEPP No 53—Metropolitan Residential Development	Not applicable.
SEPP No 55—Remediation of Land	Consistent - This Planning Proposal does not contradict or hinder application of this SEPP.
SEPP No 59—Central Western Sydney Regional Open Space and Residential	Not applicable.
SEPP No 60—Exempt and Complying Development	Consistent - This Planning Proposal does not contradict or hinder application of this SEPP.
SEPP No 62—Sustainable Aquaculture	Not applicable.
SEPP No 64—Advertising and Signage	Consistent - This Planning Proposal does not contradict or hinder application of this SEPP.

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Consistency with SEPPs	
State Environmental Planning Policy (SEPP)	Comment
SEPP No 65—Design Quality of Residential Flat Development	Consistent - This Planning Proposal does not contradict or hinder application of this SEPP.  The built form analysis which underpins the proposed height and building envelope controls reflects the requirements of the Residential Flat Design Code.
SEPP No 70—Affordable Housing (Revised Schemes)	Consistent - The Planning Proposal does not contradict or hinder application of this SEPP.  The Green Square Affordable Housing Scheme will continue to apply to this site under Sydney LEP 2012.
SEPP No 71—Coastal Protection	Not applicable.
SEPP (Building Sustainability Index: BASIX) 2004	Consistent - The Planning Proposal does not contradict or hinder application of this SEPP.
SEPP (Housing for Seniors or People with a Disability) 2004	Consistent - The Planning Proposal does not contradict or hinder application of this SEPP.
SEPP (Major Development) 2005	Consistent - The Planning Proposal does not contradict or hinder application of this SEPP.
SEPP (Sydney Region Growth Centres) 2006	Not applicable.
SEPP (Infrastructure) 2007	Consistent - The Planning Proposal does not contradict or hinder application of this SEPP.
SEPP (Kosciuszko National Park—Alpine Resorts) 2007	Not applicable.
SEPP (Mining, Petroleum Production and Extractive Industries) 2007	Not applicable.
SEPP (Temporary Structures) 2007	Consistent - The Planning Proposal does not contradict or hinder application of this SEPP.
SEPP (Exempt and Complying Development Codes) 2008	Consistent - The Planning Proposal does not contradict or hinder application of this SEPP.
SEPP (Rural Lands) 2008	Not applicable.
SEPP (Western Sydney Parklands) 2009	Not applicable.
SEPP (Affordable Rental Housing) 2009	Consistent - The Planning Proposal does not contradict or hinder application of this SEPP.
SEPP (Western Sydney Employment Area) 2009	Not applicable.
SEPP (Development on Kurnell Peninsula) 2005	Not applicable.

The below table shows the consistency of this Planning Proposal with former Regional Environmental Plans (REPs) for the Sydney and Greater Metropolitan Regions, which are deemed to have the weight of SEPPs.

Consistency with REPs	
Regional Environmental Plan (REPs)	Comment
Sydney REP No 5—(Chatswood Town Centre)	Not applicable.
Sydney REP No 8 (Central Coast Plateau Areas)	Not applicable.
Sydney REP No 9—Extractive Industry (No 2—1995)	Not applicable.



Consistency with REPs	
Regional Environmental Plan (REPs)	Comment
Sydney REP No 11—Penrith Lakes Scheme	Not applicable.
Sydney REP No 13—Mulgoa Valley	Not applicable.
Sydney REP No 16—Walsh Bay	Not applicable.
Sydney REP No 17—Kurnell Peninsula (1989)	Not applicable.
Sydney REP No 18—Public Transport Corridors	Not applicable.
Sydney REP No 19—Rouse Hill Development Area	Not applicable.
Sydney REP No 20—Hawkesbury- Nepean River (No 2—1997)	Not applicable.
Sydney REP No 24—Homebush Bay Area	Not applicable.
Sydney REP No 25—Orchard Hills	Not applicable.
Sydney REP No 26—City West	Not applicable.
Sydney REP No 28—Parramatta	Not applicable.
Sydney REP No 29—Rhodes Peninsula	Not applicable.
Sydney REP No 30—St Marys	Not applicable.
Sydney REP No 33—Cooks Cove	Not applicable.
Sydney REP (Sydney Harbour Catchment) 2005	Consistent - The Planning Proposal does not contradict or hinder application of this REP.
Drinking Water Catchments REP No 1	Not applicable.
Greater Metropolitan REP No 2—Georges River Catchment	Not applicable.

***Q6. Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)?***

This Planning Proposal has been assessed against each Section 117 direction. Consistency with these directions is shown in the table below.

No.	Title	Comment
<b>1. Employment and Resources</b>		
1.1	Business and Industrial Zones	Not applicable
1.2	Rural Zones	Not applicable
1.3	Mining, Petroleum Production and Extractive Industries	Not applicable
1.4	Oyster Aquaculture	Not applicable
1.5	Rural Lands	Not applicable
<b>2. Environment and Heritage</b>		
2.1	Environment Protection Zones	Not applicable
2.2	Coastal Protection	Not applicable
2.3	Heritage Conservation	Consistent.  This Planning Proposal will ensure the on going protection of heritage items within the Zetland Estate Heritage Conservation Area which is adjacent to the subject site.
2.4	Recreation Vehicle Areas	Not applicable



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No.	Title	Comment
<b>3. Housing Infrastructure and Urban Development</b>		
3.1	Residential Zones	Consistent.  This Planning Proposal will facilitate the delivery of approximately 400 new dwellings on the site, increasing the amount and variety of housing in the City of Sydney LGA.
3.2	Caravan Parks and Manufactured Home Estates	Not applicable
3.3	Home Occupations	Consistent.  This Planning Proposal does not contradict or hinder application of the home occupation provisions in Sydney LEP 2012.
3.4	Integrating Land Use and Transport	Consistent.  This Planning Proposal is consistent with the aims, objectives and principles of <i>Improving Transport Choice – Guidelines for planning and development</i> (DUAP 2001), and <i>The Right Place for Business and Services – Planning Policy</i> (DUAP 2001).
3.5	Development Near Licensed Aerodromes	Not applicable
3.6	Shooting Ranges	Not applicable
<b>4. Hazard and Risk</b>		
4.1	Acid Sulfate Soils	Consistent.  This Planning Proposal does not contradict or hinder application of acid sulphate soils provisions in Sydney LEP 2012.
4.2	Mine Subsidence and Unstable Land	Not applicable
4.3	Flood Prone Land	Consistent.  This Planning Proposal does not contradict or hinder application of flood prone land provisions in Sydney LEP 2012.
4.4	Planning for Bushfire Protection	Not applicable
<b>5. Regional Planning</b>		
5.1	Implementation of Regional Strategies	Not applicable
5.2	Sydney Drinking Water Catchments	Not applicable
5.3	Farmland of State and Regional Significance on the NSW Far North Coast	Not applicable
5.4	Commercial and Retail Development along the Pacific Highway, North Coast	Not applicable
5.8	Second Sydney Airport, Badgerys Creek	Not applicable
5.9	North West Rail Link Corridor Strategy	Not applicable
<b>6. Local Plan Making</b>		
6.1	Approval and Referral Requirements	Consistent.  This Planning Proposal does not include any concurrence, consultation or referral provisions nor does it identify any development as designated development.
6.2	Reserving Land for Public Purposes	This Planning Proposal will not affect any land reserved for public purposes.
6.3	Site Specific Provisions	Consistent.  This Planning Proposal does not contradict or hinder the application of this direction.
<b>7. Metropolitan Planning</b>		

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No.	Title	Comment
7.1	Implementation of the Metropolitan Plan for Sydney 2036	Consistent.  This Planning Proposal does not contradict or hinder application of the Metropolitan Plan for Sydney 2036.

## **Section C – Environmental, social and economic impact**

### **Q7. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?**

There is a single large Moreton Bay Fig Tree (*Ficus macrophylla*) in the western boundary of the site fronting McPherson Lane. This tree is listed on the City of Sydney's Significant Tree Register and is required to be retained and protected. The master plan locates a public open space to the north of this tree to allow integration of the tree into a future public park. The master plan further allows for this tree to be retained and protected through the implementation of appropriate setbacks in accordance with advice from the City of Sydney's Urban Forest Manager. These setbacks will ensure that the future built form will not adversely impact the health and condition of the tree and will result in the tree receiving greater solar access than it does currently.

This Planning Proposal provides the opportunity for the enhancement of local biodiversity through the establishment of a new public open space, landscaped setbacks and new street trees.

In considering a future development application for the site, the consent authority must have regard to the suitability of the land for development and any environmental impact which may be generated by the development.

### **Q8. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?**

This Planning Proposal seeks to amend the height control contained in Sydney LEP 2012 for the site and in doing so allow realisation of a master plan for residential redevelopment of the site. A range of potential environmental effects were considered during the preparation of the master plan and this Planning Proposal and are discussed in detail below.

#### *Residential Amenity*

This Planning Proposal seeks to amend the height of buildings controls map in Sydney LEP 2012 from a site-wide control of 15 metres to a number of different height bands ranging from 3 metres to 42 metres. An associated proposed amendment to Sydney DCP 2012 will provide supporting controls guiding the design of built form and the public domain.

The building heights and public domain layout proposed to be reflected in these amendments was established through a detailed urban design study and master planning process undertaken by the City in collaboration with JQZ's consultant team. This detailed work is outlined and presented in the Urban Design Report at Appendix A.

The Urban Design Study tested a number of alternative public domain layouts and built form outcomes. The primary objective through this process was to ensure that built form respected the existing character of the neighbouring Zetland Estate Conservation Area dwellings to the south and west while integrating well with the taller residential character of the Emerald Park Development to the north east and provided a transition between the two. Figure 2 shows a 3D perspective image illustrating the transition in height.



Figure 2 – 3D Perspective Model (facing south east)

Detailed overshadowing analysis of the master plan was undertaken to ensure compliance with solar access and overlooking provisions of the Residential Design Flat Code and Sydney DCP 2012. Particular attention was paid to the private open spaces of dwellings on Merton Street, Elizabeth Street and the communal private open space of the Emerald Park Development.



Figure 3 – Overshadowing at 12 noon on 21 June.

Broadly, compliance with overshadowing and overlooking provisions are achieved through limiting taller built form to the centre of the site and providing for 2 and 3 storey buildings around the western and southern boundaries of the site and requiring a front setback from McPherson Lane to these buildings. Taller built form in the northern part of the site steps down in height from 12 storeys to 6 storeys where it is closest to the boundary with the Emerald Park Development. This ensures that overshadowing and overlooking is minimised and the communal open space of the neighbouring development maintains adequate solar access. Overshadowing at 12 noon on 21 June is shown in Figure 3 and a full set of overshadowing diagrams are included in the Urban Design Report at Appendix A.

This Planning Proposal will therefore facilitate delivery of a new residential development which integrates with the character and protects the amenity of existing residential areas.

Notwithstanding the detailed analysis undertaken to support this Planning Proposal, compliance with SEPP 65 will need to be demonstrated at the development application stage and this will ensure any overshadowing and overlooking is within acceptable limits.

## *Open Space*

Sydney DCP 2012 currently requires provision of a public open space on the subject site fronting McPherson Lane. The Urban Design Study undertaken by the City and JQZ's consultant team concluded that while that location provides a buffer between dwellings backing on to McPherson Lane and future higher intensity development on the subject site, that the location had a number of potential disadvantages. These include a constrained linear dimension, limited flexibility of future uses, limited legibility as a public space and a poor outlook onto McPherson Lane. The result would likely be poorly activated and utilised public space.

The Urban Design Study tested a number of alternative locations for the public space in terms of solar access, legibility as a public place, connectivity to the surrounding open space network and flexibility for future uses. The proposed new location for the public open space, illustrated in Figure 4, achieves these objectives to a much greater extent than the location currently required by Sydney DCP 2012.

The Urban Design Report at Appendix A illustrates the alternative locations which were tested and illustrates how the location proposed in the master plan delivers an optimum outcome.

This Planning Proposal will therefore facilitate delivery of a new public open space of approximately 2,700 square metres which will integrate with the surrounding open space network and serve a vital function as a community focal point and space for passive recreation for the existing and future residential communities.

## *Traffic and Transport*

Sydney DCP 2012 requires provision of a 12m wide street through the subject site connecting with McPherson Lane in the south east corner of the site and continuing through 890-898 Bourke Street to ultimately connect with Bourke Street south of the O'Dea Avenue intersection.

A detailed traffic and transport study undertaken by Varga Consultants on behalf of JQZ, at Appendix B, assessed the suitability of this proposed street network and identified alternative street network layouts which could deliver suitable access to and connectivity through the site while ensuring that impacts of any increases in traffic on the surrounding residential areas were minimised.

Based on the findings of the report and detailed work undertaken by the City, the master plan proposes an alternative street network as illustrated in Figure 4. This alternative network will provide access and street frontage to the site and two other sites in the street block and vehicular permeability through the site between Bourke Street and O'Dea Avenue. Varga's report found that the proposed connection between the new street and McPherson Lane would create unacceptable vehicular and pedestrian safety issues due to the narrow dimension of McPherson Lane. As such, the alternative street network does not connect with McPherson Lane.





Figure 4 – Proposed public domain layout

The report concludes that the proposed development will not result in significant adverse impacts on the local road network. It should be noted that this Planning Proposal will not give rise to development of a density in excess of that already permitted by Sydney LEP 2012 and as such will not result in a residential population greater than that already planned for the area. Notwithstanding this, a detailed Traffic Impact Assessment will be required at the development application stage and this will provide a detailed assessment of the anticipated impact to the local road network. More broadly, the report concludes that the site is adequately supported by existing public transport infrastructure including Green Square Train Station (400 metres away) and a number of bus services.

More broadly, since early 2000 long term planning for the Green Square Urban Renewal Area (including this site) has included a number of transport studies and management plans which examine road capacity, traffic management and transport infrastructure required to support the redevelopment of Green Square. These studies have identified that measures to improve transport must be implemented as development occurs. Some key actions which the City is pursuing include:

- Continuing advocacy by the City for improved public transport in Green Square
- Working the NSW Government and landowners to secure land to allow delivery of the future Eastern Transit Corridor which will connect the Green Square Town Centre with Central.
- Planning and designing to allow for increased and improved pedestrian and cycle connections to encourage sustainable travel behaviour and achieve better integration between transport modes
- Continuing work between the City and Transport for NSW to develop measures to improve transport in the area including improving reliability and capacity of public transport services.

## *Contamination*

As with all brownfield urban renewal, contaminated land is a potential environmental issue. The site is currently occupied by industrial and commercial uses which may have an associated risk of contamination. However, given that residential development is already permissible on the site (by way of the B4 Mixed Use zoning) the proposal does not give rise to additional implications in this regard. Detailed information relating to contamination will be required at the development application stage and will be required to address different future land uses such as use of land for public open space. Remediation of land will be required where necessary.

## *Flooding*

The City is currently developing a Flood Management Study and Plan for the wider Alexandria Canal Catchment within which the site is located. The final Flood Management Plan will inform potential future changes to the planning controls.

While the subject site is within the study area, City engineers have confirmed that it is not subject to significant flooding issues. Notwithstanding this, redevelopment of the site will be subject to flooding provisions contained in clause 7.15 of Sydney LEP 2012 which will ensure that future development will not result in adverse impacts on flood behaviour and the environment.

### ***Q9. Has the planning proposal adequately addressed any social and economic effects?***

Residential redevelopment of the site, as facilitated by this Planning Proposal will deliver a number of social and economic benefits including greater housing choice, a new public street and park and more pedestrian connections through the area which will encourage a more vibrant and activated public domain generally. Furthermore, the development will help to contain residential growth across Sydney within existing urban areas in close proximity to existing infrastructure and thus reduce the pressure on surrounding commercial land to incorporate residential uses.

## **Section D – State and Commonwealth interests**

### **Q10. Is there adequate public infrastructure for the planning proposal?**

The site is ~~very well serviced by public transport infrastructure being within~~ 400 metres ~~of from~~ the Green Square Train Station which has direct services to Central Sydney and Sydney Airport and 10 bus routes which travel to a variety of destinations. The traffic and transport report prepared by Varga Consultants, at Appendix B, provides a high level assessment of the site access and street network as well as public transport, walking and cycling opportunities.

New public social infrastructure will be provided within walking and cycling distance of the site including Mary O'Brien Park, a new Aquatic Centre and park in the Epsom Park Precinct to the south east, community facilities and a childcare centre at the former South Sydney Hospital Site and a new library and other civic and community facilities in the Green Square Town Centre. Some of this infrastructure is being delivered through private development of sites while some is being delivered by the City.

The full range of utility services including electricity, telecommunications, water, sewer and stormwater are all currently available on the site. It is expected that these services would be upgraded where required by the developer.

### **Q11. What are the views of state and Commonwealth public authorities consulted in accordance with the Gateway determination?**

~~The Gateway Determination will advise the full list of public authorities to be consulted as part of the Planning Proposal process and any views expressed will be included in this Planning Proposal following consultation.~~

The Gateway Determination required consultation to be undertaken with Transport for NSW, Roads and Maritime Services, the Office of Environment and Heritage, Sydney Water and Sydney Airport.

Transport for NSW, Roads and Maritime Services, Sydney Water and Sydney Airport all made submissions. These submissions raised some matters for consideration at the Development Application stage but did not raise any objections to the Planning Proposal.

Clause 7.16 of Sydney LEP 2012 sets out requirements for consultation with the relevant Commonwealth body where proposed development penetrates the Limitation or Operations Surface for Sydney Airport. The Sydney Airport Obstacle Limitation Surface for the site is 51m AHD. This Planning Proposal seeks to allow development up to approximately RL 63 on the site. As such, consultation with the relevant Commonwealth body will be required under Clause 7.16 as part of the development assessment process. In their submission to the Planning Proposal, Sydney Airport confirmed that any building taller than 51m AHD on the site will need to be referred to the Federal Department of Infrastructure and Regional Development for a determination and that any structures of 45.72m above existing ground height will require prior approval by the Civil Aviation Authority. Furthermore, Sydney Airport advised that approval to operate construction equipment such as cranes should be obtained before any commitment to construct.



## PART 4 - MAPPING

This Planning Proposal seeks to amend the height in metres and floor space ratio maps contained in *Sydney Local Environmental Plan 2012* as they apply to the subject site in accordance with map extracts on the following pages.

**NB.** The site is split between map sheet 17 and 18. For clarity, the below maps have been produced to show the site as a whole and do not reflect the exact boundaries of sheets 17 and 18.

