COUNCIL MEETING

A meeting of WAVERLEY COUNCIL will be held at Waverley Council Chambers
Cnr Paul Street and Bondi Road, Bondi Junction at:

6.30 PM, TUESDAY 18 JULY 2017

Cathy Henderson
Acting General Manager

Waverley Council
PO Box 9
Bondi Junction NSW 1355
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Tel. 9083 8000
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AGENDA

PRAYER AND ACKNOWLEDGEMENT OF INDIGENOUS HERITAGE

The Mayor will read the following Opening Prayer and Acknowledgement of Indigenous Heritage:

'God, we pray for wisdom to govern with justice and equity. That we may see clearly and speak the truth and that we work together in harmony and mutual respect. May our actions demonstrate courage and leadership so that in all our works thy will be done. Amen.

Waverley Council respectfully acknowledges our Indigenous heritage and recognises the ongoing Aboriginal traditional custodianship of the land which forms our Local Government Area.'

1. Apologies/Leaves of Absence

2. Declarations of Pecuniary and Non-Pecuniary Interests

3. Addresses to Council by Members of the Public

4. Confirmation and Adoption of Minutes

5. Mayoral Minutes 28

6. Obituaries 29

7. Reports

8. Notices of Motion

Nil.

11. Meeting Closure

CONFIRMATION AND ADOPTION OF MINUTES CM/4.1/17.07

Subject: **Confirmation of Minutes - Council Meeting - 20 June 2017**

TRIM No.: SF17/81

Author: Richard Coelho, Governance and Internal Ombudsman Officer

RECOMMENDATION:

That the minutes of the Council Meeting held on 20 June 2017 be received and noted, and that such minutes be confirmed as a true record of the proceedings of that meeting.

Introduction/Background

The minutes of the Council meeting must be submitted to Council for confirmation, in accordance with section 375 of the *Local Government Act 1993*.

Attachments

1. Council Meeting Minutes - 20 June 2017

MINUTES OF THE WAVERLEY COUNCIL MEETING
HELD AT WAVERLEY COUNCIL CHAMBERS, CNR PAUL STREET AND BONDI ROAD, BONDI JUNCTION ON TUESDAY, 20 JUNE 2017

Present:

Councillor Sally Betts (Mayor) (Chair)	Hunter Ward
Councillor Tony Kay (Deputy Mayor)	Waverley Ward
Councillor Angela Burrill	Lawson Ward
Councillor Joy Clayton	Bondi Ward
Councillor Andrew Cusack	Lawson Ward
Councillor Leon Goltsman	Hunter Ward
Councillor Miriam Guttman-Jones	Hunter Ward
Councillor Paula Masselos	Lawson Ward
Councillor Bill Mouroukas	Waverley Ward
Councillor John Wakefield	Bondi Ward

Staff in attendance:

Cathy Henderson	Acting General Manager
Rachel Jenkin	Acting Director, Waverley Life
Peter Monks	Director, Waverley Futures
Emily Scott	Acting Director, Waverley Renewal
Jane Worthy	Internal Ombudsman

At the commencement of proceedings at 6.31 pm, those present were as listed above, with the exception of Cr Wakefield, who arrived at 6.34 pm.

AT 8.39 PM, WHILE IN CLOSED SESSION, COUNCIL ADJOURNED THE MEETING TO 8.00 AM SUNDAY, 25 JUNE 2017, IN THE COUNCIL CHAMBERS.

AT 8.04 AM ON SUNDAY, 25 JUNE 2017, THE MEETING RECONVENED IN CLOSED SESSION IN THE COUNCIL CHAMBERS. AT 8.19 AM, DUE TO THE MEETING BEING INQUORATE, THE CHAIR ADJOURNED THE MEETING WHILE IN CLOSED SESSION TO 8.30 PM TUESDAY, 27 JUNE 2017, IN THE COUNCIL CHAMBERS.

AT 8.31 PM ON TUESDAY, 27 JUNE 2017, THE MEETING RECONVENED IN CLOSED SESSION IN THE COUNCIL CHAMBERS.

PRAYER AND ACKNOWLEDGEMENT OF INDIGENOUS HERITAGE

The Mayor read the following Opening Prayer and Acknowledgement of Indigenous Heritage:

God, we pray for wisdom to govern with justice and equity. That we may see clearly and speak the truth and that we work together in harmony and mutual respect. May our actions demonstrate courage and leadership so that in all our works thy will be done. Amen.

Waverley Council respectfully acknowledges our Indigenous heritage and recognises the ongoing Aboriginal traditional custodianship of the land which forms our Local Government Area.

1. Apologies/Leaves of Absence

Apologies were received and accepted from Cr Wy Kanak.

CM/1.1/17.06 Leave of Absence - Cr Strewe (SF17/81)

MOTION/ DECISION Mover: Cr Masselos
Seconder: Cr Betts

That Cr Strewe be granted a leave of absence for the July Council meeting, the July Operations Committee meeting and the July Council meeting.