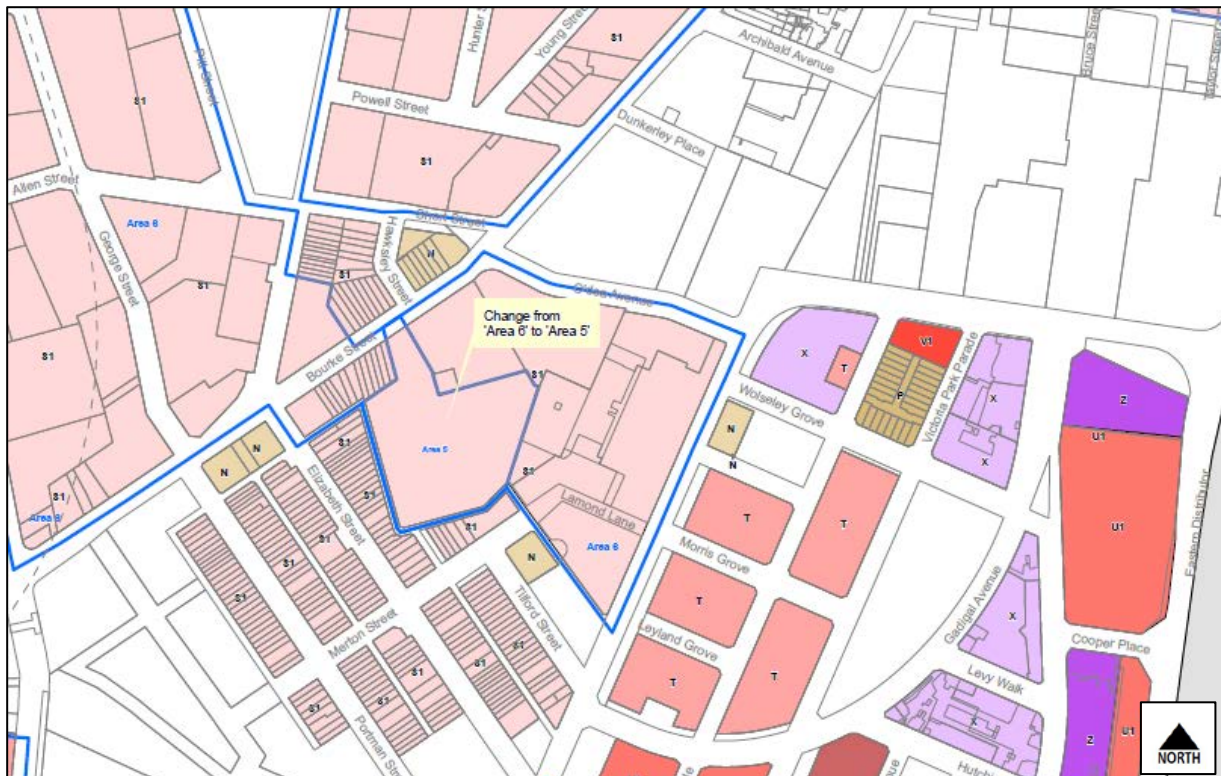
# ATTACHMENT A

## Floor Space Ratio Map: Sheet FSR\_017 and Sheet FSR\_018

As current:



As proposed:



# ATTACHMENT A

## Height Map: Sheet HOB\_017 and Sheet HOB\_018

As current:



As proposed:





## PART 5 – COMMUNITY CONSULTATION

~~Public consultation will be undertaken in accordance with the requirements of the Gateway Determination.~~

~~It is proposed that, at a minimum, this will involve the notification of the public exhibition of the Planning Proposal:~~

- ~~4. on the City of Sydney website;~~
- ~~5. in the Sydney Morning Herald and/or a relevant local newspaper; and~~
- ~~6. in writing to the owners and occupiers of adjoining and nearby properties and relevant community groups.~~

~~It is expected that the Planning Proposal will be publicly exhibited for a period of not less than 28 days in accordance with section 5.5.2 of 'A guide to preparing local environmental plans'.~~

~~It is proposed that exhibition material will be made available on the City of Sydney Website and at the following Council locations:~~

- ~~• Town Hall House, 456 Kent Street, Sydney~~
- ~~• Green Square, 100 Joynton Avenue, Zetland~~

~~Consultation with relevant NSW agencies and authorities and other relevant organisations will be undertaken in accordance with the Gateway Determination.~~

The Planning Proposal and draft DCP amendment were publicly exhibited from 17 February 2015 to 16 March 2015. The City sent approximately 750 letters to local landowners and residents to notify them of the public exhibition. The exhibition was also advertised in the Southern Courier, the Central Sydney magazine, the Sydney Morning Herald, and through the City's website and the Green Square Community and Sydney Your Say e-newsletters.

Exhibition material was made available for viewing at the One Stop Shop, the Green Square Neighbourhood Service Centre and on the Sydney Your Say website.

A copy of the Planning Proposal and associated documentation was sent to relevant public authorities in accordance with the Gateway Determination.

A total of 14 submissions were received in response to the public exhibition. Four of these submissions were from public authorities and these are discussed in Section D of this Planning Proposal. A submission was received from Urbis on behalf of the owner of 904 Bourke Street, JQZ. The remaining nine submissions were made by local residents. A summary of the issues raised in these submissions and the City's response to each is summarised in the table at Appendix C. No significant changes to the Planning Proposal have arisen from these submissions.

## PART 6 – PROJECT TIMELINE

The following project timeline will assist with tracking the progress of the planning proposal through its various stages of consultation and approval. It is estimated that this amendment to *Sydney Local Environmental Plan 2012* will be completed by ~~November~~ August 2015.

Stage	Timeframe
Submit Planning Proposal to Department of Planning and Environment seeking a Gateway Determination	December 2014
Receive Gateway Determination	February 2015
Public exhibition and public authority consultation of Planning Proposal and DCP Amendment	<u>February to</u> March 2015
Review of submissions received during public exhibition and public authority consultation	<del>April to June</del> <u>March to April</u> 2015
Council and Central Sydney Planning Committee approval of Planning Proposal and DCP Amendment	<del>July</del> <u>May</u> 2015
Drafting of instrument and finalisation of mapping	<del>August to October</del> <u>June to July</u> 2015
Amendment to <i>Sydney Local Environmental Plan 2012</i> legally drafted and made	<del>November</del> <u>August</u> 2015

# ATTACHMENT A

## **APPENDIX A – URBAN DESIGN STUDY PREPARED BY CITY OF SYDNEY**

See Attachment G of the Officers report to Council/the Central Sydney Planning Committee.

# ATTACHMENT A

# ATTACHMENT A

## APPENDIX B – TRAFFIC AND TRANSPORT STUDY PREPARED BY VARGA



# ATTACHMENT A

Planning Proposal for a  
Proposed Residential Development

**904 Bourke Street, Zetland**

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**TRAFFIC AND PARKING ASSESSMENT REPORT**

13 October 2014

Ref 14306

**VARGA TRAFFIC PLANNING** Pty Ltd  
**Transport, Traffic and Parking Consultants** 

Suite 6, 20 Young Street, Neutral Bay NSW 2089 - PO Box 1868, Neutral Bay NSW 2089  
Ph: 9904 3224 Fax: 9904 3228

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<b>Figure 2</b>	Site
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<b>Figure 6</b>	Existing Traffic Controls
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<b>Figure 7b</b>	Projected Additional Traffic Volumes
<b>Figure 8</b>	Parking Restrictions

## 1. INTRODUCTION

This report has been prepared to accompany a Planning Proposal to the City of Sydney Council for a residential development proposal to be located at 904 Bourke Street, Zetland (Figures 1 and 2).

The Planning Proposal envisages the demolition of the existing industrial buildings on the site to facilitate the construction of a new residential apartment development comprising five buildings over two basement car parking areas and dedicated open space. Redevelopment of the site is subject to a future Development Application.

The Planning Proposal also involves the staged construction of a new internal public roadway which ultimately seeks to connect the existing site access driveway located in Bourke Street, through to O'Dea Avenue. In the short term however (i.e. until neighbouring sites are redeveloped), all vehicular access is to be provided via the existing driveway located in Bourke Street.

The purpose of this report is to assess the traffic and parking implications of the Planning Proposal and to that end this report:

- describes the site and provides details of the Planning Proposal
- reviews the public transport services available within close proximity to the site
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network
- estimates the traffic generation potential of the Planning Proposal, and assigns that traffic generation to the road network serving the site
- assesses the traffic implications of the Planning Proposal in terms of road network capacity

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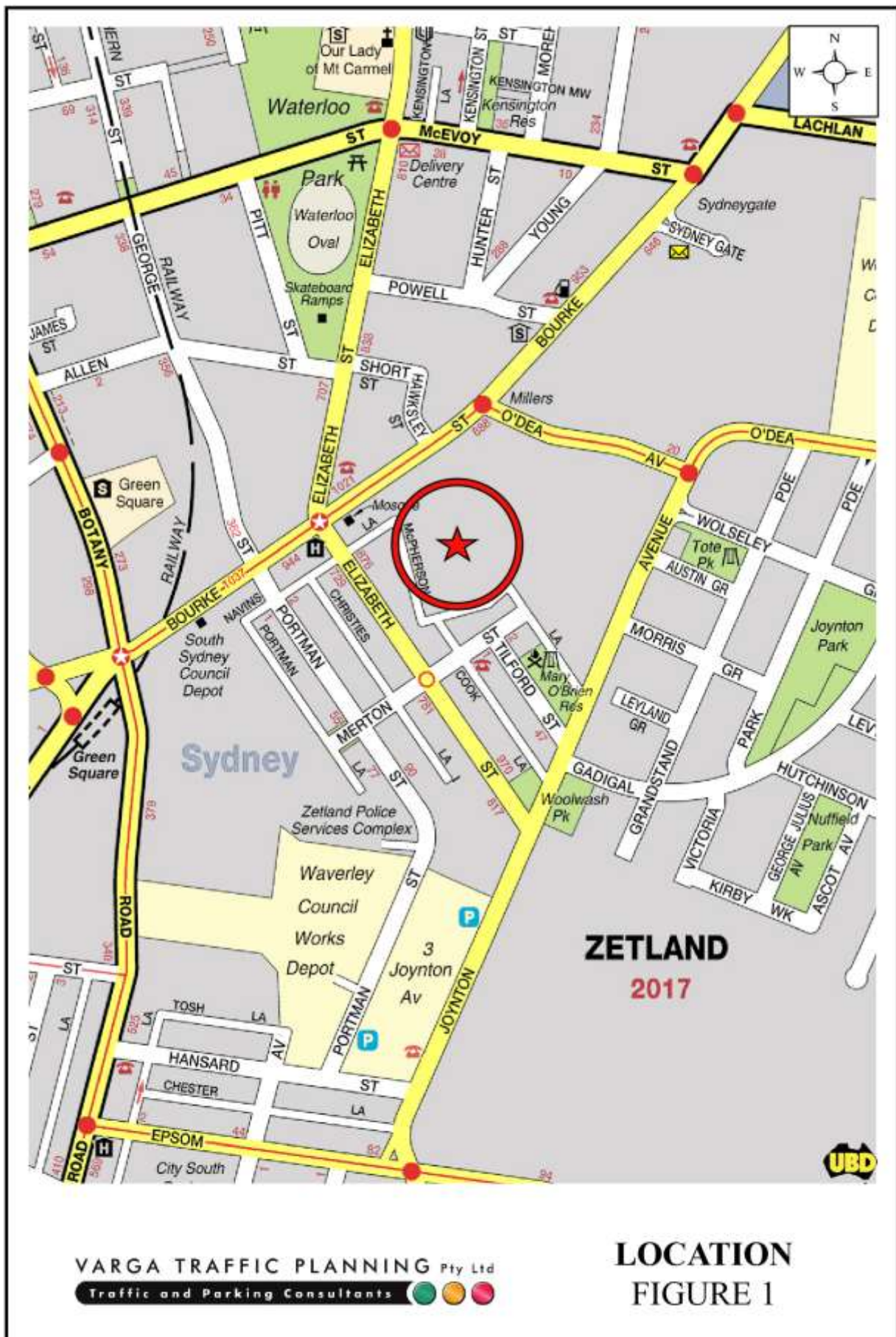
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- assesses the adequacy and suitability of the quantum of off-street car parking proposed on the site.

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## **2. PROPOSED DEVELOPMENT**

### **Site**

The subject site is located on the eastern side of Bourke Street, in between Elizabeth Street and O'Dea Avenue, and extends through to McPherson Lane. The site has a street frontage approximately 20m in length to Bourke Street, approximately 210m in length to McPherson Lane and occupies an area of approximately 1.46ha.

The subject site is currently occupied by two large one/two-storey precast concrete industrial buildings with ancillary office space. The cumulative floor area of the existing industrial development is approximately 9,269m<sup>2</sup>.

Off-street parking is provided for the existing industrial unit complex at numerous outdoor locations throughout the site. Vehicular access to the car parking facilities is provided via a large entry/exit driveway located in Bourke Street designed to accommodate heavy vehicle truck traffic, including semi-trailers.

Loading/servicing for the existing industrial development is currently undertaken by a variety of commercial vehicles up to and including articulated semi-trailers. Vehicular access to the existing loading areas is also provided via the abovementioned site access driveway located in Bourke Street.

The subject site includes an easement which benefits a free-standing Sydney Water building adjacent to the site. All vehicular access to the Sydney Water building is currently provided via the abovementioned heavy vehicle entry/exit driveway located in Bourke Street.

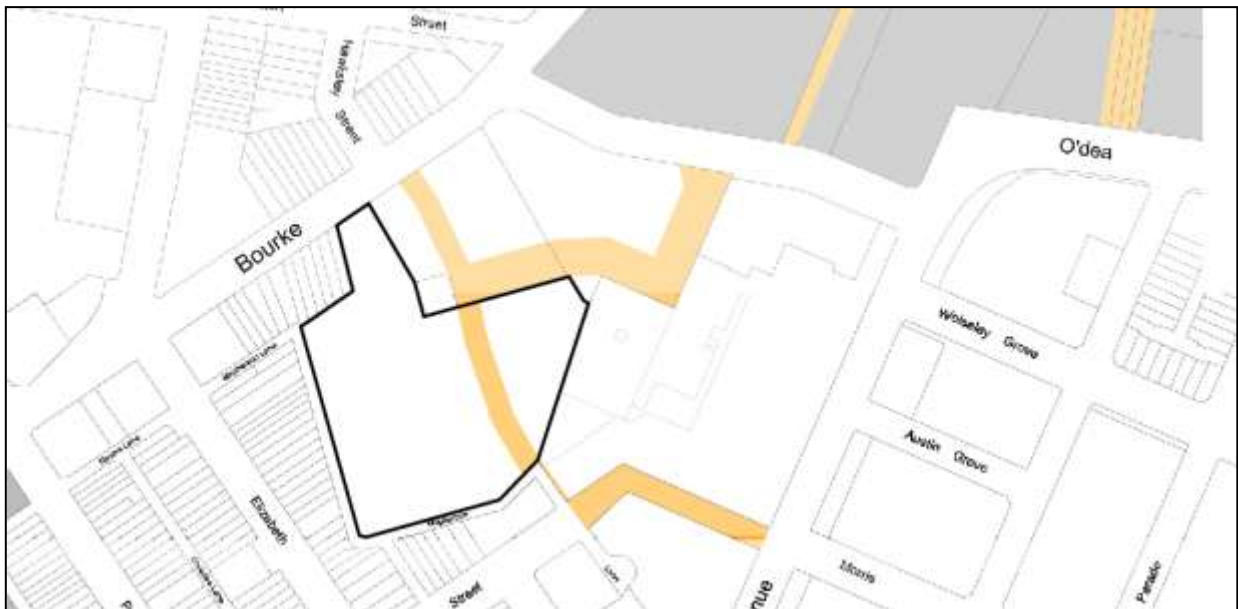
### **Green Square**

The site lies within the Green Square Urban Renewal Area, an area which is strategically located between the City, Sydney Airport and Port Botany, and offers opportunities for large scale regeneration of former industrial land.

In order to accommodate the needs of the additional dwellings and the employment targets set by the NSW Government, substantial new infrastructure is needed, including public streets, pedestrian and bike links, parks and community facilities.

## Assessment of Existing DCP 2012 Provision

The proposed new public roads are detailed in Council's *Development Control Plan 2012* and include a new road connecting Bourke Street to McPherson Lane (in the vicinity of the Merton Street and Lamond Lane intersection) as well as a new road connecting to O'Dea Avenue, as shown on the DCP extract below.



Source: City of Sydney Council DCP 2012

## Potential Alternatives

Since the release of *DCP 2012*, the suitability of the proposed road network as outlined in the *DCP 2012* has been reviewed. Consideration has been given to the suitability of the proposed road network outlined within the *DCP 2012*, as well as an assessment of potential alternatives. These alternatives have considered maintaining a road through to Bourke Street from McPherson Lane however at different alignments to provide a consolidated entrance at either Bourke Street or O'Dea Avenue, and providing a new road directly from Bourke Street to O'Dea Avenue with and without a potential pedestrian and/or bicycle link to McPherson Lane.



Whilst parts of the proposed road network in the vicinity of the site are considered to be appropriate in principle, such as the new road connecting to O'Dea Avenue, other parts are not considered appropriate, such as the new road connecting Bourke Street through the site to McPherson Lane.

As discussed below, the proposal involves maintaining vehicular access to the site via the existing two-way driveway located in Bourke Street. It is therefore considered that the proximity of the existing/proposed site access driveway to the proposed new road intersection (a distance of approximately 40m) is not suitable, nor is the proposed new road intersection's proximity to the O'Dea Avenue intersection (a distance of approximately 60m). Consolidation of the access points is therefore a more desirable outcome, particularly given the Hawksley Street intersection which is located between the two access points on the opposite side of Bourke Street.

A consolidated access point in Bourke Street is also a more desirable outcome for pedestrian and cyclist amenity as it reduces the potential for conflicts with vehicles as they pull into/out of the side street/access point.

A more suitable arrangement would be a new consolidated access point in Bourke Street located in approximately the same position as the existing site access driveway – i.e. just west of Hawksley Street and approximately midway between Elizabeth Street and O'Dea Avenue.

As discussed above, the *DCP*'s proposed connection to O'Dea Avenue is considered to be appropriate in principle and should be maintained as it distributes the traffic effectively. As such it is proposed to maintain the O'Dea Avenue vehicular access point, albeit slightly shifted to the west, closer to the Bourke Street intersection.

The proposed road network detailed in *DCP 2012* also makes provision for a new road through the site which connects to McPherson Lane. The road width of McPherson Lane is approximately 4.4m, and given kerbside parking is currently permitted along one side of the laneway, utilising this as a site access point, albeit a secondary one, is not considered suitable.

Whilst an access point to McPherson Lane is still considered an attractive outcome, the potential exists for the link to be dedicated to pedestrians and perhaps local cyclists. However, given the significant difference in levels between the rear of the site and McPherson Lane (which would be connected via stairs), cyclists would need to dismount and walk up/down the stairs with their bicycles. This arrangement doesn't necessarily restrict the link to pedestrians only (cyclists walk their bicycle up/down stairs at locations all over the City), however formally adding the link to the City's cycle network would be undesirable, noting the existing extensive cycle network in the vicinity of the site which is detailed in Chapter 3 of this report.

A plan of this arrangement has been reproduced on page 12 of this report.

## Indicative Masterplan

The indicative Masterplan, attached to the Planning Proposal, envisages the demolition of the existing industrial buildings on the site to facilitate the construction of a new residential apartment development comprising a number of buildings that range in height from three storeys to twelve storeys. Redevelopment is subject to a future development application.

The indicative Masterplan has identified a potential dwelling density in the order of 385 residential apartments based upon a 2.0:1 FSR or 410 units based upon a 2.2:1 FSR (which takes into consideration a 10% bonus for design competitions). The estimated bedroom mix is as follows:

	%	2.0:1 FSR	2.2:1 FSR
1 bedroom apartments:	40%	154 dwellings	164 dwellings
2 bedroom apartments:	50%	193 dwellings	205 dwellings
3 bedroom apartments:	10%	38 dwellings	40 dwellings
<b>TOTAL APARTMENTS:</b>	<b>100%</b>	<b>385 dwellings</b>	<b>410 dwellings</b>

It is envisaged that off-street parking will be provided for between 280 cars (based on a 2.0:1 FSR) and 300 cars (based on a 2.2:1 FSR). Off-street car parking will likely be provided in a two-level basement car parking area, including one basement level. Vehicular access to the car parking area is likely to be provided via a two-way driveway located on the southern side of the new internal public roadway, just east of the site through-link.

In the short term (i.e. prior to the redevelopment of the adjacent sites), it is envisaged that the new road will extend from the existing site access driveway in Bourke Street, wrapping around the western side of the Sydney Water building, and extending east to the site boundary. During this period, all vehicular access will be via Bourke Street only.

In the long term (i.e. once the redevelopment of the adjacent sites are complete), it is envisaged that the new road will be extended north to O'Dea Avenue. The adjacent sites are also expected to have their site access driveways connecting to the new internal public road. This is considered to be appropriate as vehicular access directly onto Bourke Street and/or O'Dea Avenue would likely not be supported by Council.

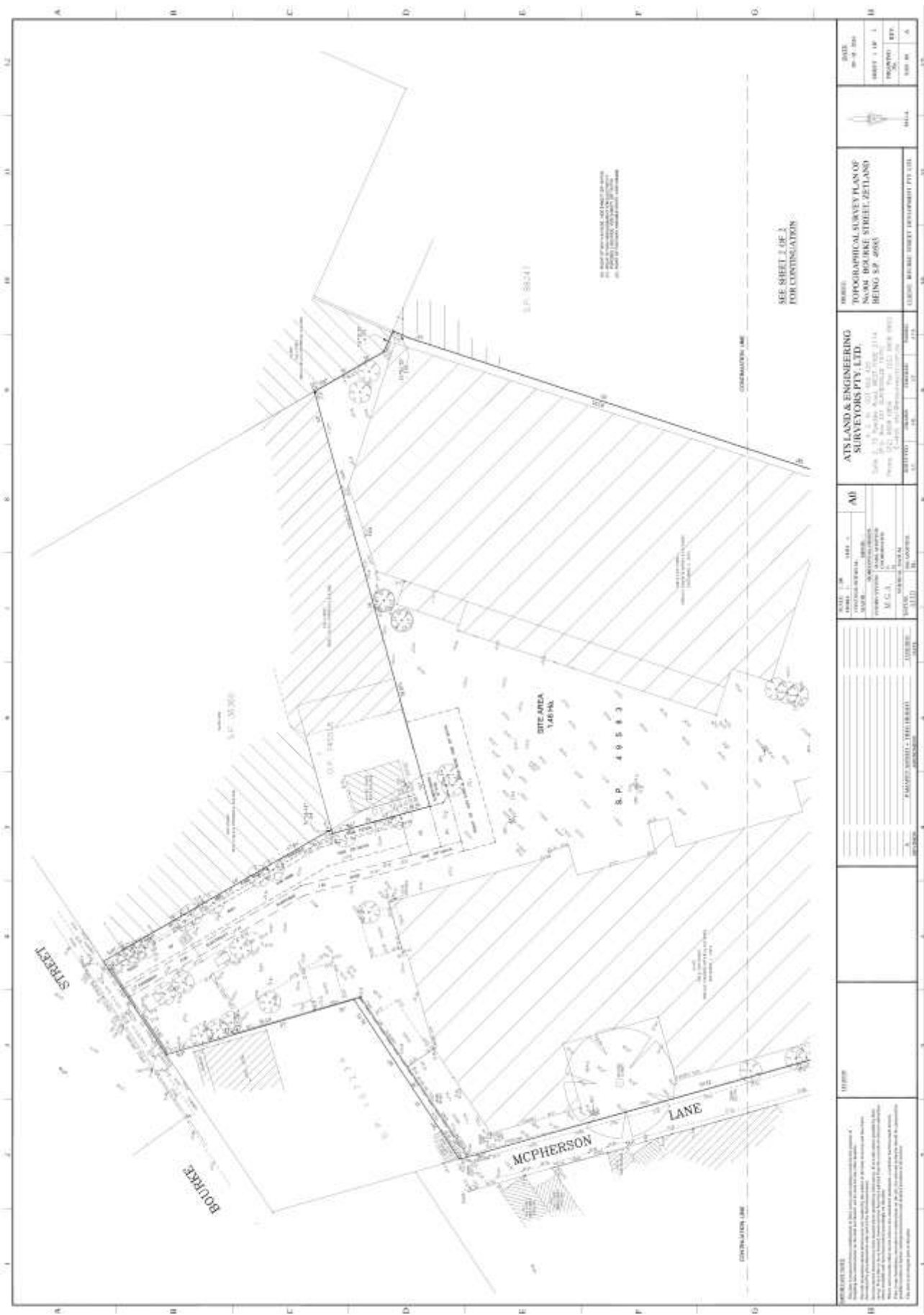
As discussed above, it is pertinent to note that given the geometry of McPherson Lane and the site's proximity to neighbouring residential terraces, it is not considered achievable or appropriate to provide vehicular access directly into the site or the basement car parking area from McPherson Lane.

Loading/servicing for the proposed development is expected to be undertaken by a variety of commercial vehicles up to and including Council's 9.2m long rigid garbage truck. All loading, for both garbage collection and removalists, will be undertaken wholly within the site. The new internal public roadway and on-site manoeuvring areas will ultimately be designed to accommodate the swept turning path requirements of these trucks, allowing them to enter and exit the site in a forward direction at all times.

Existing detailed survey plans have been prepared by *ATS Land & Engineering Surveyors Pty Ltd* as well as plans illustrating the indicative Masterplan and new internal public road, attached to the Planning Proposal, are reproduced in the following pages.

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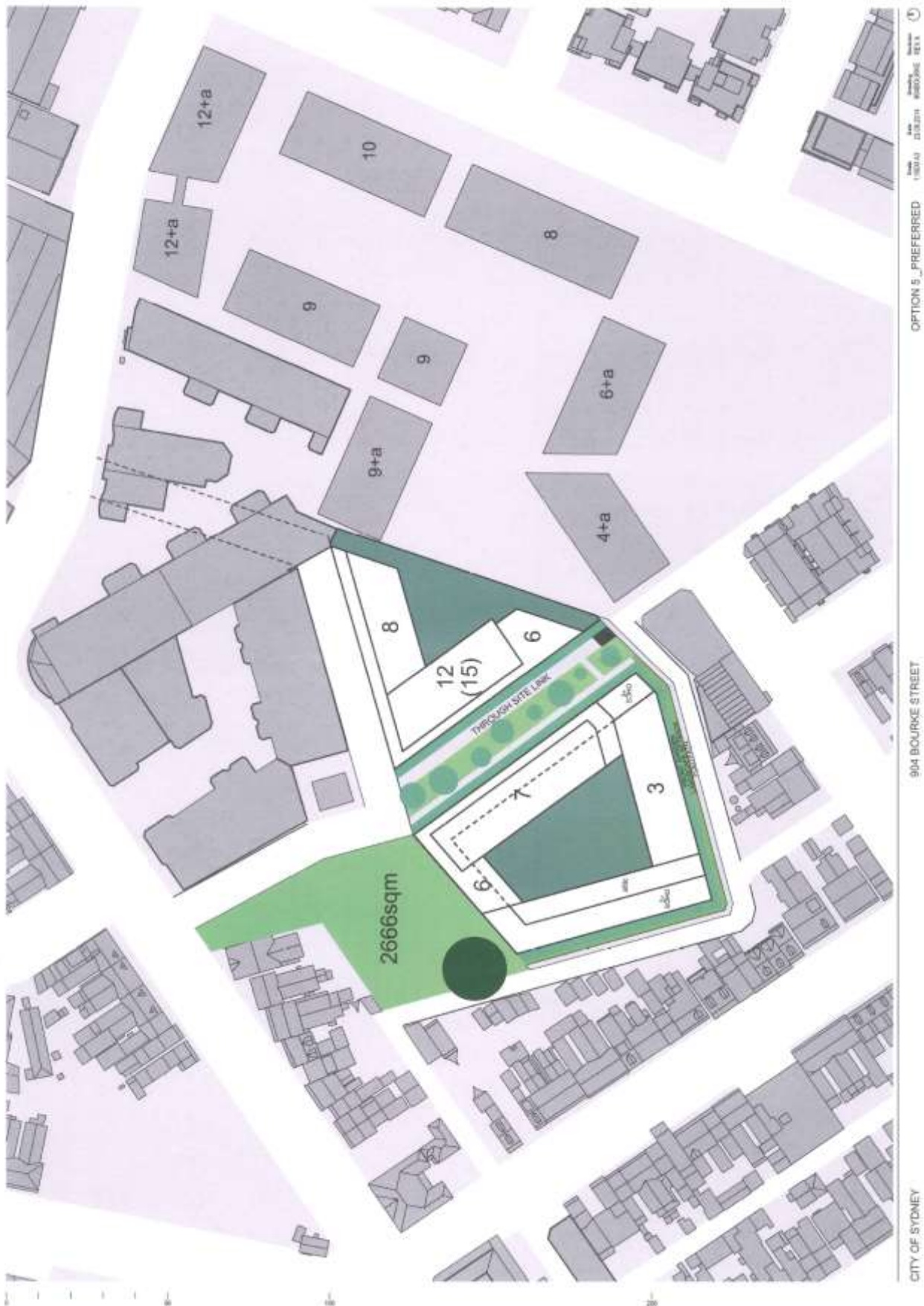


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### 3. TRANSPORT AND ACCESSIBILITY

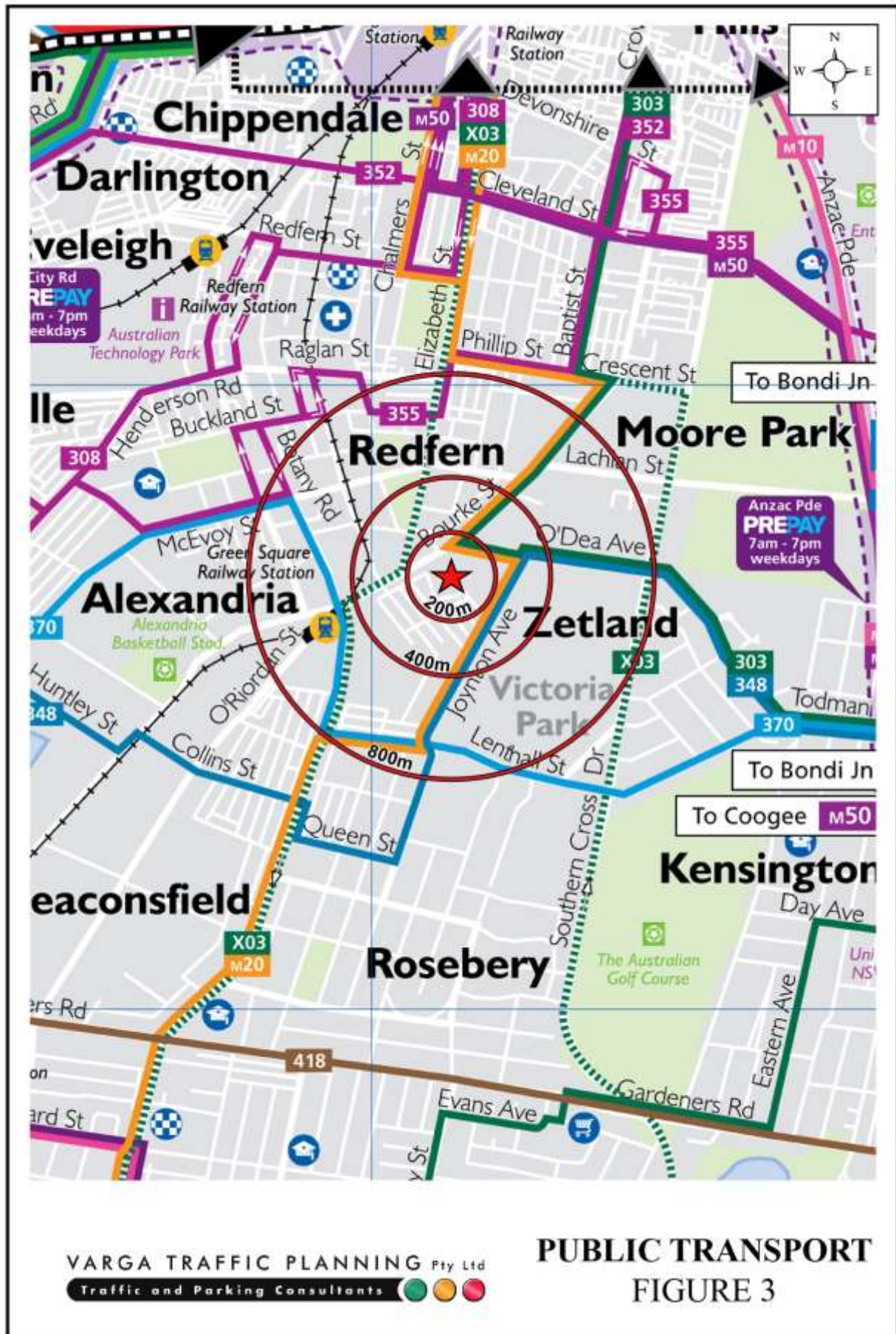
#### Bus Services

The existing public transport bus services available to the site are illustrated on Figure 3. There are currently approximately 10 bus routes travelling within approximately 400m walking distance of the main site access driveway in Bourke Street or the secondary site access in McPherson Lane, including the high-frequency intra-regional *Metrobus M20*. The *M20* service operates between Gore Hill and Botany which operates seven days per week with weekday services every 15 minutes (every 10 minutes during the morning and afternoon peak) and weekend services every 20 minutes. An additional 4 bus routes are also available within approximately 800m walking distance from the site.

There are more than 510 bus services available in the vicinity of the site on weekdays, decreasing to approximately 280 bus services per day on Saturdays and approximately 240 bus services on Sunday and public holidays, as set out below:

Bus Routes and Frequencies							
Route No.	Route	Weekdays		Saturday		Sunday	
		IN	OUT	IN	OUT	IN	OUT
301	Eastgardens to Circular Quay	48	47	28	29	24	25
302	Eastgardens to Circular Quay	8	7	10	10	8	10
303/X03	Sans Souci to Circular Quay	45	48	21	20	17	17
309/X09/L09	Port Botany to Circular Quay	79	83	43	46	30	29
310/X10	Eastgardens to Circular Quay	53	58	37	37	26	26
343	Kingsford to City	109	109	54	49	47	49
345	Rosebery to Central Station	1	1	-	-	-	-
348	Wolli Creek to Bondi Junct	25	24	-	-	-	-
355	Marrickville to Bondi Junct	27	26	20	21	20	21
370	Coogee to Leichhardt	59	63	31	28	31	28
M20	Gore Hill to Botany	~63	~63	~36	~36	~36	~36
<b>TOTAL</b>		<b>517</b>	<b>529</b>	<b>280</b>	<b>276</b>	<b>239</b>	<b>238</b>





## **Suburban Rail Services**

Green Square Railway Station is located on the corner of O’Riordan Street and Botany Road and is approximately 400m walking distance west of the main site access driveway in Bourke Street. Green Square Railway Station is situated on the Airport, Inner West and South Lines and is located one stop south of Central Railway Station.

## **Bicycle Network**

The site is conveniently located in close proximity to a number of cycle routes. The Bourke Street cycle path is located approximately 1km to the north of the site (approximately 3 minutes cycle time). It comprises a dedicated cycle path separated from the main roadway, providing a safe and convenient cycling environment into and out of the City.

A map of the nearby cycle routes is provided on Figure 4.

The completed development will ultimately provide individual lock-up storage cages within the basement car parking areas for every apartment, which are capable of storing a bicycle. Additional publicly accessible bicycle parking spaces will also be provided on the ground floor level for visitors in a convenient location.

## **Travel Plan**

Council’s *Development Control Plan 2012* requires that a Travel Plan must be prepared for all new residential developments over a certain size. A Travel Plan is a package of actions designed to encourage safe, healthy and sustainable travel options. The objectives of a Travel Plan are to remove barriers to active travel for all users of developments, and to maximise the number of people who walk, cycle or take public transport to and from the development.

In this instance, it is clear that the site is ideally located to facilitate reduced private car usage and to encourage alternate forms of transport such as walking, cycling and public transport.

A key feature of the Travel Plan will be a *Transport Access Guide* plan detailing the location of all public transport services as well as key facilities such as shops, banks, post office etc.



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which are located within walking distance of the site. In this regard it is noted that the site is located within the Green Square Urban Renewal Area and in close proximity to a number of currently-under-construction and future mixed-use areas including Green Square Town Centre and Waterloo, which will ultimately offer a wide variety of shops and services and are readily accessible by walking for the prospective future residents of the site.

A Travel Plan will be prepared at DA stage setting out the goals and incentives for achieving sustainable travel behaviour. The Travel Plan will also recommend the establishment of a Travel Plan coordinator to be nominated by the Owners Corporation who will have responsibility for the ongoing monitoring and development of the Travel Plan. Key tasks of the Travel Plan coordinator will include:

- undertake regular surveys to identify the travel modes of building occupants
- maintain an update of the information provided in the Transport Access Guide, and
- set new travel mode targets on an ongoing basis in consultation with the Owners Corporation.

## 4. TRAFFIC ASSESSMENT

### Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services is illustrated on Figure 5.

Botany Road is classified by the RMS as a *State Road* and provides the key north-south road link in the area, linking Port Botany to Waterloo. It typically carries two traffic lanes in each direction in the vicinity of the site with turning bays provided at key locations. Kerbside parking is generally permitted on both sides of the road outside of commuter peak periods.

McEvoy Street / Lachlan Street are also classified by the RMS as *State Roads* which provide the key east-west road link in the area, linking Euston Road to Dacey Avenue and South Dowling Street. They typically carry one traffic lane in each direction in the vicinity of the site with additional traffic lanes provided during respective morning and afternoon commuter peak periods.

Bourke Street is classified by the RMS as a *Regional Road* which provides another key north-south road link in the area, linking Mascot to Woolloomooloo. It typically carries one traffic lane in each direction in the vicinity of the site, with an additional traffic lane provided during respective morning and afternoon commuter peak periods. Kerbside parking is generally permitted on both sides of the road outside of commuter peak periods.

McPherson Lane is a local, unclassified laneway which is primarily used to provide rear vehicular and pedestrian access to properties fronting Elizabeth Street, Merton Street and also Tilford Street. Kerbside parking is permitted at selected locations only.

### Existing Traffic Controls

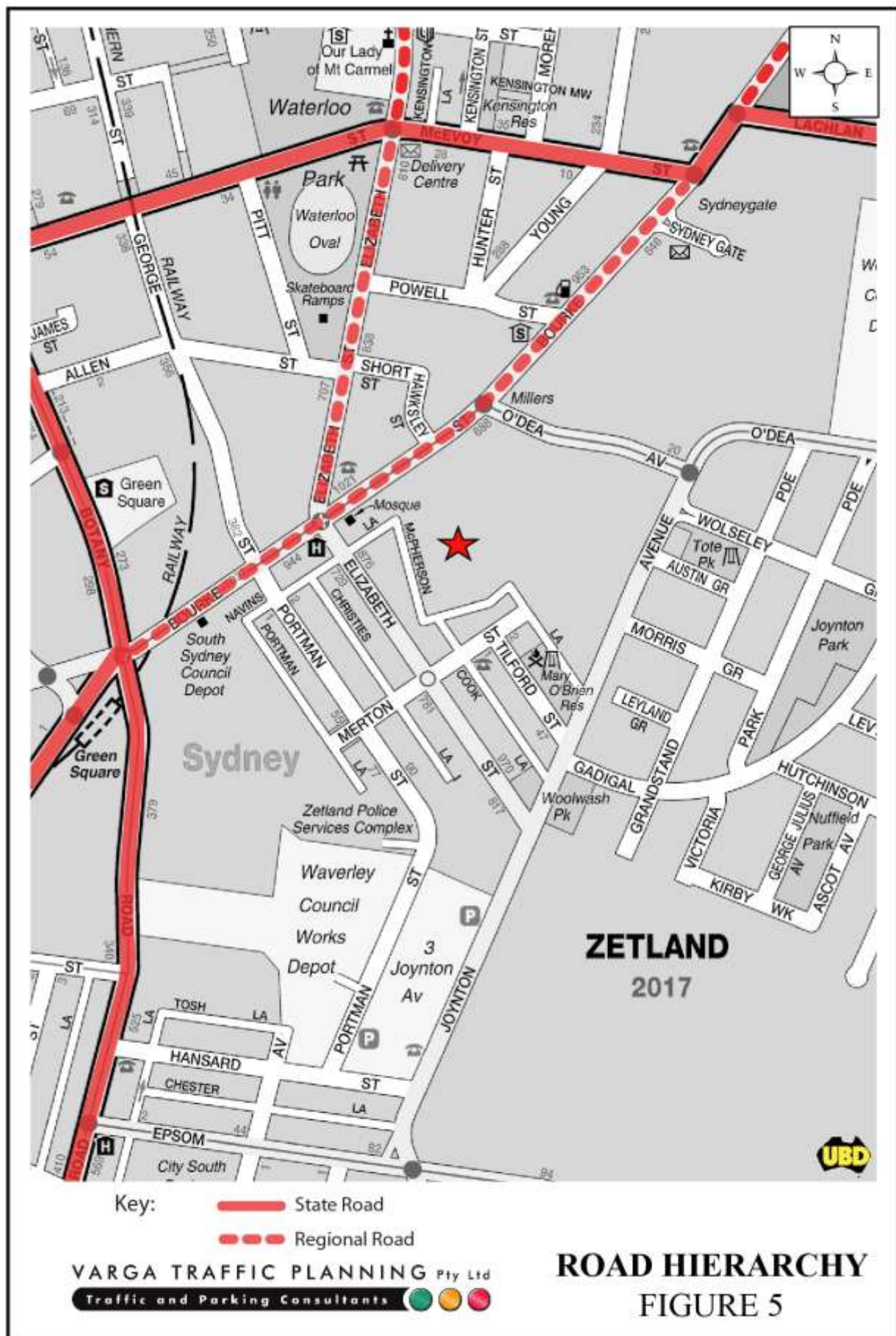
The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 6. Key features of those traffic controls are:

- a 60 km/h SPEED LIMIT which applies to Bourke Street



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- a 50 km/h SPEED LIMIT which applies to O'Dea Avenue and also Joynton Avenue
- a 40 km/h SPEED LIMIT which applies to Elizabeth Street and also Portman Street
- TRAFFIC SIGNALS in Bourke Street where it intersects with Portman Street, Elizabeth Street and also O'Dea Avenue
- NO RIGHT-TURN southbound restrictions in Bourke Street turning onto Elizabeth Street and also George Street
- NO RIGHT-TURN northbound restrictions in Elizabeth Street turning onto Bourke Street.

## Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by reference to the RMS's most recently available *Annual Average Daily Traffic* data. The relevant count station nearest to the subject site is summarised below.