2. Declarations of Pecuniary and Non-Pecuniary Interests

The Chair called for declarations of interest and the following were received:

2.1 Cr Kay declared a pecuniary interest in Item CM/7.6/17.06 – Campbell Parade Footpath Seating Pilot Project, and informed the meeting that his parents-in-law own property located close to Bondi Pacific. Cr Kay advised that he will be leaving the Chamber for the debate and vote on this item.

2.2 Cr Clayton declared an interest in Item CM/7.12/17.06 – Venue Hire Grants Program Awards 2017–18, and informed the meeting that she is on the committee of the Eastern Suburbs branch of the NSW Justices Association, and also a patron of the Association. Cr Clayton advised that she will be leaving the Chamber for this item.

2.3 Cr Clayton declared an interest in Item CM/10.2/17.06 – CONFIDENTIAL REPORT – Code of Conduct Complaint – May 2016, and informed the meeting that she will be leaving the Chamber for this item.

2.4 Cr Guttman-Jones declared an interest in Item CM/10.2/17.06 – CONFIDENTIAL REPORT – Code of Conduct Complaint – May 2016, and informed the meeting that she will be leaving the Chamber for this item.

2.5 Cr Betts declared a significant non-pecuniary interest in Item CM/7.12/17.06 – Venue Hire Grants Program Awards 2017–18, and informed the meeting that she is on the management committee of WAYS, and will be leaving the Chamber for this item.

2.6 Cr Betts declared a significant non-pecuniary interest in Item CM/10.2/17.06 – CONFIDENTIAL REPORT – Code of Conduct Complaint – May 2016, and informed the meeting that she will be leaving the Chamber for this item.

3. Addresses to Council by Members of the Public

3.1 G Waddell (on behalf of Tamarama Surf Life Saving Club) – CM/8.1/17.06 – Tamarama Surf Life Saving Club.

4. Confirmation and Adoption of Minutes

CM/4.1/17.06 Confirmation of Minutes - Council Meeting - 16 May 2017 (SF17/81)

MOTION / DECISION

Mover: Cr Goltsman
Seconder: Cr Mouroukas

That the minutes of the Council Meeting held on 16 May 2017 be received and noted, and that such minutes be confirmed as a true record of the proceedings of that meeting.

CM/4.2/17.06 Adoption of Minutes - Waverley Traffic Committee Meeting - 25 May 2017 (SF17/81)

MOTION / DECISION

Mover: Cr Mouroukas
Seconder: Cr Kay

That Part 1 of the Minutes of the Waverley Traffic Committee Meeting held on 25 May 2017 be received and noted, and that the recommendations contained therein be adopted.

Save and except the following:

1. Item TC/C.01/17.05 – Watson Street, Bondi – 'No Stopping' Zone Extension.

And that this item be dealt with separately below.

CM/4.2.1/17.06 Adoption of Minutes - Waverley Traffic Committee Meeting - 25 May 2017 - TC/C.01/17.05 - Watson Street, Bondi - 'No Stopping' Zone Extension (A02/0637-02)

MOTION / DECISION

Mover: Cr Betts
Seconder: Cr Burrill

That the Council Officer's proposal be adopted subject to the retention of the car space.

5. Mayoral Minutes

CM/5.1/17.06 Extension of General Manager's Employment Contract (P12/040)

MOTION / UNANIMOUS DECISION Mover: Cr Betts

That Council:

1. Treats Attachment 1 to this report as confidential in accordance with section 11(3) of the *Local Government Act 1993*, as it relates to a matter specified in section 10A(2)(a) of the Local Government Act 1993. The report contains personnel matters concerning particular individuals (other than councillors).

2. Extends the contract of Cathy Henderson as Acting General Manager under section 336(1) of the *Local Government Act 1993* from 5 pm on 15 August 2017 to 5 pm on 14 February 2018 on the same terms and conditions of the previous agreement, which is attached to this report as Attachment 1.

3. Delegates to Cathy Henderson, the Acting General Manager of Council, or to the person acting in the position of General Manager during any period of absence from duty of Cathy Henderson, all the powers and functions of the Council as outlined in Attachment 2 to this report, effective from 5 pm, 15 August 2017, to 5 pm, 14 February 2018, inclusive.

4. Considers a further report on the process for the permanent filling of the position of General Manager once there is further clarity around the direction of current local government reform processes.

Background

Cathy Henderson, Director, Waverley Life, was appointed as Acting General Manager on 16 February on a six-month higher duties appointment which will cease on 15 August 2017. The appointment of six months was made due to the continued uncertainty surrounding the timing of amalgamations. It is likely that a decision on the legal challenges may extend to later in the year and stable leadership throughout this period is essential.

Ms Henderson has provided strong leadership to Council and for this reason I recommend an extension of the acting arrangement allowed under section 336(1) of the *Local Government Act 1993*. The current contract allows either party to provide two weeks' notice to cease the acting arrangements allowing flexibility around pending amalgamation decisions. Ms Henderson's current contract is attached.