### Roads & Maritime Services of NSW Annual Average Daily Traffic Volumes

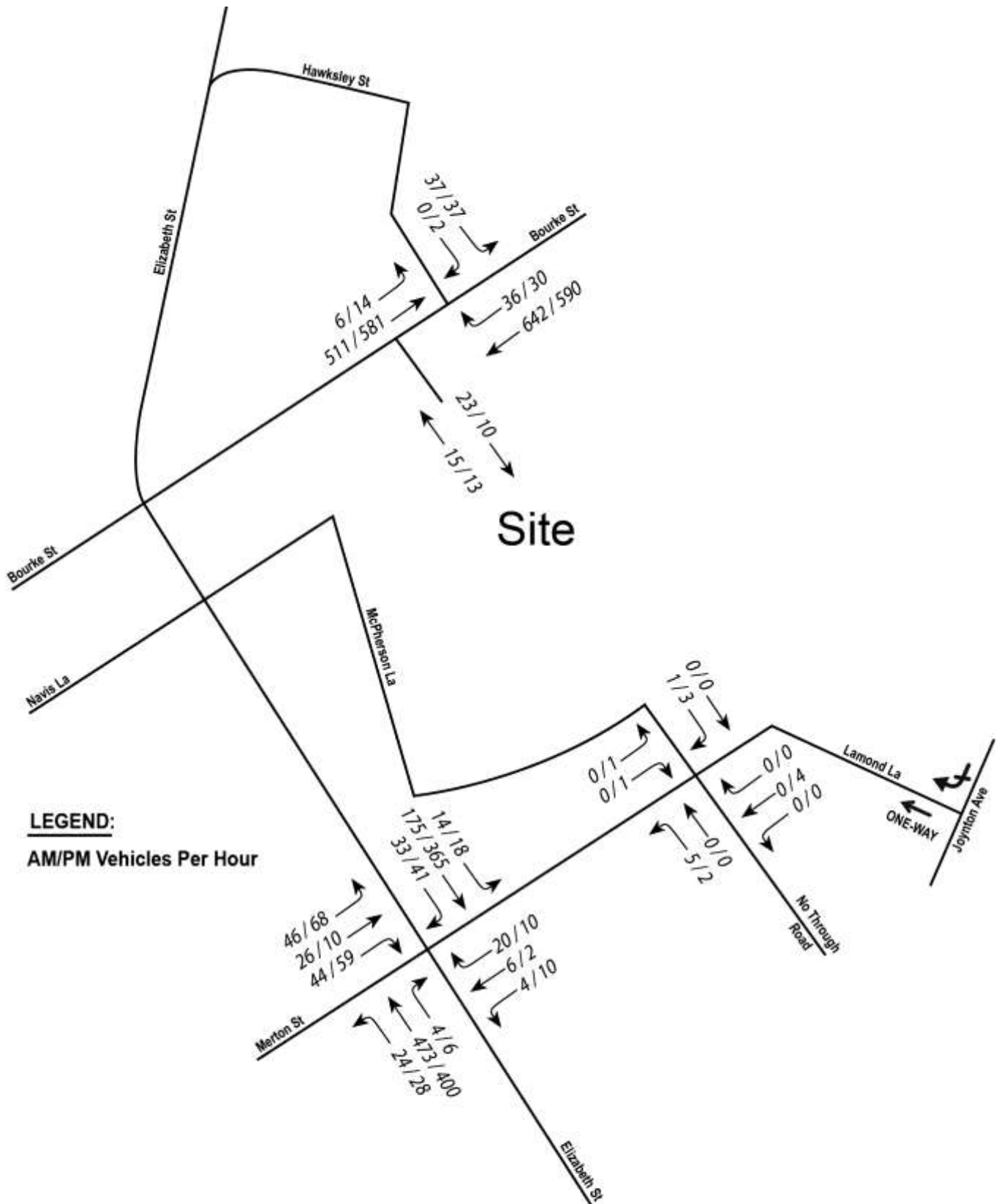
Station No.	Location	1996	1999	2002	2005
00.230	Bourke Street & Elizabeth Street (TCS)	31,418	37,286	27,301	27,883

A more detailed indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys undertaken as part of this Planning Proposal. The traffic surveys were undertaken at the Bourke Street/Hawksley Street intersection, the Elizabeth Street/Merton Street intersection and also the Merton Street/McPherson Lane intersection. The results of the traffic surveys are reproduced in full in Appendix A and summarised on Figure 7a, revealing that:

- two-way traffic flows in Bourke Street past the site frontage are typically in the order of 1,200 vehicles per hour (vph) during peak periods

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**EXISTING TRAFFIC VOLUMES**  
**FIGURE 7a**

- two-way traffic flows in Hawksley Street are significantly lower, typically in the order of 80 vph during peak periods
- two-way traffic flows in Elizabeth Street are typically in the order of 800 vph during peak periods
- two-way traffic flows in Merton Street, west of Elizabeth Street are typically in the order of 200 vph during peak periods
- two-way traffic flows in Merton Street, east of Elizabeth Street are typically in the order of 70 vph during peak periods
- two-way traffic flows in McPherson Lane and Lamond Lane are typically in the order of *less than* 10 vph during peak periods.

The traffic surveys were also used to identify the level of traffic activity generated by the existing industrial unit complex on the site. Those surveys revealed that the site currently generated in the order of 38 vehicles per hour during the AM peak period and approximately 23 vehicles per hour during the PM peak period.

## **Projected Traffic Generation**

Council have indicated that their preferred traffic generation rate for high density residential developments is *0.19 peak hour vehicle trips per dwelling*, which is detailed in the Roads and Maritime Service's *Technical Direction TDT 2013/04a*.

Application of the above traffic generation rate to the expected yield of 385 dwellings (based on 2.0:1 FSR) as outlined in the Planning Proposal yields a traffic generation potential of 73 peak hour vehicle trips.

That projected future traffic generation potential should however, be offset or *discounted* by the traffic generation potential and the existing uses of the site, in order to determine the *net increase (or decrease)* in traffic generation potential expected to occur as a consequence of the development proposal.

Reference is also made to the Roads and Maritime Services publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)* which states a traffic generation rate for industrial developments of *1.0 peak hour vehicle trip per 100m<sup>2</sup>*.

Application of the “industrial” traffic generation rate nominated in the RMS *Guidelines* to the existing industrial buildings on the site (9,269m<sup>2</sup>) yields a traffic generation potential of approximately 93 peak hour vehicle trips.

Accordingly, it is likely that the proposed development will result in a *nett reduction* in the traffic generation “potential” the site, as set out in the table below:

**Projected Nett Decrease in Peak Hour Traffic Generation Potential of the Site  
as a consequence of the development proposal**

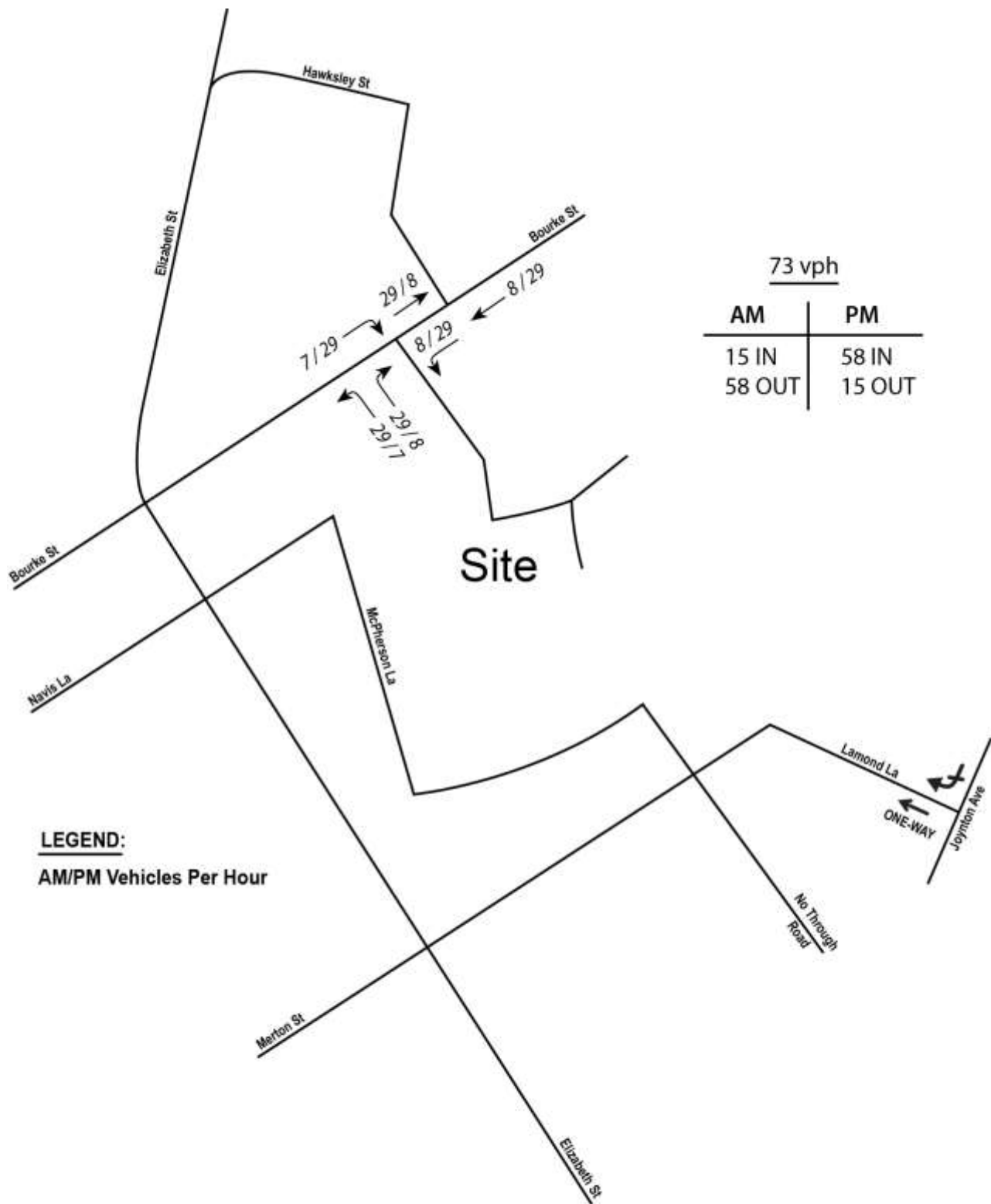
Projected Future Traffic Generation Potential:	73 vehicles per hour
Less Existing Traffic Generation Potential:	-93 vehicles per hour
<b>NETT DECREASE IN TRAFFIC GENERATION POTENTIAL:</b>	<b>-20 vehicles per hour</b>

Notwithstanding, it is noted that the site is *underutilised* at present, and currently generates 38 vph during the AM peak period and 23 vph during the PM peak period such that the practical increase in peak hour traffic flows is more.

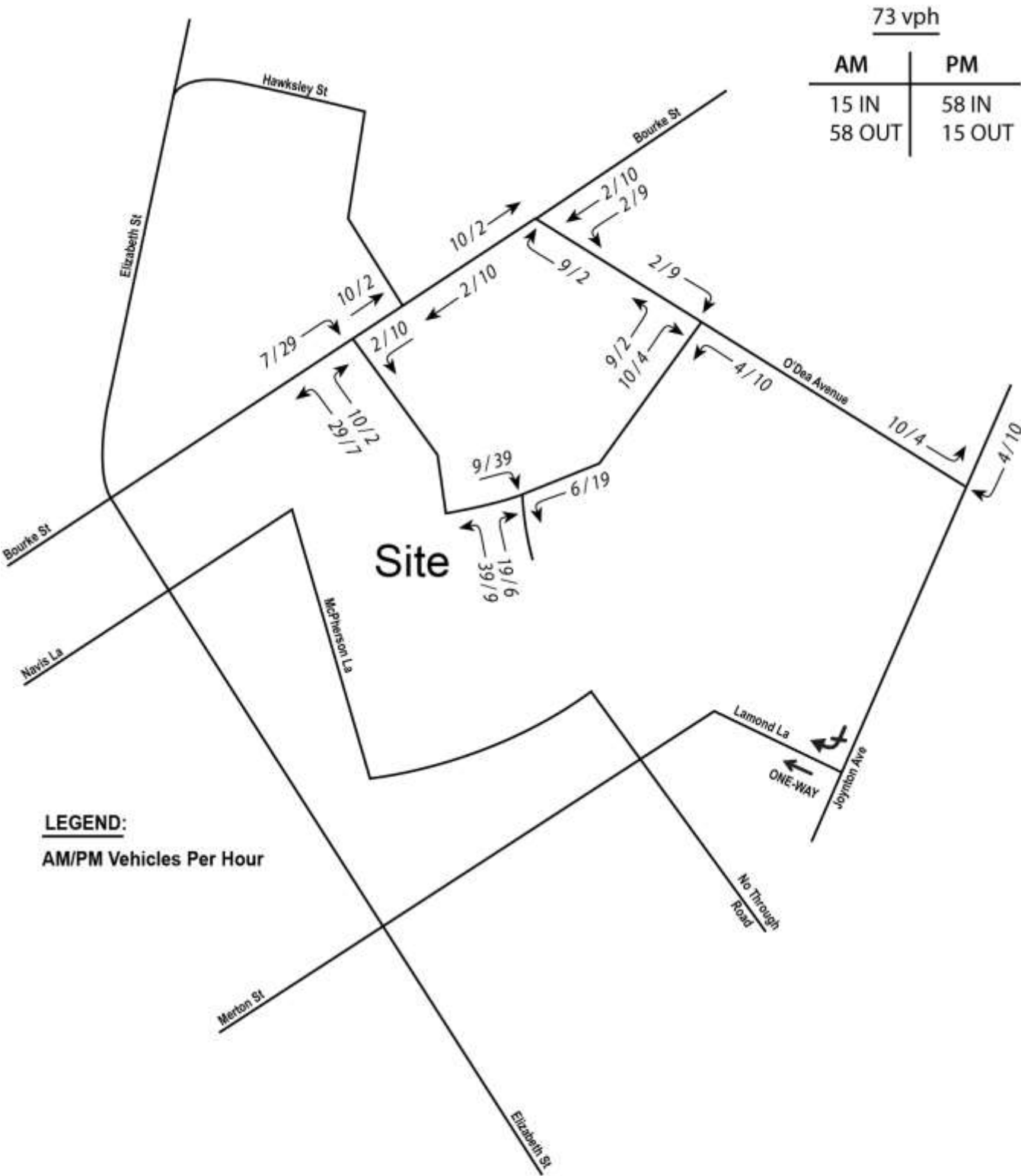
Therefore in order to provide a more *rigorous* traffic assessment, it has been assumed that *all* of the projected future traffic flows of 73 vph (based on 2.0:1 FSR) will be new or *additional* to the existing traffic flows currently using the adjacent road network, as illustrated on Figure 7b and 7c.

Figure 7b illustrates the expected traffic distribution during the short-term – i.e. with all traffic accessing the site via Bourke Street. Figure 7c illustrates the expected traffic distribution during the long-term – i.e. when the adjacent sites are redeveloped and the new road is extended out to O’Dea Avenue.

Council have also indicated that consideration should be given to the potential impact of additional traffic movements on the lower order streets such as McPherson Lane, Lamond Lane, Cook Lane, Tilford Street and Merton Street.



**SHORT-TERM ACCESS ARRANGEMENTS  
PROJECTED ADDITIONAL  
TRAFFIC VOLUMES  
FIGURE 7b**



**LONG-TERM ACCESS ARRANGEMENTS  
PROJECTED ADDITIONAL  
TRAFFIC VOLUMES  
FIGURE 7c**

Given that the preferred road network scheme discussed in Chapter 2 of this report does not provide a vehicular site through link to McPherson Lane, there is expected to be a negligible change to the operational performances of these intersections, if any.

In any event, the projected increase in traffic activity as a consequence of the Planning Proposal is minimal when distributed in all directions, and will not have any unacceptable traffic implications in terms of road network capacity as is demonstrated by the following section of this report.

## **Traffic Implications - Road Network Capacity**

The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network. Those effects can be assessed using the SIDRA program which is widely used by the RMS and many LGA's for this purpose. Criteria for evaluating the results of SIDRA analysis are reproduced in the following pages, and the detailed results are reproduced in Appendix B.

For comparison purposes, this assessment also provides an analysis of an industrial development scenario whereby the existing industrial buildings are *fully utilised*, thus generating traffic flows of 92 vph which are new or *additional* to the existing traffic flows currently using the adjacent road network.

The results of the SIDRA analysis of the Bourke Street/site access driveway intersection during the short-term are summarised on Table 3.1 below, revealing that:

- if the existing industrial buildings on the site were fully utilised, the Bourke Street/site access driveway intersection would operate at *Level of Service "A"*, with average vehicle delays in the order of 2 seconds per vehicle
- under the projected future traffic demands expected to be generated by the Planning Proposal, the Bourke Street/site access driveway intersection is expected to also operate at *Level of Service "A"* during peak periods, with average vehicle delays also in the order of 2 seconds/vehicle.



The results of the SIDRA analysis of the Bourke Street/Hawksley Street intersection during the short-term are summarised on Table 3.2 below, revealing that:

- the Bourke Street/Hawksley Street intersection currently operates at *Level of Service “A”* under the existing traffic demands with total average vehicle delays in the order of 2 seconds/vehicle
- if the existing industrial buildings on the site were fully utilised, the intersection would continue to operate at *Level of Service “A”*, with increases in total average vehicle delays of ***less than*** 1 second per vehicle
- under the projected future traffic demands expected to be generated by the Planning Proposal, the Bourke Street/Hawksley Street intersection will also continue to operate at *Level of Service “A”* during peak periods, with increases in average vehicle delays of also ***less than*** 1 second/vehicle.

In the circumstances, it is clear that the proposed development will not have any unacceptable traffic implications in terms of road network capacity, and that no road improvements or intersection upgrades would be required as a consequence of the development proposal.

<b>TABLE 3.1 - RESULTS OF SIDRA ANALYSIS OF BOURKE STREET / SITE ACCESS DRIVEWAY</b>				
<b>Key Indicators</b>	<b>Fully Utilised Industrial Uses</b>		<b>Projected Development Traffic Demand</b>	
	<b>AM</b>	<b>PM</b>	<b>AM</b>	<b>PM</b>
<b>Level of Service</b>	A	A	A	A
<b>Degree of Saturation</b>	0.296	0.314	0.282	0.328
<b>TOTAL AVERAGE VEHICLE DELAY</b>	<b>1.3</b>	<b>2.0</b>	<b>1.2</b>	<b>1.9</b>

<b>TABLE 3.2 - RESULTS OF SIDRA ANALYSIS OF BOURKE STREET / HAWKSLEY STREET</b>						
<b>Key Indicators</b>	<b>Existing Traffic Demand</b>		<b>Fully Utilised Industrial Uses</b>		<b>Projected Development Traffic Demand</b>	
	<b>AM</b>	<b>PM</b>	<b>AM</b>	<b>PM</b>	<b>AM</b>	<b>PM</b>
<b>Level of Service</b>	A	A	A	A	A	A
<b>Degree of Saturation</b>	0.300	0.306	0.315	0.325	0.303	0.309
<b>TOTAL AVERAGE VEHICLE DELAY</b>	<b>1.8</b>	<b>1.1</b>	<b>1.9</b>	<b>1.2</b>	<b>1.8</b>	<b>1.2</b>

## Criteria for Interpreting Results of Sidra Analysis

### 1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'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, Roundabout	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<sup>1</sup> 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.

<sup>1</sup> The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.

## 5. PARKING IMPLICATIONS

### Existing Kerbside Parking Restrictions

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site are illustrated on Figure 8 and comprise:

- NO STOPPING restrictions in Bourke Street in the vicinity of the Hawksley Street and O’Dea Avenue intersections, including along the site frontage
- NO STOPPING restrictions along the western side of Bourke Street during the *morning* commuter peak period
- NO STOPPING restrictions along the eastern side of Bourke Street during the *afternoon* commuter peak period
- NO STOPPING / NO PARKING restrictions along the McPherson Lane site frontage
- generally UNRESTRICTED kerbside parking along the opposite side of McPherson Lane in the vicinity of the site
- BUS ZONES at regular intervals along both sides of Bourke Street and also O’Dea Avenue.

### Off-Street Parking Provisions

The *maximum* off-street parking requirements applicable to the development proposal are specified in Council’s *Local Environmental Plan 2012, Part 7, Division 1 – Car Parking Ancillary to other Development* document in the following terms:

#### **Residential Flat Buildings (Category B) - Maximum**

1 bedroom apartments:	0.4 spaces per dwelling
2 bedroom apartments:	0.8 spaces per dwelling
3 bedroom apartments:	1.1 spaces per dwelling

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Visitors:	0.167 spaces per dwelling (up to 30 dwellings), <i>and</i> 0.1 spaces per dwelling (between 30 and 70 dwellings), <i>and</i> 0.05 spaces per dwelling (greater than 70 dwellings)
Car Share Scheme:	1.0 space per 60 spaces (inclusive of total maximum requirement)
Service Vehicles:	1.0 space for the first 50 dwellings; 0.5 spaces per 50 dwellings thereafter

Application of the above parking requirements to the expected yield of between 385 dwellings (2.0:1 FSR) and 410 dwellings (2.2:1 FSR) as outlined in the Planning Proposal yields a *maximum* off-street parking requirement of between 287 parking spaces and 305 parking spaces as set out below:

	<b>2.0:1 FSR (385 dwellings)</b>	<b>2.2:1 FSR (410 dwellings)</b>
Residential:	258 spaces	274 spaces
Visitors:	25 spaces	26 spaces
Service Vehicles:	4 spaces	5 spaces
<b>TOTAL:</b>	<b>287 spaces</b>	<b>305 spaces</b>

Based on the above parking requirement, the Planning Proposal also requires 5 car share spaces to be provided for the common use of all the residents living within the development.

Council's *LEP 2010* also specifies the following motorcycle parking requirement under Clause 7.8.4 of the *DCP*:

#### **7.8.4 Motorcycle Parking Spaces**

- (i) In all buildings that provide on-site parking, the area equivalent to 1 parking space is to be provided as separate parking for motorcycles for every 50 car parking spaces provided, or part thereof.

Based on the above parking requirement, the Planning Proposal also requires that the area equivalent to 6 car parking spaces be provided for motorcycle parking, equating to 24 motorcycle spaces.

Council's *LEP 2010* also specifies the following bicycle parking requirement detailed in Table 3.5 of the *DCP*:

Residents :	1 bicycle space per dwelling
Visitors:	1 bicycle space per 10 dwellings

Application of the above requirements to the Planning Proposal yields a bicycle requirement of between 385 and 410 spaces for residents and between 38 and 41 spaces for visitors. It should be noted that residential bicycles can be stored within basement storage cages provided that the storage cages meet the minimum dimensional requirements specified in AS2890.3. Visitor bicycle parking must be provided in an easily accessible location.

At this stage the precise number of off-street car, motorcycle and bicycle parking spaces to be provided on the site is not yet known however it is understood that the Planning Proposal will comply with Council's requirements.

The geometric design layout of the proposed car parking facilities will ultimately be designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1* in respect of parking bay dimensions, ramp gradients and aisle widths.

## **Loading/Service Provisions**

The proposed new mixed-use building is expected to be serviced by a variety of commercial vehicles up to and including Council's 9.2m long rigid garbage truck. All loading, for both garbage collection and removalists, will be undertaken wholly within the site. The new internal public roadway and on-site manoeuvring areas will ultimately be designed to accommodate the swept turning path requirements of these trucks, allowing them to enter and exit the site in a forward direction at all times.

In summary, the proposed parking and loading facilities will ultimately satisfy the relevant requirements specified in both Council's Parking Code as well as the Australian Standards and it is therefore concluded that the Planning Proposal will not have any unacceptable parking or loading implications.



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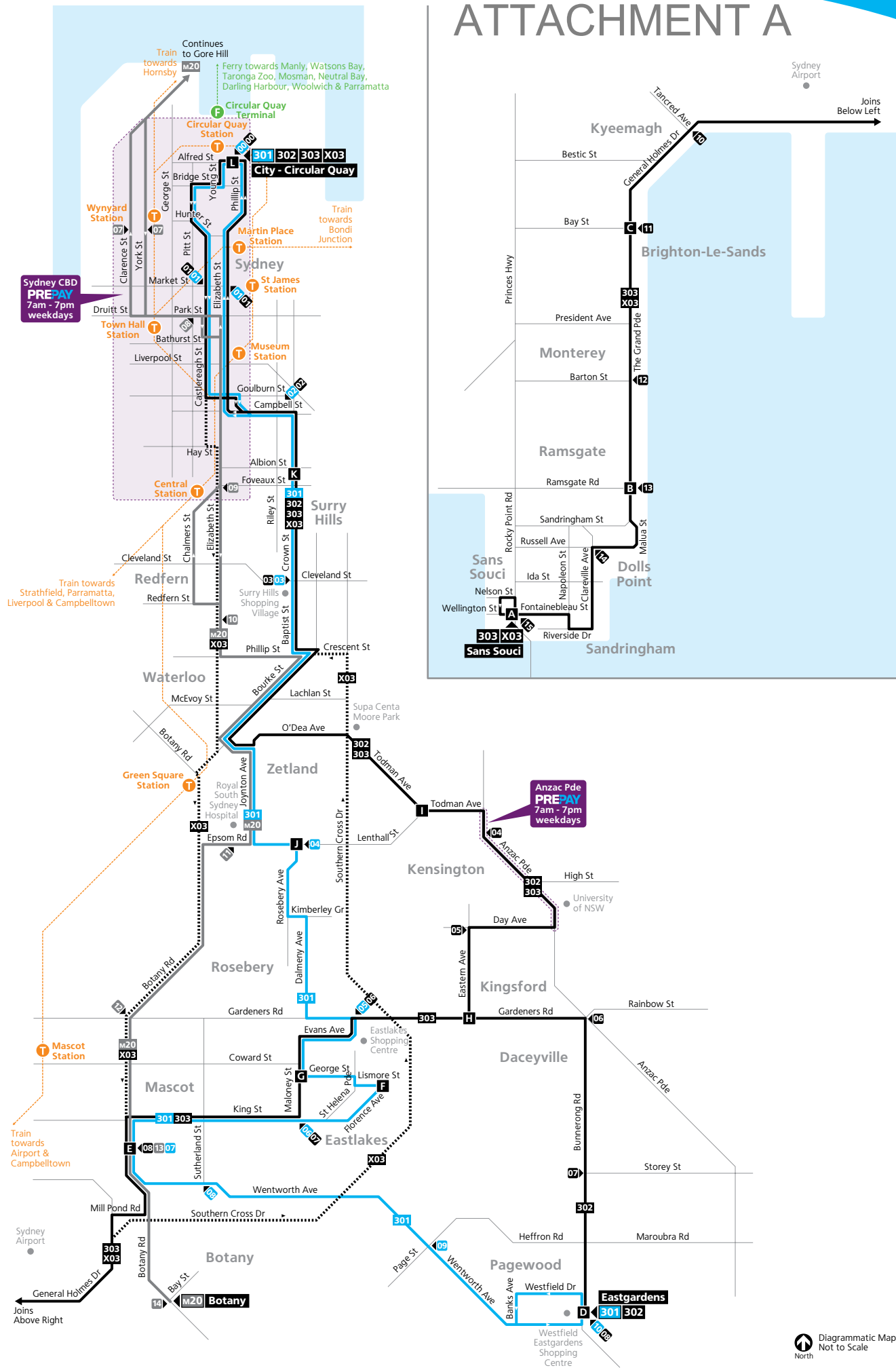
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## **APPENDIX A**

### **SYDNEY BUS ROUTE MAPS**



ATTACHMENT A



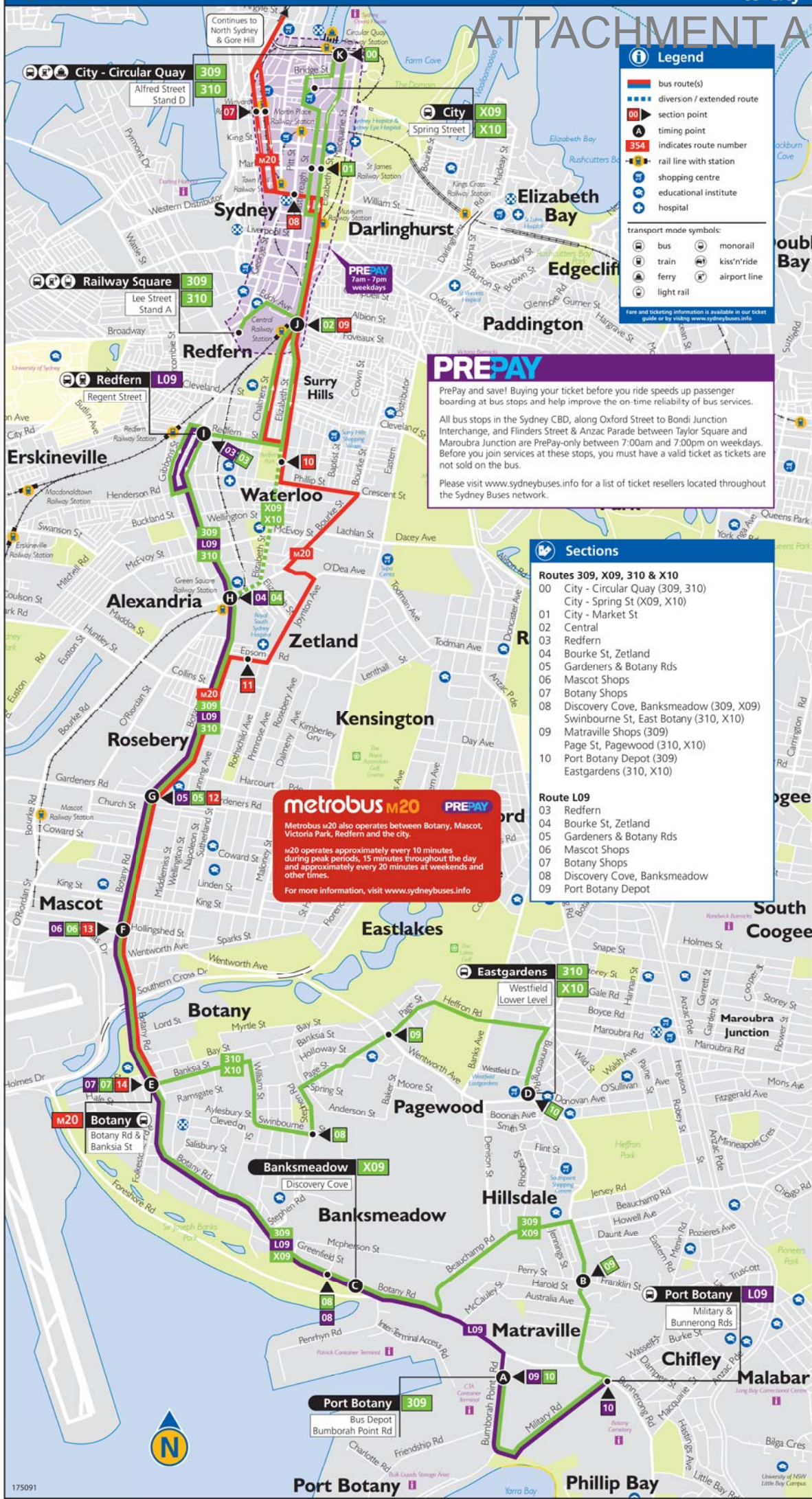
- Legend**
- Bus route
  - Bus route number
  - Timing point
  - Section point
  - Train line/station
  - Ferry route/wharf

Diagrammatic Map  
Not to Scale





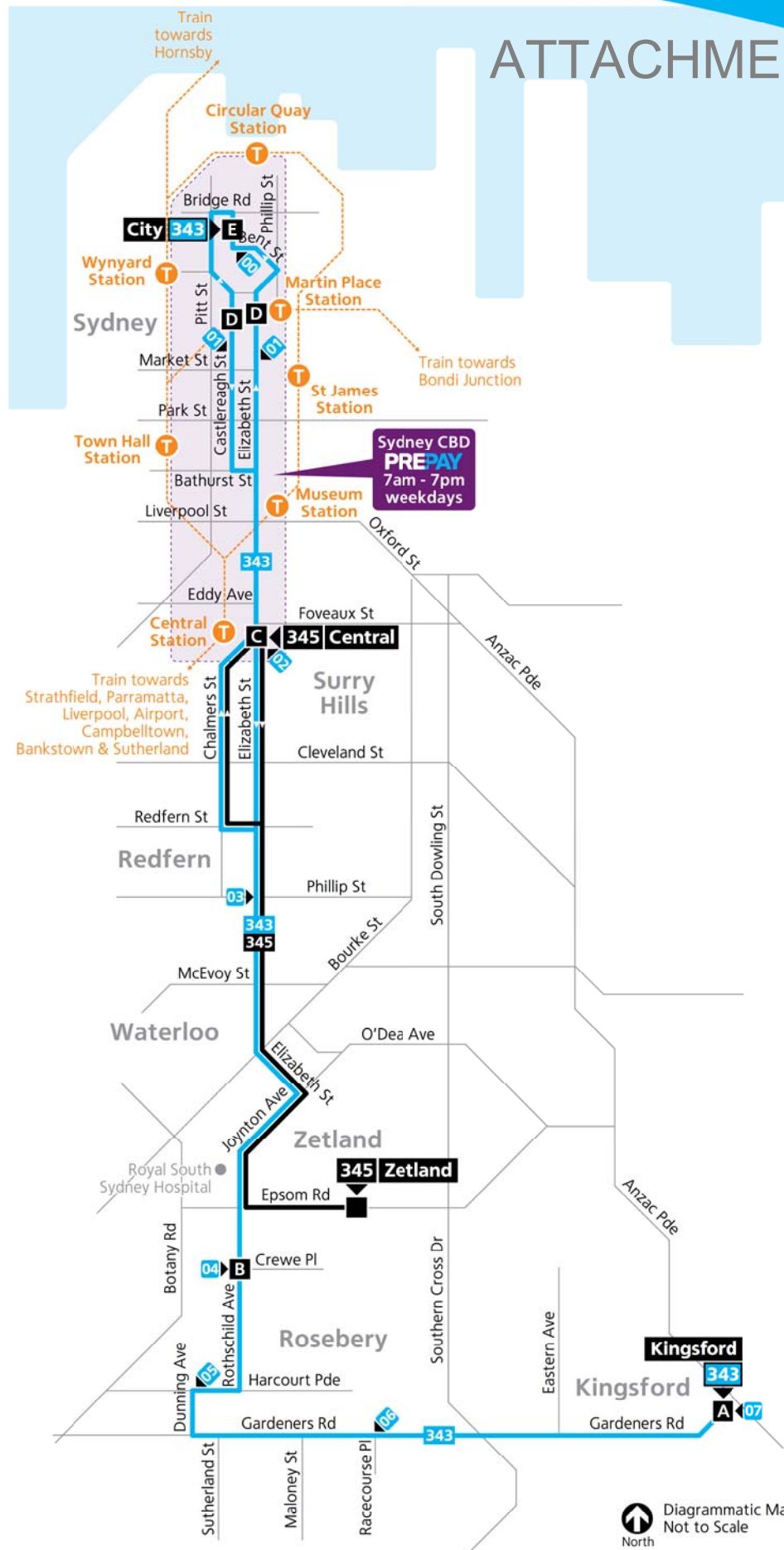
# ATTACHMENT A







## ATTACHMENT A



### Legend

- Bus route
- 343 Bus route number
- A Timing point
- 04 Section point
- T Train line/station
- F Ferry route/wharf

Diagrammatic Map  
Not to Scale




# ATTACHMENT A


## Bondi Junction to Wollri Creek via UNSW

**Legend**

 bus route(s)

 diversion / extended route

 section point

 timing point

 indicates route number

 rail line with station

 shopping centre

 educational institute

 hospital

 bus

 monorail

 train

 ferry

 light rail


 transport mode symbols:

 kiss'n'ride


 airport line


 bus

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Fire and ticketing information is available in our ticket guide or by visiting [www.sydneybuses.info](http://www.sydneybuses.info)



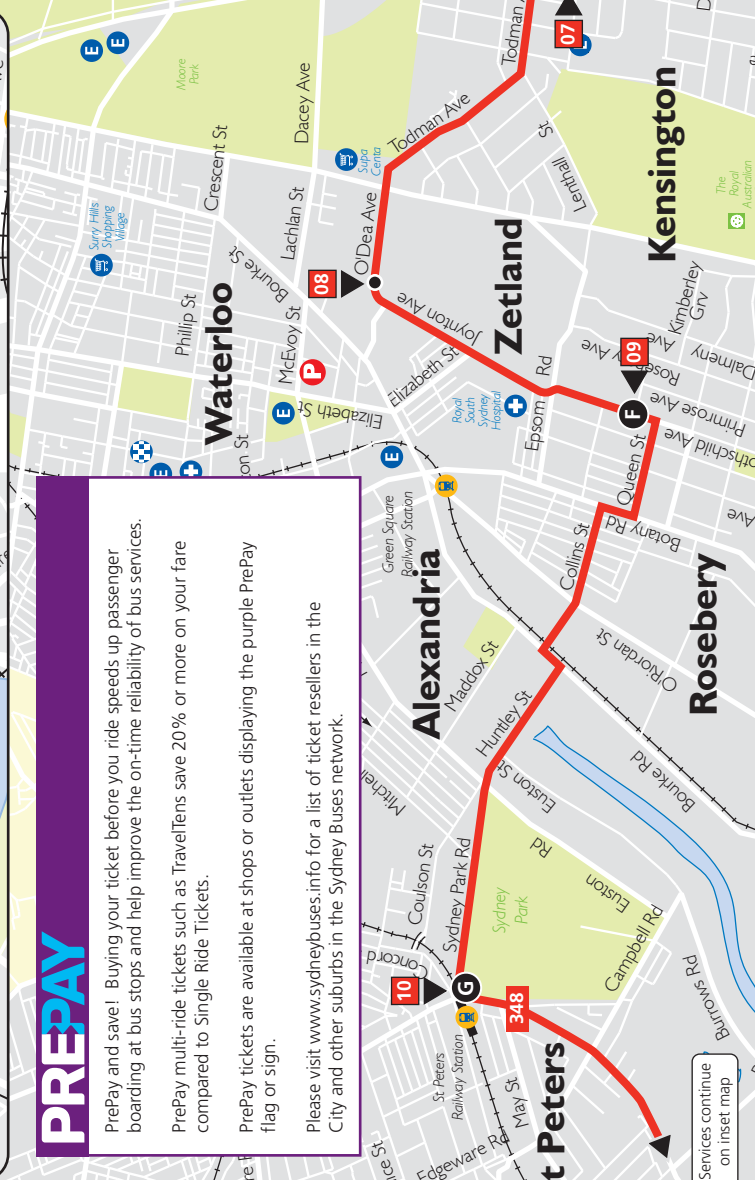
**PREPAY**

PrePay and save! Buying your ticket before you ride speeds up passenger boarding at bus stops and help improve the on-time reliability of bus services.

PrePay multi-ride tickets such as TravelTens save 20% or more on your fare compared to Single Ride Tickets.

PrePay tickets are available at shops or outlets displaying the purple PrePay flag or sign.

Please visit [www.sydneybuses.info](http://www.sydneybuses.info) for a list of ticket resellers in the City and other suburbs in the Sydney Buses network.







# Marrickville Metro to Bondi Junction via Alexandria

## Sections

- 04 Bondi Junction
- 05 Cook Rd & Moore Park Rd
- 06 Lang Rd & Anzac Pde, Moore Park
- 07 Wellington & Elizabeth Sts, Waterloo
- 08 Fountain St, Alexandria
- 09 Newtown Station
- 10 Marrickville Metro

## Legend

- bus route(s)
- diversion / extended route
- section point
- timing point
- indicates route number
- rail line with station
- shopping centre
- educational institute
- hospital

## transport mode symbols:

- bus
- monorail
- train
- kiss'n'ride
- ferry
- airport line
- light rail

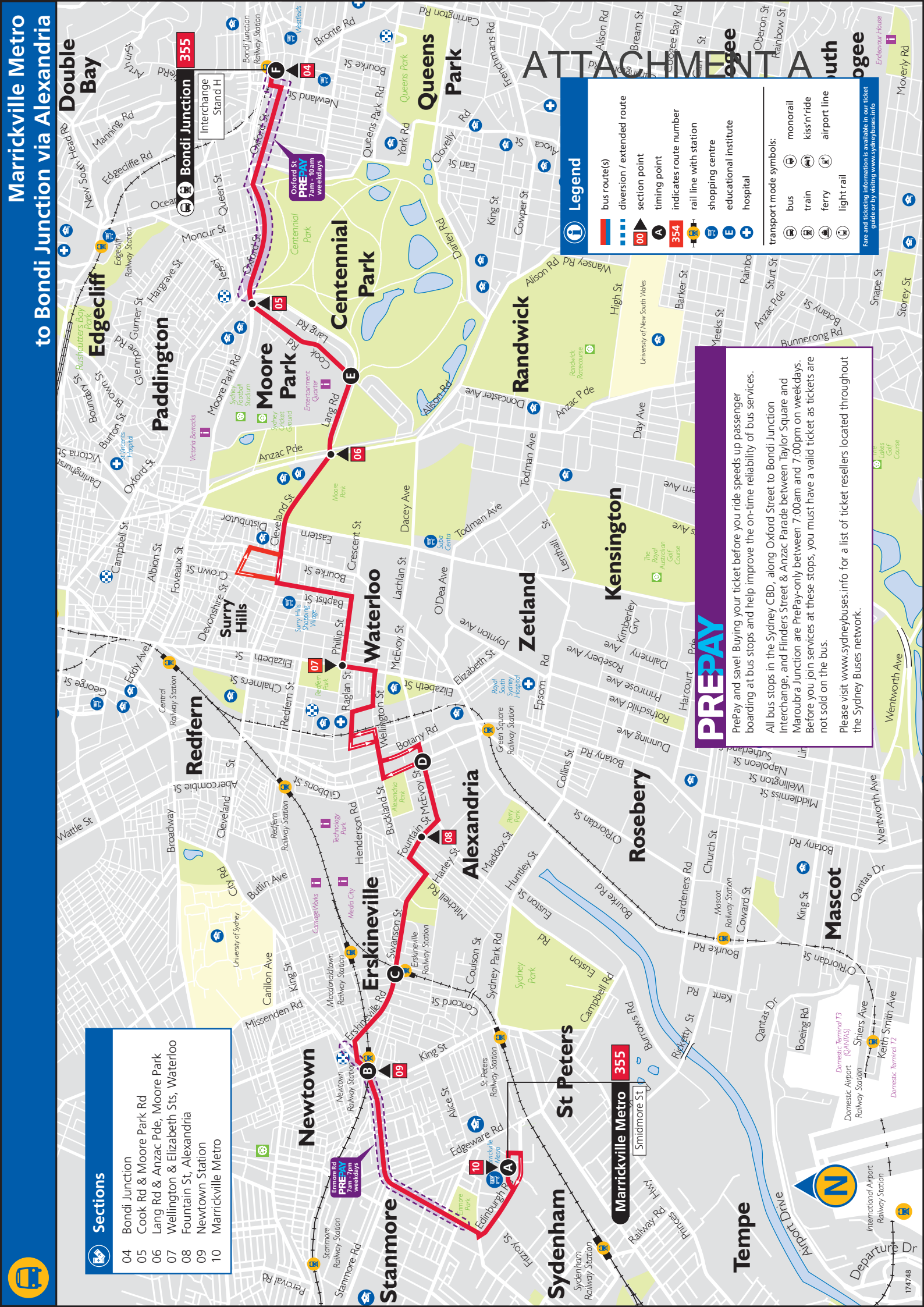
Fare and ticketing information is available in our ticket guide or by visiting [www.sydneybuses.info](http://www.sydneybuses.info)

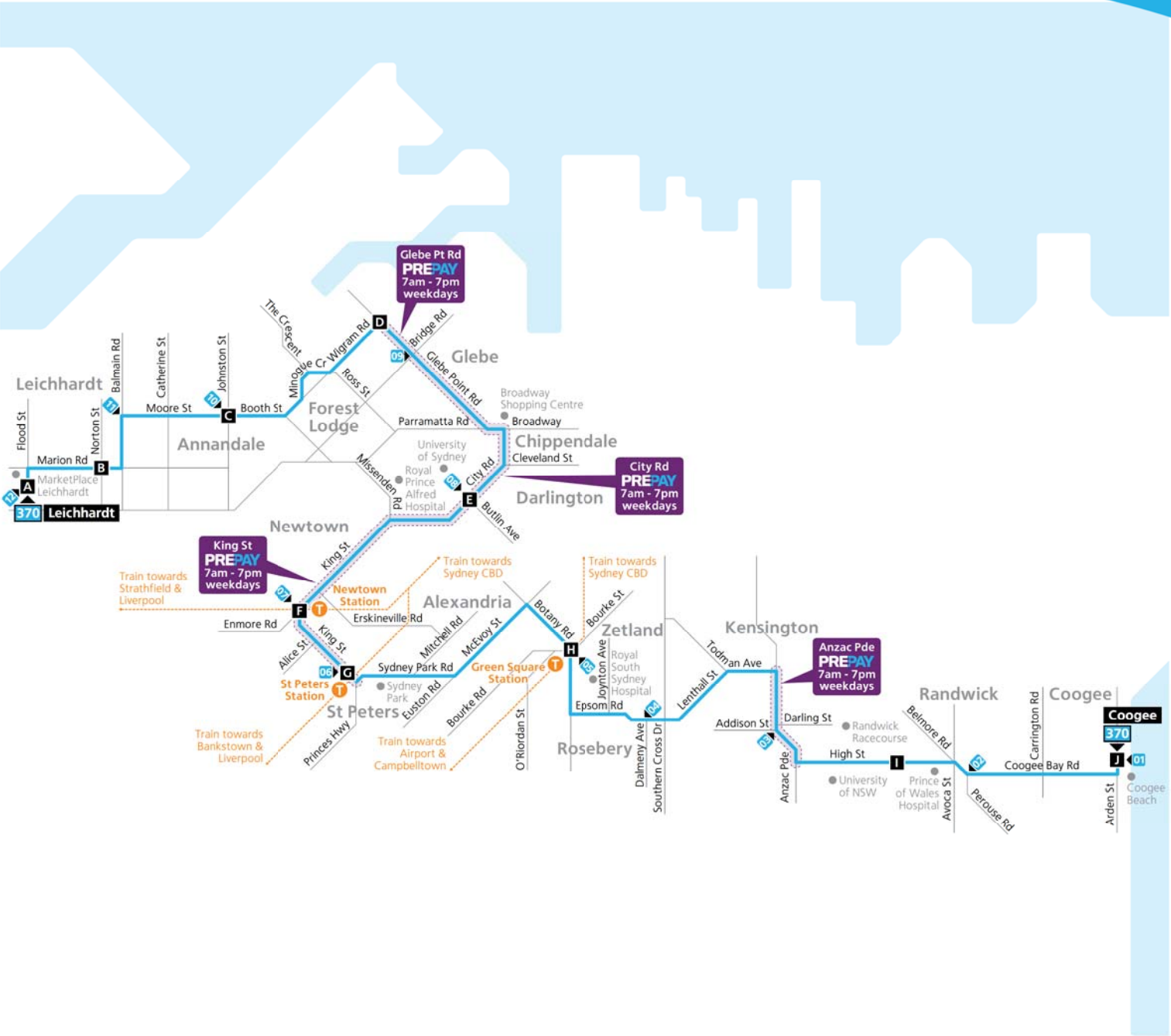
## PREPAY

PrePay and save! Buying your ticket before you ride speeds up passenger boarding at bus stops and help improve the on-time reliability of bus services.


All bus stops in the Sydney CBD, along Oxford Street to Bondi Junction Interchange, and Flinders Street & Anzac Parade between Taylor Square and Maroubra Junction are PrePay-only between 7:00am and 7:00pm on weekdays. Before you join services at these stops, you must have a valid ticket as tickets are not sold on the bus.


Please visit [www.sydneybuses.info](http://www.sydneybuses.info) for a list of ticket resellers located throughout the Sydney Buses network.








**Legend**


 Bus route

 Timing point

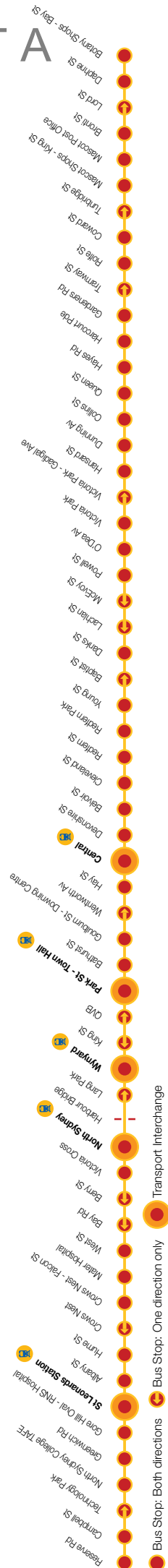
 Train line/station

 Bus route number

 Section point

 Diagrammatic Map  
Not to Scale







# ATTACHMENT A

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## **APPENDIX B**

### **TRAFFIC SURVEY DATA**



# R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax.88196849.

Mobile.0418239019

Client : Varga Traffic Planning

Job No/Name : 5170 ZETLAND 904 Bourke St

Day/Date : Friday 23rd May 2014

		PEDS		WEST		NORTH		EAST		TOT	
		Time Per	Bourke St	Bourke St	Hawksley St	Hawksley St	Bourke St	Bourke St	Bourke St	TOT	TOT
		0630 - 0645	1	6	2	9	2	2	9	9	48
		0645 - 0700	2	11	1	14	1	1	14	14	51
		0700 - 0715	1	10	0	11	0	0	11	11	70
		0715 - 0730	2	10	2	14	2	2	14	14	90
		0730 - 0745	3	9	0	12	0	0	12	12	112
		0745 - 0800	9	21	3	33	3	3	33	33	127
		0800 - 0815	4	26	1	31	1	1	31	31	157
		0815 - 0830	1	33	2	36	2	2	36	36	151
		0830 - 0845	3	24	0	27	0	0	27	27	134
		0845 - 0900	3	60	0	63	0	0	63	63	
		0900 - 0915	2	23	0	25	0	0	25	25	
		0915 - 0930	0	19	0	19	0	0	19	19	
		Per End	31	252	11	294	11	11	294	294	

PEAK HR 17 104 6 127

		PEDS		WEST		NORTH		EAST		TOT	
		Time Per	Bourke St	Bourke St	Hawksley St	Hawksley St	Bourke St	Bourke St	Bourke St	TOT	TOT
		0630 - 0645	1	0	0	1	0	0	1	2	216
		0645 - 0700	0	0	0	4	0	0	4	4	230
		0700 - 0715	1	0	0	2	0	0	2	4	267
		0715 - 0730	10	0	0	4	0	0	14	14	250
		0730 - 0745	5	0	0	3	0	0	8	8	274
		0745 - 0800	2	0	0	4	0	0	6	6	281
		0800 - 0815	4	0	0	4	0	0	8	8	301
		0815 - 0830	2	0	0	5	0	0	7	7	310
		0830 - 0845	7	0	0	14	0	0	14	14	343
		0845 - 0900	5	0	0	1	0	0	6	6	278
		0900 - 0915	3	0	0	6	0	0	9	9	251
		0915 - 0930	3	0	0	4	0	0	7	7	285
		Per End	43	0	0	45	4	4	92	92	3286

PEAK HR 1481 10 4 76 1641 3286

		PEDS		WEST		NORTH		EAST		TOT	
		Time Per	Bourke St	Bourke St	Hawksley St	Hawksley St	Bourke St	Bourke St	Bourke St	TOT	TOT
		0630 - 0730	12	0	0	11	0	0	23	23	963
		0645 - 0745	16	0	0	13	0	0	29	29	1021
		0700 - 0800	18	0	0	13	0	0	31	31	1072
		0715 - 0815	21	0	0	15	0	0	36	36	1106
		0730 - 0830	13	0	0	16	0	0	29	29	1166
		0745 - 0845	15	0	0	20	0	0	35	35	1235
		0800 - 0900	18	0	0	2	0	0	20	20	1232
		0815 - 0915	17	0	0	19	0	0	36	36	1182
		0830 - 0930	18	0	0	18	0	0	36	36	1157
		Per End	15	0	0	20	1	1	36	36	1235


PEAK HR 514 6 0 35 40 640 1235



**R.O.A.R. DATA**  
**Reliable, Original & Authentic Results**

Ph.88196847, Fax 88196849.  
Mobile.0418239019

Client : Varga Traffic Planning  
Job No/Name : 5170 ZETLAND 904 Bourke St  
Day/Date : Friday 23rd May 2014



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849.

Mobile.0418239019

Client : Varga Traffic Planning

Job No/Name : 5170 ZETLAND 904 Bourke St

Day/Date : Friday 23rd May 2014

PEDS			WEST			NORTH			EAST			PEDS			WEST			NORTH			EAST			TOT					
Time Per			Bourke St			Hawksley St			Bourke St			TOT			Peak Per			Bourke St			Hawksley St			Bourke St			TOT		
1530 - 1545			0			4			0			4			1530 - 1630			4			88			1			93		
1545 - 1600			0			20			0			20			1545 - 1645			5			93			1			99		
1600 - 1615			3			43			1			47			1600 - 1700			7			96			3			106		
1615 - 1630			1			21			0			22			1615 - 1715			4			98			2			104		
1630 - 1645			1			9			0			10			1630 - 1730			7			91			3			101		
1645 - 1700			2			23			2			27			1645 - 1745			8			91			3			102		
1700 - 1715			0			45			0			45			1700 - 1800			8			82			2			92		
1715 - 1730			4			14			1			19			1715 - 1815			8			48			2			58		
1730 - 1745			2			9			0			11			1730 - 1830			5			46			1			52		
1745 - 1800			2			14			1			17																	
1800 - 1815			0			11			0			11									98			2			104		
1815 - 1830			1			12			0			13																	
Per End			16			225			5			246			PEAK HR			4			98			2			104		

PEDS			WEST			NORTH			EAST			PEDS			WEST			NORTH			EAST		
Time Per			Bourke St			Hawksley St			Bourke St			Peak Per			Bourke St			Hawksley St			Bourke St		
1530 - 1545			0	0		4			0	0		1530 - 1630			0			20			0		
1545 - 1600			0	20					0	0		1545 - 1645			0			20			0		
1600 - 1615			3	43					1	1		1600 - 1700			3			43			1		
1615 - 1630			1	21					0	0		1615 - 1715			1			21			0		
1630 - 1645			1	9					0	0		1630 - 1730			1			9			0		
1645 - 1700			2	23					2	2		1645 - 1745			2			23			2		
1700 - 1715			0	45					0	0		1700 - 1800			0			45			0		
1715 - 1730			4	14					1	1		1715 - 1815			4			14			1		
1730 - 1745			2	9					0	0		1730 - 1830			2			9			0		
1745 - 1800			2	14					1	1		1745 - 1800			2			14			1		
1800 - 1815			0	11					0	0		1800 - 1815			0			11			0		
1815 - 1830			1	12					0	0		1815 - 1830			1			12			0		
Per End			16	225					5	246		Per End			16			225			5		

PEDS			WEST			NORTH			EAST			PEDS			WEST			NORTH			EAST		
Peak Per			Bourke St			Hawksley St			Bourke St			1530 - 1630			Bourke St			Hawksley St			Bourke St		
1530 - 1630			4			88			1			1530 - 1630			4			88			1		
1545 - 1645			5			93			1			1545 - 1645			5			93			1		
1600 - 1700			7			96			3			1600 - 1700			7			96			3		
1615 - 1715			4			98			2			1615 - 1715			4			98			2		
1630 - 1730			7			91			3			1630 - 1730			7			91			3		
1645 - 1745			8			91			3			1645 - 1745			8			91			3		
1700 - 1800			8			82			2			1700 - 1800			8			82			2		
1715 - 1815			8			48			2			1715 - 1815			8			48			2		
1730 - 1830			5			46			1			1730 - 1830			5			46			1		
PEAK HR			4			98			2			PEAK HR			4			98			2		

**Lights**

Lights			WEST			NORTH			EAST			Heavies			WEST			NORTH			EAST		
			Bourke St			Hawksley St			Bourke St						Bourke St			Hawksley St			Bourke St		
Time Per	I	L	I	L	R	I	L	R	Time Per	I	L	R	Time Per	I	L	I	L	R	I	L	TOT		
1530 - 1545	148	1	1	6	6	144	306		1530 - 1545	1	0	0	0	0	0	0	3	4					
1545 - 1600	121	4	0	6	2	152	285		1545 - 1600	2	0	0	0	0	0	0	3	5					
1600 - 1615	132	4	1	11	8	160	316		1600 - 1615	1	0	0	0	0	0	0	3	4					
1615 - 1630	148	1	0	10	7	152	318		1615 - 1630	0	0	0	0	0	0	1	1	1					
1630 - 1645	143	4	0	6	9	157	319		1630 - 1645	0	0	0	0	0	0	2	2	2					
1645 - 1700	127	2	0	8	9	145	291		1645 - 1700	0	0	0	0	0	0	0	0	0					
1700 - 1715	160	2	1	11	10	159	343		1700 - 1715	0	0	0	0	0	0	2	2	2					
1715 - 1730	148	4	0	8	6	138	304		1715 - 1730	1	0	0	0	0	0	0	1	1					
1730 - 1745	147	4	1	8	9	150	319		1730 - 1745	0	0	0	0	0	0	0	0	0					
1745 - 1800	125	4	0	10	5	141	285		1745 - 1800	0	0	0	0	0	0	0	0	0					
1800 - 1815	120	3	0	11	4	124	262		1800 - 1815	0	1	0	0	0	0	0	1	1					
1815 - 1830	123	3	1	10	5	103	245		1815 - 1830	1	0	0	0	0	0	0	1	1					
Per End	1642	36	5	105	80	1725	3593		Per End	6	1	0	0	0	0	14	21	21					



## R.O.A.R. DATA

**Reliable, Original & Authentic Results**

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning

Job No/Name : 5170 ZETLAND 904 Bourke St

Day/Date : Friday 23rd May 2014



Hawksley St

### Intersection Details

Obtained via satellite

May be incorrect

**AM PEAK HOUR**  
**0745 - 0845**

Bourke St



AM	PM	L
6	9	

514	578	T
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R	35	40
	PM	AM

T	618	640
---	-----	-----

R	L	AM	PM
0	35	35	
1			35

OUT	IN	
PM	32	10
AM	14	26

904 Access

Combined figures only

**PM PEAK HOUR**  
**1615 - 1715**

Bourke St

Weather >>>





R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client  
Job No/Name  
Day/Date

: Varga Traffic Planning  
: 5170 ZETLAND 904 Bourke St  
: Friday 23rd May 2014

Lights	BOURKE ST		BOURKE ST		Heavies	BOURKE ST		BOURKE ST		Combined	BOURKE ST	
	N-bound	S-bound	TOT			N-bound	S-bound	TOT			N-bound	S-bound
Time Per												
0630 - 0645	0	3	3			0	0	0		0630 - 0645	0	3
0645 - 0700	3	11	14			0	0	0		0645 - 0700	3	11
0700 - 0715	0	6	6			0	0	0		0700 - 0715	0	6
0715 - 0730	1	5	6			0	0	0		0715 - 0730	1	5
0730 - 0745	1	6	7			0	0	0		0730 - 0745	1	6
0745 - 0800	2	3	5			0	0	0		0745 - 0800	2	3
0800 - 0815	3	1	4			0	0	0		0800 - 0815	3	1
0815 - 0830	3	9	12			0	0	0		0815 - 0830	3	9
0830 - 0845	3	6	9			0	0	0		0830 - 0845	3	6
0845 - 0900	6	7	13			0	0	0		0845 - 0900	6	7
0900 - 0915	2	4	6			0	0	0		0900 - 0915	2	4
0915 - 0930	1	4	5			0	0	0		0915 - 0930	1	4
Per End	25	65	90			0	0	0		Per End	25	65

Lights	BOURKE ST		BOURKE ST		Heavies	BOURKE ST		BOURKE ST		Combined	BOURKE ST	
	N-bound	S-bound	TOT			N-bound	S-bound	TOT			N-bound	S-bound
Peak Per												
0630 - 0730	4	25	29			0	0	0		0630 - 0730	4	25
0645 - 0745	5	28	33			0	0	0		0645 - 0745	5	28
0700 - 0800	4	20	24			0	0	0		0700 - 0800	4	20
0715 - 0815	7	15	22			0	0	0		0715 - 0815	7	15
0730 - 0830	9	19	28			0	0	0		0730 - 0830	9	19
0745 - 0845	11	19	30			0	0	0		0745 - 0845	11	19
0800 - 0900	15	23	38			0	0	0		0800 - 0900	15	23
0815 - 0915	14	26	40			0	0	0		0815 - 0915	14	26
0830 - 0930	12	21	33			0	0	0		0830 - 0930	12	21
PEAK HR	14	26	40			0	0	0		PEAK HR	14	26

AM PEAK HOUR	0815 - 0915	0815 - 0915	0815 - 0915	0815 - 0915	0815 - 0915	0815 - 0915	0815 - 0915	0815 - 0915	0815 - 0915	0815 - 0915	0815 - 0915	0815 - 0915
--------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------

TOTAL VOLUMES FOR COUNT PERIOD		TOTAL VOLUMES FOR COUNT PERIOD		TOTAL VOLUMES FOR COUNT PERIOD		TOTAL VOLUMES FOR COUNT PERIOD		TOTAL VOLUMES FOR COUNT PERIOD		TOTAL VOLUMES FOR COUNT PERIOD		TOTAL VOLUMES FOR COUNT PERIOD	
--------------------------------	--	--------------------------------	--	--------------------------------	--	--------------------------------	--	--------------------------------	--	--------------------------------	--	--------------------------------	--



## Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client  
Job No/Name  
Day/Date

: Varga Traffic Planning  
: 5170 ZETLAND 904 BC  
: Friday 23rd May 2014

Lights	BOURKE ST			Heavies	BOURKE ST			Combined	BOURKE ST		
	904 Access				904 Access				904 Access		
	N-bound	S-bound	TOT		N-bound	S-bound	TOT		N-bound	S-bound	TOT
1530 - 1545	11	5	16	1530 - 1545	0	0	0	1530 - 1545	11	5	16
1545 - 1600	5	0	5	1545 - 1600	0	0	0	1545 - 1600	5	0	5
1600 - 1615	10	4	14	1600 - 1615	0	0	0	1600 - 1615	10	4	14
1615 - 1630	6	1	7	1615 - 1630	0	0	0	1615 - 1630	6	1	7
1630 - 1645	6	2	8	1630 - 1645	0	0	0	1630 - 1645	6	2	8
1645 - 1700	3	2	5	1645 - 1700	0	0	0	1645 - 1700	3	2	5
1700 - 1715	5	6	11	1700 - 1715	0	0	0	1700 - 1715	5	6	11
1715 - 1730	2	3	5	1715 - 1730	0	0	0	1715 - 1730	2	3	5
1730 - 1745	4	1	5	1730 - 1745	0	0	0	1730 - 1745	4	1	5
1745 - 1800	2	0	2	1745 - 1800	0	0	0	1745 - 1800	2	0	2
1800 - 1815	6	2	8	1800 - 1815	0	0	0	1800 - 1815	6	2	8
1815 - 1830	3	1	4	1815 - 1830	0	0	0	1815 - 1830	3	1	4
Per End	63	27	90	Per End	0	0	0	Per End	63	27	90

[illegible][illegible]



# R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning  
Job No/Name : 5170 ZETLAND 904 Bourke St  
Day/Date : Friday 23rd May 2014

Lights	NORTH Elizabeth St		WEST Merton St		SOUTH Elizabeth St		EAST Merton St	
	L	R	L	R	L	R	L	R
Time Per	L	R	L	R	L	R	L	R
0630 - 0645	2	22	1	2	11	1	52	2
0645 - 0700	1	39	6	0	3	23	2	48
0700 - 0715	4	30	5	5	7	24	4	63
0715 - 0730	1	20	4	4	3	18	3	78
0730 - 0745	1	28	3	8	6	13	6	87
0745 - 0800	2	54	8	14	3	16	3	106
0800 - 0815	5	37	7	12	3	14	4	110
0815 - 0830	3	39	7	12	8	7	5	119
0830 - 0845	2	36	13	11	10	12	6	110
0845 - 0900	4	50	6	11	5	11	8	115
0900 - 0915	2	49	5	12	4	13	7	94
0915 - 0930	3	27	1	12	4	8	3	78
Period End	30	431	66	102	58	170	52	1060

Heavies	NORTH				WEST				SOUTH				EAST			
	Elizabeth St				Merton St				Elizabeth St				Merton St			
	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT
Time Per																
0630 - 0645	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	3
0645 - 0700	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
0700 - 0715	0	2	0	0	0	0	1	0	2	0	0	0	0	0	0	5
0715 - 0730	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	3
0730 - 0745	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	5
0745 - 0800	0	4	0	0	0	0	0	0	2	0	1	0	0	0	0	7
0800 - 0815	0	4	0	0	0	0	0	0	1	6	0	0	0	0	0	11
0815 - 0830	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	6
0830 - 0845	0	3	0	0	0	0	0	0	7	0	0	0	0	0	0	10
0845 - 0900	0	4	0	0	0	0	0	0	2	0	0	0	0	0	0	6
0900 - 0915	0	3	0	0	0	0	0	0	5	0	0	0	0	0	0	8
0915 - 0930	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Period End	0	27	0	0	0	0	1	1	37	0	1	0	0	0	0	67

Combined	NORTH				WEST				SOUTH				EAST			
	Elizabeth St				Merton St				Elizabeth St				Merton St			
	L	I	R		L	I	R		L	I	R		L	I	R	
Time Per																
0630 - 0645	2	23	1		1	2	11		1	54	2		0	2	1	
0645 - 0700	1	40	6		0	3	23		2	49	7		0	1	0	
0700 - 0715	4	32	5		5	7	25		4	65	2		2	2	7	
0715 - 0730	1	21	4		4	3	18		3	80	1		7	0	4	
0730 - 0745	1	30	3		8	6	13		6	90	1		1	0	2	
0745 - 0800	2	58	8		14	3	16		3	108	1		2	2	2	
0800 - 0815	5	41	7		12	3	14		5	116	2		1	0	6	
0815 - 0830	3	41	7		12	8	7		5	123	0		0	1	7	
0830 - 0845	2	39	13		11	10	12		6	117	0		2	4	3	
0845 - 0900	4	54	6		11	5	11		8	117	2		1	1	4	
0900 - 0915	2	52	5		12	4	13		7	99	1		3	0	4	
0915 - 0930	3	27	1		12	4	8		3	79	0		2	2	1	
Period End	30	458	66		102	58	171		53	1097	19		21	15	41	

Lights	NORTH Elizabeth St				WEST Merton St				SOUTH Elizabeth St				EAST Merton St			
	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT
Peak Time																
0630 - 0730	8	111	16	10	15	76	10	241	12	9	5	12	525			
0645 - 0745	7	117	18	17	19	78	15	276	11	10	3	13	584			
0700 - 0800	8	132	20	31	19	71	16	334	5	11	4	15	666			
0715 - 0815	9	139	22	38	15	61	16	381	5	10	2	14	712			
0730 - 0830	11	158	25	46	20	50	18	422	4	3	3	17	777			
0745 - 0845	12	166	35	49	24	49	18	445	3	4	7	18	830			
0800 - 0900	14	162	33	46	26	44	23	454	4	4	6	20	836			
0815 - 0915	11	174	31	46	27	43	26	438	3	6	6	18	829			
0830 - 0930	11	162	25	46	23	44	24	397	3	8	7	12	762			
PEAK HOUR	14	162	33	46	26	44	23	454	4	6	20	836				

Heavies	NORTH		WEST		SOUTH		EAST				
	Elizabeth St		Merton St		Elizabeth St		Merton St				
	L	R	L	R	L	R	L	R			
Peak Per								TOT			
0630 - 0730	0	5	0	0	1	0	7	0	0	13	
0645 - 0745	0	6	0	0	1	0	8	0	0	15	
0700 - 0800	0	9	0	0	1	0	9	0	0	20	
0715 - 0815	0	11	0	0	0	1	13	0	1	0	26
0730 - 0830	0	12	0	0	0	1	15	0	1	0	29
0745 - 0845	0	13	0	0	0	1	19	0	1	0	34
0800 - 0900	0	13	0	0	0	1	19	0	0	0	33
0815 - 0915	0	12	0	0	0	0	18	0	0	0	30
0830 - 0930	0	10	0	0	0	0	15	0	0	0	25
PEAK HOUR	0	13	0	0	0	1	19	0	0	0	33

Combined	NORTH		WEST		SOUTH		EAST			
	Elizabeth St		Merton St		Elizabeth St		Merton St			
	L	R	L	R	L	R	L	R		
Peak Per									TOT	
0630 - 0730	8	116	16	10	15	77	10	248	12	538
0645 - 0745	7	123	18	17	19	79	15	284	11	599
0700 - 0800	8	141	20	31	19	72	16	343	5	686
0715 - 0815	9	150	22	38	15	61	17	394	5	738
0730 - 0830	11	170	25	46	20	50	19	437	4	806
0745 - 0845	12	179	35	49	24	49	19	464	3	864
0800 - 0900	14	175	33	46	26	44	24	473	4	869
0815 - 0915	11	186	31	46	27	43	26	456	3	859
0830 - 0930	11	172	25	46	23	44	24	412	3	787
PEAK HOUR	14	175	33	46	26	44	24	473	4	869

Combined	NORTH Elizabeth St		WEST Merton St		SOUTH Elizabeth St		EAST Merton St	
	L	R	L	R	L	R	L	R
Time Per	L	R	L	R	L	R	L	R
0630 - 0645	2	23	1	2	11	1	54	2
0645 - 0700	1	40	6	0	3	23	2	49
0700 - 0715	4	32	5	5	7	25	4	65
0715 - 0730	1	21	4	4	3	18	3	80
0730 - 0745	1	30	3	8	6	13	6	90
0745 - 0800	2	58	8	14	3	16	3	108
0800 - 0815	5	41	7	12	3	14	5	116
0815 - 0830	3	41	7	12	8	7	5	123
0830 - 0845	2	39	13	11	10	12	6	117
0845 - 0900	4	54	6	11	5	11	8	117
0900 - 0915	2	52	5	12	4	13	7	99
0915 - 0930	3	27	1	12	4	8	3	79
Period End	30	458	66	102	58	171	53	1097

## Ph.88196847, Fax 88196849, Mob.0418-239019

Ph.88196847, Fax 88196849, Mob.0418-239019

Day/Date	: Friday 23rd May 2014
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Lights	NORTH			WEST			SOUTH			EAST			
	Elizabeth St			Merton St			Elizabeth St			Merton St			
Peak Time 1530 - 1630 1545 - 1645 1600 - 1700 1615 - 1715 1630 - 1730 1645 - 1745 <b>1700 - 1800</b> 1715 - 1815 1730 - 1830	L	I	R	L	I	R	L	I	R	L	I	R	
	8	261	31	53	12	47	18	365	4	10	3	18	
	10	293	37	56	12	42	19	332	3	9	3	12	
	12	306	35	49	12	48	18	320	4	7	2	14	
	15	311	35	56	14	46	19	341	5	11	2	16	
	18	336	37	66	12	59	18	333	6	12	3	16	
	16	351	39	66	13	61	26	378	5	11	3	16	
	18	352	41	68	10	59	28	388	6	10	2	10	
	15	338	35	56	10	61	23	358	5	5	2	6	
	14	317	25	38	9	49	22	323	4	3	0	4	
	18	352	41	68	10	59	28	388	6	10	2	10	
	PEAK HOUR	18	352	41	68	10	59	28	388	6	10	2	10
Heavies	NORTH			WEST			SOUTH			EAST			
	Elizabeth St			Merton St			Elizabeth St			Merton St			
	Peak Per	L	I	R	L	I	R	L	I	R	L	I	R
	1530 - 1630	0	6	0	0	0	0	0	15	0	0	0	0
	1545 - 1645	0	7	0	0	0	0	0	14	0	0	0	0
	1600 - 1700	0	7	0	0	0	0	0	13	0	0	0	0
	1615 - 1715	0	7	0	0	0	0	0	12	0	0	0	0
	1630 - 1730	0	9	0	0	0	0	0	11	0	0	0	0
	1645 - 1745	0	10	0	0	0	0	0	12	0	0	0	0
	<b>1700 - 1800</b>	0	13	0	0	0	0	0	12	0	0	0	0
	1715 - 1815	0	13	0	0	0	0	0	11	0	0	0	0
	1730 - 1830	0	15	0	0	0	0	0	9	0	0	0	0
PEAK HOUR	0	13	0	0	0	0	0	12	0	0	0	0	
Combined	NORTH			WEST			SOUTH			EAST			
	Elizabeth St			Merton St			Elizabeth St			Merton St			
	Peak Per	L	I	R	L	I	R	L	I	R	L	I	R
	1530 - 1630	8	267	31	53	12	47	18	380	4	10	3	18
	1545 - 1645	10	300	37	56	12	42	19	346	3	9	3	12
	1600 - 1700	12	313	35	49	12	48	18	333	4	7	2	14
	1615 - 1715	15	318	35	56	14	46	19	353	5	11	2	16
	1630 - 1730	18	345	37	66	12	59	18	344	6	12	3	16
	1645 - 1745	16	361	39	66	13	61	26	390	5	11	3	16
	<b>1700 - 1800</b>	18	365	41	68	10	59	28	400	6	10	2	10
	1715 - 1815	15	351	35	56	10	61	23	369	5	5	2	6
	1730 - 1830	14	332	25	38	9	49	22	332	4	3	0	4
PEAK HOUR	18	365	41	68	10	59	28	400	6	10	2	10	

Lights	NORTH			WEST			SOUTH			EAST			
	Elizabeth St			Merton St			Elizabeth St			Merton St			
Time Per 1530 - 1545 1545 - 1600 1600 - 1615 1615 - 1630 1630 - 1645 1645 - 1700 1700 - 1715 1715 - 1730 1730 - 1745 1745 - 1800 1800 - 1815 1815 - 1830 Period End	L	I	R	L	I	R	L	I	R	L	I	R	
	3	53	1	9	2	12	3	99	2	2	0	6	
	1	65	9	13	5	10	5	86	0	3	2	5	
	2	75	11	16	1	14	7	82	2	2	0	4	
	2	68	10	15	4	11	3	98	0	3	1	3	
	5	85	7	12	2	7	4	66	1	1	0	0	
	3	78	7	6	5	16	4	74	1	1	1	7	
	5	80	11	23	3	12	8	103	3	6	0	6	
	5	93	12	25	2	24	2	90	1	4	2	3	
	3	100	9	12	3	9	12	111	0	0	0	0	
	5	79	9	8	2	14	6	84	2	0	0	1	
	2	66	5	11	3	14	3	73	2	1	0	2	
4	72	2	7	1	12	1	55	0	2	0	1		
Period End	40	914	93	157	33	155	58	1021	14	25	6	38	
Heavies	NORTH			WEST			SOUTH			EAST			
	Elizabeth St			Merton St			Elizabeth St			Merton St			
	Time Per	L	I	R	L	I	R	L	I	R	L	I	R
	1530 - 1545	0	1	0	0	0	0	0	3	0	0	0	0
	1545 - 1600	0	3	0	0	0	0	0	3	0	0	0	0
	1600 - 1615	0	2	0	0	0	0	0	4	0	0	0	0
	1615 - 1630	0	0	0	0	0	0	0	5	0	0	0	0
	1630 - 1645	0	2	0	0	0	0	0	2	0	0	0	0
	1645 - 1700	0	3	0	0	0	0	0	2	0	0	0	0
	1700 - 1715	0	2	0	0	0	0	0	3	0	0	0	0
	1715 - 1730	0	2	0	0	0	0	0	4	0	0	0	0
	1730 - 1745	0	3	0	0	0	0	0	3	0	0	0	0
1745 - 1800	0	6	0	0	0	0	0	2	0	0	0	0	
1800 - 1815	0	2	0	0	0	0	0	2	0	0	0	0	
1815 - 1830	0	4	0	0	0	0	0	2	0	0	0	0	
Period End	0	30	0	0	0	0	0	35	0	0	0	0	
Combined	NORTH			WEST			SOUTH			EAST			
	Elizabeth St			Merton St			Elizabeth St			Merton St			
	Time Per	L	I	R	L	I	R	L	I	R	L	I	R
	1530 - 1545	3	54	1	9	2	12	3	102	2	2	0	6
	1545 - 1600	1	68	9	13	5	10	5	89	0	3	2	5
	1600 - 1615	2	77	11	16	1	14	7	86	2	2	0	4
	1615 - 1630	2	68	10	15	4	11	3	103	0	3	1	3
	1630 - 1645	5	87	7	12	2	7	4	68	1	1	0	0
	1645 - 1700	3	81	7	6	5	16	4	76	1	1	1	7
	1700 - 1715	5	82	11	23	3	12	8	106	3	6	0	6
	1715 - 1730	5	95	12	25	2	24	2	94	1	4	2	3
	1730 - 1745	3	103	9	12	3	9	12	114	0	0	0	0
1745 - 1800	5	85	9	8	2	14	6	86	2	0	0	1	
1800 - 1815	2	68	5	11	3	14	3	75	2	1	0	2	
1815 - 1830	4	76	2	7	1	12	1	57	0	2	0	1	
Period End	40	944	93	157	33	155	58	1056	14	25	6	38	

Lights	NORTH			WEST			SOUTH			EAST		
	Elizabeth St			Merton St			Elizabeth St			Merton St		
Time Per 1530 - 1545 1545 - 1600 1600 - 1615 1615 - 1630 1630 - 1645 1645 - 1700 1700 - 1715 1715 - 1730 1730 - 1745 1745 - 1800 1800 - 1815 1815 - 1830 Period End	L	I	R	L	I	R	L	I	R	L	I	R
	3	54	1	9	2	12	3	102	2	2	0	6
	1	68	9	13	5	10	5	89	0	3	2	5
	2	77	11	16	1	14	7	86	2	2	0	4
	2	68	10	15	4	11	3	103	0	3	1	3
	5	87	7	12	2	7	4	68	1	1	0	0
	3	81	7	6	5	16	4	76	1	1	1	7
	5	82	11	23	3	12	8	106	3	6	0	6
	5	95	12	25	2	24	2	94	1	4	2	3
	3	103	9	12	3	9	12	114	0	0	0	0
	5	85	9	8	2	14	6	86	2	0	0	1
	2	68	5	11	3	14	3	75	2	1	0	2
4	76	2	7	1	12	1	57	0	2	0	1	
Period End	40	944	93	157	33	155	58	1056	14	25	6	38





**R.O.A.R. DATA**

**Reliable, Original & Authentic Results**

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning  
Job No/Name : 5170 ZETLAND 904 Bourke St  
Day/Date : Friday 23rd May 2014



Elizabeth St

**Intersection Layout**

Obtained via satellite

May be incorrect

**AM PEAK HOUR  
0800 - 0900**

Combined figures only

Merton St



AM	PM	L	T	R
46	68	26	10	44

R	T	L	AM	PM
33	175	14	41	18

R	T	L	AM	PM
10	20	2	6	4

PM	AM	L	T	R
28	400	24	473	6



Merton St

**PM PEAK HOUR  
1700 - 1800**

Elizabeth St

Weather >>>





**R.O.A.R. DATA**

**Reliable, Original & Authentic Results**

Ph.88196847, Fax 88196849, Mob.0418-239019

Client

: Varga Traffic Planning

Job No/Name

: 5170 ZETLAND 904 Bourke St

Day/Date

: Friday 23rd May 2014

**Lights**

Lights	NORTH				WEST				SOUTH				EAST			
	McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St	
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
Peak Time	0	1	0	7	0	2	1	1	0	5	4	2	1	1	0	5
0630 - 0730	0	1	0	7	0	2	1	1	0	5	4	2	1	1	0	5
0645 - 0745	0	1	0	1	0	2	1	1	0	0	4	3	0	0	4	3
0700 - 0800	0	0	0	2	0	0	0	1	0	0	4	1	0	0	4	1
0715 - 0815	0	0	0	2	1	0	1	0	0	0	3	0	0	3	0	7
0730 - 0830	0	0	0	1	2	0	3	0	0	0	1	0	0	1	0	7
0745 - 0845	0	0	1	1	2	0	5	0	0	0	1	0	0	1	0	10
0800 - 0900	0	0	1	0	2	0	5	0	0	0	0	0	0	0	0	8
0815 - 0915	0	0	1	0	1	0	5	0	0	0	3	1	1	1	1	11
0830 - 0930	0	0	1	0	0	0	3	0	0	0	6	1	1	1	1	11
PEAK HOUR	0	1	0	7	0	2	1	1	0	0	5	4	2	1	0	21

**Heavies**

Heavies	NORTH				WEST				SOUTH				EAST			
	McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St	
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
Peak Per	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0630 - 0730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0645 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0715 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0730 - 0830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0845	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0815 - 0915	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0830 - 0930	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HOUR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Combined**

Combined	NORTH				WEST				SOUTH				EAST			
	McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St	
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
Peak Per	0	1	0	7	0	2	1	1	0	5	4	2	1	1	0	5
0630 - 0730	0	1	0	7	0	2	1	1	0	5	4	2	1	1	0	5
0645 - 0745	0	1	0	1	0	2	1	1	0	0	4	3	0	0	4	3
0700 - 0800	0	0	0	2	0	0	1	0	0	4	1	0	0	4	1	8
0715 - 0815	0	0	0	2	1	0	3	0	0	3	0	0	0	3	0	7
0730 - 0830	0	0	0	1	2	0	5	0	0	1	0	0	0	1	0	7
0745 - 0845	0	0	1	1	2	0	5	0	0	0	1	0	0	1	0	10
0800 - 0900	0	0	1	0	2	0	5	0	0	0	0	0	0	0	0	8
0815 - 0915	0	0	1	0	1	0	5	0	0	3	1	1	1	1	1	11
0830 - 0930	0	0	1	0	0	0	3	0	0	6	1	1	1	1	1	11
PEAK HOUR	0	1	0	7	0	2	1	1	0	0	5	4	2	1	0	21

**Lights**

Lights	NORTH				WEST				SOUTH				EAST			
	McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St	
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
Time Per	0	0	0	6	0	0	0	1	0	0	1	1	0	0	1	1
0630 - 0645	0	0	0	6	0	0	0	1	0	0	1	1	0	0	1	1
0645 - 0700	0	1	0	0	0	2	1	1	0	0	1	2	0	0	2	8
0700 - 0715	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	2
0715 - 0730	0	0	0	1	0	0	0	0	0	0	2	0	0	0	3	3
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	1	1	0	0	1	0	0	0	1	0	0	0	3	3
0800 - 0815	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1
0815 - 0830	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3	3
0830 - 0845	0	0	1	0	0	2	0	0	0	0	0	0	0	0	3	3
0845 - 0900	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
0900 - 0915	0	0	0	0	0	0	0	0	0	0	3	1	4	1	4	4
0915 - 0930	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3	3
Period End	0	1	1	8	2	2	7	1	0	0	12	5	39	5	39	39

**Heavies**

Heavies	NORTH				WEST				SOUTH				EAST			
	McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St		McPherson L		Merton St	
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R
Time Per	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0630 - 0645	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0645 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700 - 0715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0715 - 0730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0815 - 0830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0830 - 0845	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0845 - 0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900 - 0915	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0915 - 0930	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Period End	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Combined**

Combined	NORTH				WEST				SOUTH				EAST			
	McPherson L				Merton St				McPherson L				Driveway			
	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT	L	I	R	TOT
Time Per																
0630 - 0645	0	0	0	6	0	0	0	0	0	0	0	0	1	1	1	8
0645 - 0700	0	1	0	0	0	0	2	1	1	0	0	1	2	0	0	8
0700 - 0715	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	8
0715 - 0730	0	0	0	1	0	0	0	0	0	0	0	0	2	0	3	3
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	1	0	0	0	1	0	0	0	1	0	3	0	3
0800 - 0815	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
0815 - 0830	0	0	0	0	1	0	0	2	0	0	0	0	0	0	3	3
0830 - 0845	0	1	0	0	0	0	2	0	0	0	0	0	0	0	3	3
0845 - 0900	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
0900 - 0915	0	0	0	0	0	0	0	0	0	0	0	3	1	4	1	4
0915 - 0930	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3
Period End	0	1	1	8	2	2	7	1	0	0	12	5	39			

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## Reliable, Original & Authentic Results

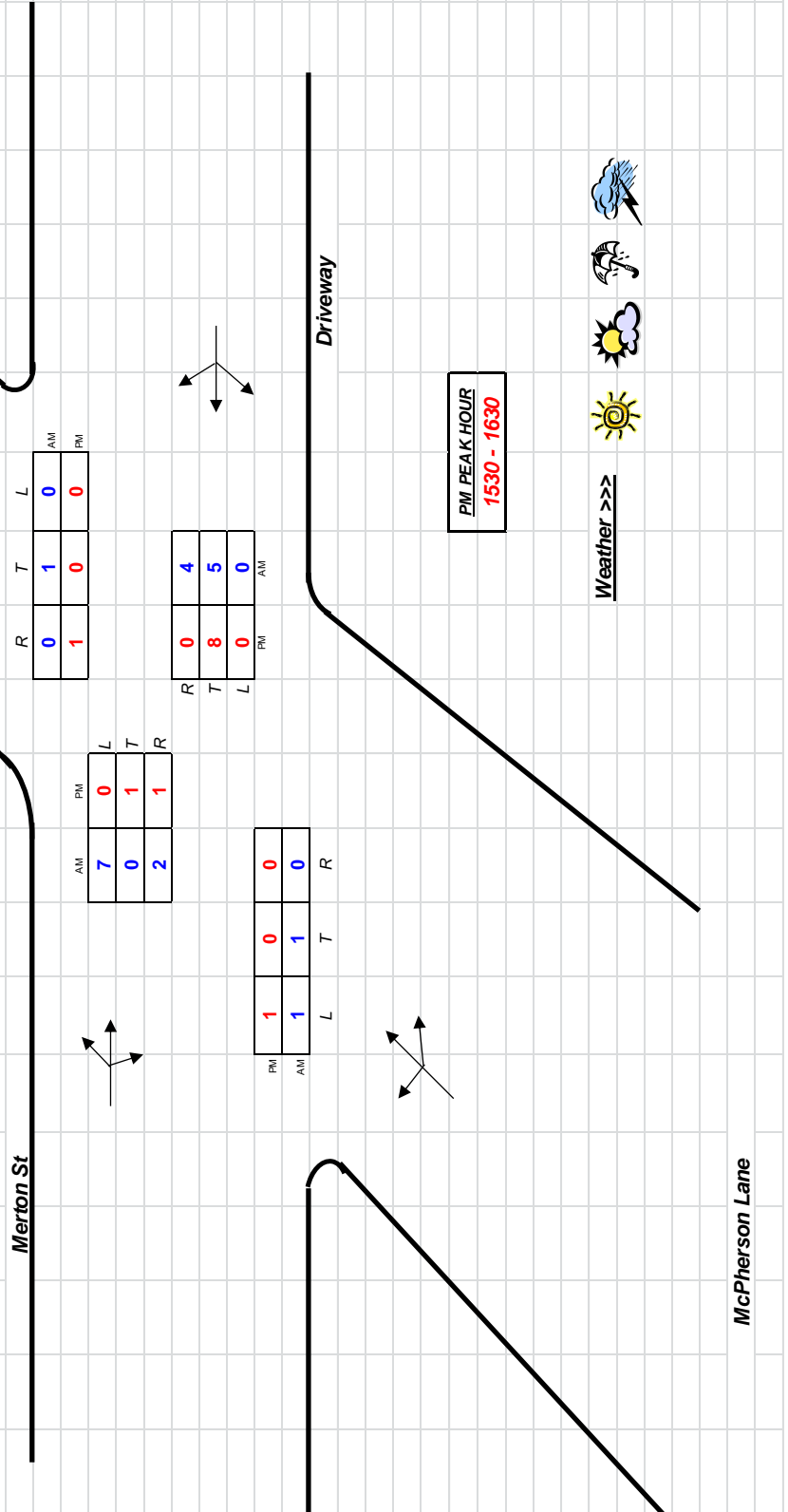
Ph.88196847, Fax 88196849, Mob.0418-239019

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## Obtained via satellite

No sign	
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**Combined figures only**



# ATTACHMENT A

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## **APPENDIX C**

### **SIDRA ANALYSIS RESULTS**

## MOVEMENT SUMMARY

# ATTACHMENT A

### ▽ Site: Proposed IND AM

Bourke St & Site Access Driveway, Zetland  
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bourke St (S)											
2	T1	517	3.5	0.160	1.7	LOS A	1.3	9.4	0.23	0.05	52.3
3	R2	37	0.0	0.160	9.6	LOS A	1.3	9.4	0.57	0.12	39.1
Approach		554	3.2	0.160	2.2	NA	1.3	9.4	0.26	0.05	49.6
East: Site Access Driveway (E)											
4	L2	9	0.0	0.042	10.2	LOS A	0.2	1.1	0.26	0.52	34.7
6	R2	9	0.0	0.042	10.3	LOS A	0.2	1.1	0.26	0.52	34.5
Approach		18	0.0	0.042	10.2	LOS A	0.2	1.1	0.26	0.52	34.6
North: Bourke St (N)											
7	L2	37	0.0	0.059	5.5	LOS A	0.0	0.0	0.00	0.20	54.8
8	T1	642	2.6	0.059	0.0	LOS A	0.0	0.0	0.00	0.02	59.0
Approach		679	2.5	0.296	0.3	NA	0.0	0.0	0.00	0.03	58.4
All Vehicles		1251	2.8	0.296	1.3	NA	1.3	9.4	0.12	0.05	53.0

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

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SIDRA INTERSECTION 6.0.20.4660

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## MOVEMENT SUMMARY

# ATTACHMENT A

### ▽ Site: Proposed IND PM

Bourke St & Site Access Driveway, Zetland  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bourke St (S)											
2	T1	595	0.2	0.314	2.9	LOS A	3.0	21.1	0.54	0.01	49.3
3	R2	9	0.0	0.314	8.4	LOS A	3.0	21.1	0.54	0.01	40.4
Approach		604	0.2	0.314	3.0	NA	3.0	21.1	0.54	0.01	48.9
East: Site Access Driveway (E)											
4	L2	37	0.0	0.139	9.2	LOS A	0.5	3.8	0.52	0.64	35.2
6	R2	37	0.0	0.139	9.3	LOS A	0.5	3.8	0.52	0.64	35.0
Approach		74	0.0	0.139	9.3	LOS A	0.5	3.8	0.52	0.64	35.1
North: Bourke St (N)											
7	L2	9	0.0	0.155	5.5	LOS A	0.0	0.0	0.00	0.02	57.1
8	T1	592	0.3	0.155	0.0	LOS A	0.0	0.0	0.00	0.01	59.6
Approach		601	0.3	0.155	0.1	NA	0.0	0.0	0.00	0.01	59.5
All Vehicles		1279	0.2	0.314	2.0	NA	3.0	21.1	0.29	0.05	50.0

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

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## MOVEMENT SUMMARY

# ATTACHMENT A

### ▽ Site: Proposed RES AM

Bourke St & Site Access Driveway, Zetland  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bourke St (S)											
2	T1	517	3.5	0.139	1.8	LOS A	1.3	9.2	0.26	0.01	52.9
3	R2	6	0.0	0.139	9.2	LOS A	1.3	9.2	0.53	0.02	39.8
Approach		523	3.4	0.139	1.9	NA	1.3	9.2	0.26	0.01	52.3
East: Site Access Driveway (E)											
4	L2	24	0.0	0.107	10.0	LOS A	0.4	2.8	0.32	0.54	34.8
6	R2	24	0.0	0.107	10.1	LOS A	0.4	2.8	0.32	0.54	34.6
Approach		48	0.0	0.107	10.0	LOS A	0.4	2.8	0.32	0.54	34.7
North: Bourke St (N)											
7	L2	6	0.0	0.056	5.5	LOS A	0.0	0.0	0.00	0.03	56.9
8	T1	642	2.6	0.056	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		648	2.6	0.282	0.1	NA	0.0	0.0	0.00	0.01	59.7
All Vehicles		1219	2.9	0.282	1.2	NA	1.3	9.2	0.13	0.03	52.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Processed: Monday, 26 May 2014 4:20:39 PM

SIDRA INTERSECTION 6.0.20.4660

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## MOVEMENT SUMMARY

# ATTACHMENT A

▽ Site: Proposed RES PM

Bourke St & Site Access Driveway, Zetland  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bourke St (S)											
2	T1	595	0.2	0.328	3.1	LOS A	3.3	23.1	0.57	0.03	48.3
3	R2	24	0.0	0.328	8.6	LOS A	3.3	23.1	0.57	0.03	40.2
Approach		619	0.2	0.328	3.4	NA	3.3	23.1	0.57	0.03	47.3
East: Site Access Driveway (E)											
4	L2	6	0.0	0.023	8.9	LOS A	0.1	0.6	0.50	0.59	35.4
6	R2	6	0.0	0.023	9.0	LOS A	0.1	0.6	0.50	0.59	35.2
Approach		12	0.0	0.023	8.9	LOS A	0.1	0.6	0.50	0.59	35.3
North: Bourke St (N)											
7	L2	24	0.0	0.159	5.5	LOS A	0.0	0.0	0.00	0.05	56.7
8	T1	592	0.3	0.159	0.0	LOS A	0.0	0.0	0.00	0.02	59.1
Approach		616	0.3	0.159	0.2	NA	0.0	0.0	0.00	0.02	58.8
All Vehicles		1247	0.2	0.328	1.9	NA	3.3	23.1	0.29	0.03	51.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

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SIDRA INTERSECTION 6.0.20.4660

Project: \\Vtp\_nas\data\Data\Jobs01\Jobs\14work\14306\_904BourkeStZetland\Sidra Results 140528\BOU\_ACCP  
IND AM.sip6

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INTERSECTION 6**

## MOVEMENT SUMMARY

# ATTACHMENT A

### ▽ Site: Existing AM

Bourke St & Hawksley St, Zetland  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bourke St (S)											
1	L2	6	0.0	0.136	5.5	LOS A	0.0	0.0	0.00	0.01	57.2
2	T1	511	3.5	0.136	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		517	3.5	0.136	0.1	NA	0.0	0.0	0.00	0.01	59.6
North: Bourke St (N)											
8	T1	642	2.6	0.300	2.5	LOS A	2.9	20.9	0.40	0.04	50.2
9	R2	36	5.6	0.300	8.8	LOS A	2.9	20.9	0.52	0.05	46.8
Approach		678	2.8	0.300	2.8	NA	2.9	20.9	0.41	0.04	49.8
West: Hawksley St (W)											
10	L2	37	0.0	0.035	5.6	LOS A	0.1	1.0	0.33	0.53	43.8
12	R2	1	0.0	0.004	16.5	LOS B	0.0	0.1	0.76	0.74	36.4
Approach		38	0.0	0.035	5.9	LOS A	0.1	1.0	0.34	0.54	43.6
All Vehicles		1233	3.0	0.300	1.8	NA	2.9	20.9	0.23	0.04	52.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

# ATTACHMENT A

### ▽ Site: Existing PM

Bourke St & Hawksley St, Zetland  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bourke St (S)											
1	L2	14	0.0	0.306	5.5	LOS A	0.0	0.0	0.00	0.01	57.2
2	T1	581	0.2	0.306	0.0	LOS A	0.0	0.0	0.00	0.01	59.4
Approach		595	0.2	0.306	0.1	NA	0.0	0.0	0.00	0.01	59.3
North: Bourke St (N)											
8	T1	590	0.3	0.166	1.4	LOS A	1.3	9.3	0.23	0.03	53.9
9	R2	30	0.0	0.166	8.5	LOS A	1.3	9.3	0.51	0.07	46.6
Approach		620	0.3	0.166	1.7	NA	1.3	9.3	0.24	0.03	53.0
West: Hawksley St (W)											
10	L2	37	0.0	0.038	6.9	LOS A	0.2	1.2	0.51	0.63	42.9
12	R2	2	0.0	0.006	13.9	LOS A	0.0	0.1	0.72	0.75	37.7
Approach		39	0.0	0.038	7.3	LOS A	0.2	1.2	0.52	0.63	42.6
All Vehicles		1254	0.2	0.306	1.1	NA	1.3	9.3	0.14	0.04	54.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

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## MOVEMENT SUMMARY

# ATTACHMENT A

▽ Site: Proposed IND AM

Bourke St & Hawksley St, Zetland  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bourke St (S)											
1	L2	6	0.0	0.138	5.5	LOS A	0.0	0.0	0.00	0.01	57.2
2	T1	520	3.5	0.138	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		526	3.4	0.138	0.1	NA	0.0	0.0	0.00	0.01	59.6
North: Bourke St (N)											
8	T1	679	2.5	0.315	2.7	LOS A	3.3	23.4	0.42	0.04	49.8
9	R2	36	5.6	0.315	9.0	LOS A	3.3	23.4	0.54	0.05	46.6
Approach		715	2.7	0.315	3.0	NA	3.3	23.4	0.42	0.04	49.4
West: Hawksley St (W)											
10	L2	37	0.0	0.035	5.6	LOS A	0.1	1.0	0.33	0.53	43.8
12	R2	1	0.0	0.004	17.6	LOS B	0.0	0.1	0.77	0.75	35.7
Approach		38	0.0	0.035	5.9	LOS A	0.1	1.0	0.34	0.54	43.5
All Vehicles		1279	2.9	0.315	1.9	NA	3.3	23.4	0.25	0.04	52.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

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## MOVEMENT SUMMARY

# ATTACHMENT A

▽ Site: Proposed IND PM

Bourke St & Hawksley St, Zetland  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bourke St (S)											
1	L2	14	0.0	0.325	5.5	LOS A	0.0	0.0	0.00	0.01	57.2
2	T1	618	0.2	0.325	0.0	LOS A	0.0	0.0	0.00	0.01	59.4
Approach		632	0.2	0.325	0.1	NA	0.0	0.0	0.00	0.01	59.3
North: Bourke St (N)											
8	T1	599	0.3	0.169	1.5	LOS A	1.4	9.8	0.24	0.03	53.5
9	R2	30	0.0	0.169	8.8	LOS A	1.4	9.8	0.54	0.07	46.4
Approach		629	0.3	0.169	1.8	NA	1.4	9.8	0.26	0.04	52.6
West: Hawksley St (W)											
10	L2	37	0.0	0.040	7.1	LOS A	0.2	1.2	0.53	0.64	42.8
12	R2	2	0.0	0.006	14.8	LOS B	0.0	0.2	0.74	0.76	37.1
Approach		39	0.0	0.040	7.5	LOS A	0.2	1.2	0.54	0.65	42.4
All Vehicles		1300	0.2	0.325	1.2	NA	1.4	9.8	0.14	0.04	54.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

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## MOVEMENT SUMMARY

# ATTACHMENT A

▽ Site: Proposed RES AM

Bourke St & Hawksley St, Zetland  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: Bourke St (S)											
1	L2	6	0.0	0.142	5.5	LOS A	0.0	0.0	0.00	0.01	57.2
2	T1	535	3.4	0.142	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		541	3.3	0.142	0.1	NA	0.0	0.0	0.00	0.01	59.6
North: Bourke St (N)											
8	T1	648	2.6	0.303	2.7	LOS A	3.1	21.9	0.42	0.04	49.7
9	R2	36	5.6	0.303	9.1	LOS A	3.1	21.9	0.54	0.05	46.5
Approach		684	2.8	0.303	3.0	NA	3.1	21.9	0.43	0.04	49.3
West: Hawksley St (W)											
10	L2	37	0.0	0.035	5.6	LOS A	0.1	1.0	0.34	0.54	43.8
12	R2	1	0.0	0.004	17.1	LOS B	0.0	0.1	0.77	0.75	36.0
Approach		38	0.0	0.035	5.9	LOS A	0.1	1.0	0.35	0.54	43.5
All Vehicles		1263	2.9	0.303	1.8	NA	3.1	21.9	0.24	0.04	52.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

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## MOVEMENT SUMMARY

# ATTACHMENT A

▽ Site: Proposed RES PM

Bourke St & Hawksley St, Zetland  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bourke St (S)											
1	L2	14	0.0	0.309	5.5	LOS A	0.0	0.0	0.00	0.01	57.2
2	T1	587	0.2	0.309	0.0	LOS A	0.0	0.0	0.00	0.01	59.4
Approach		601	0.2	0.309	0.1	NA	0.0	0.0	0.00	0.01	59.3
North: Bourke St (N)											
8	T1	614	0.3	0.173	1.4	LOS A	1.4	9.8	0.24	0.03	53.8
9	R2	30	0.0	0.173	8.6	LOS A	1.4	9.8	0.52	0.07	46.6
Approach		644	0.3	0.173	1.7	NA	1.4	9.8	0.25	0.03	52.9
West: Hawksley St (W)											
10	L2	37	0.0	0.038	6.9	LOS A	0.2	1.2	0.52	0.63	42.9
12	R2	2	0.0	0.006	14.4	LOS A	0.0	0.2	0.73	0.75	37.4
Approach		39	0.0	0.038	7.3	LOS A	0.2	1.2	0.53	0.64	42.6
All Vehicles		1284	0.2	0.309	1.2	NA	1.4	9.8	0.14	0.04	54.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

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# ATTACHMENT A

# ATTACHMENT A

## **APPENDIX C – SUMMARY OF SUBMISSIONS RECEIVED AND RESPONSES FROM THE CITY OF SYDNEY**

See Attachment C of the Officers report to Council/the Central Sydney Planning Committee.