CM/5.2/17.06 Rodney Reserve Sports Field Upgrade (A10/0336)

MOTION / DECISION Mover: Cr Betts

That Council:

1. Proceeds with the upgrade to the sports field at Rodney Reserve, which will include levelling of the field and underground irrigation.

2. Prioritises the traffic study to determine the impact of the improved sporting facilities on local roads and local amenity.

3. Conducts further consultation with residents regarding the results of the traffic study.

Background

The Recreation Needs Study (2008) recognised that the high demand for playing fields across Waverley is not currently being met by existing facilities. The limited open space available across the LGA allows for only three full-size football pitches: two at Waverley Park and one at Rodney Reserve.

Waverley Council has been keen to upgrade Rodney Reserve for several years to provide improved facilities to local sporting groups whilst at the same time limiting the impact to local residents.

The full-size football/rugby field at Rodney Reserve is a training and casual match venue with posts and line markings for rugby and soccer. The current state of the playing field is poor, with an uneven surface, insufficient gradient/crossfall and no permanent irrigation system. The condition of the field at the start of 2017 season was deemed not satisfactory from a number of clubs, who looked for alternative venues outside the Council area to meet their demand.

As an active community, with an appetite for club sport, the pressure for field space will only increase in future years and sports field demand will continue to exceed supply across the area. This results in local community sporting clubs being unable to cater for new members and teams.

There are currently over 1,500 community level registered football players within the LGA, in addition to hundreds of rugby and Gaelic football players (male, female, adults and juniors).

Waverley LGA has eight home winter clubs, who share the limited sports facilities. Many of these clubs are growing; however, Council is not able to accommodate this growth with the existing facilities

In December 2016, Council resolved to continue with the investigation of a number of issues relating to Rodney Reserve, including a traffic impact study and research into potential sites of importance, as well as the creation of an additional concept design for an amenities building.

Whilst concerned about the impacts of an amenities building being constructed at Rodney Reserve and the possible impacts this may have, the local community has always been supportive of an upgrade to the playing field itself.

With the increasing demand for sports fields and the significant concerns about the playing field at Rodney Reserve, it is recommended that Council proceeds with the upgrade of the playing field at the earliest opportunity. The playing field upgrades are designed around community level sport and will include required irrigation and levelling to allow sport to be played safely throughout the year. Upgrades are not designed for high performance or elite sporting facilities.

It is further recommended to expedite the traffic impact study and present the results of the study to the local community for consultation regarding any potential recommended changes.

Division

For the Motion:	Crs Betts, Burrill, Clayton, Cusack, Goltsman, Guttman-Jones, Kay and Mouroukas.
Against the Motion:	Crs Masselos and Wakefield.

6. Obituaries

Kirsty Boden

Tara Hunt

Council rose for a minute's silence for the souls of people generally who have died in our Local Government area.

7. Reports

CM/7.1/17.06 High Tide Room - Options for the Repair or Replacement of the Roof (A03/0929-04)

MOTION / UNANIMOUS DECISION

Mover: Cr Burrill
Seconder: Cr Goltsman

That Council:

1. Approves the full replacement of the High Tide Room roof in the South Western wing of Bondi Pavilion.

2. Approves the replacement of the metal awning and downpipe as part of the upgrade works.

3. Notes that $177,000 has been allocated in the draft 2017/18 Capital Works budget for the roof replacement project.

Cr Guttman-Jones was not present for the vote on this item.

CM/7.2/17.06 Proposed Budget for Financial Year 2017/18 and Long Term Financial Plan (LTFP 4.4) (A03/2236)

MOTION / DECISION

Mover: Cr Cusack
Seconder: Cr Betts

That Council:

1. Adopts the budget for the financial year 2017/18 as presented in Attachment 1 and 2 to this report.

2. Notes the Long Term Financial Plan (LTFP 4.4) for an 11-year period from 2017/18 to 2027/28 including Income Statement, Balance Sheet, Statement of Cash Flow, Reserve Balances, General Assumptions as presented in Attachments 3, 4, 5 to this report and the Sensitivity Analysis.

CM/7.3/17.06 Draft Operational Plan 2017-18 and Proposed Pricing Policy, Fees and Charges 2017-18 (A17/0149)

MOTION / UNANIMOUS DECISION

Mover: Cr Betts
Seconder: Cr Kay

That Council:

1. Receives and notes the submissions and proposed amendments made in relation to the draft Operational Plan 2017–18 and the proposed Pricing Policy, Fees and Charges 2017–18 as in Attachment 1 to this report.

2. Adopts the Draft Operational Plan 2017–18 and the proposed Pricing Policy, Fees and Charges 2017–18 with changes marked up in Attachments 2 and 3 in accordance with section 405 of the *Local Government Act 1993*, subject to the following fees being included at page 27 after the section on building-related certificates on page 26 and 27, which were inadvertently omitted and are fees for standard services provided by Council over many years:

   (a) Building inspection fees (where Council is Principle Certifier and issuer of the Construction Certificate): $150 per required inspection.

   (b) Construction Certificate and Complying Development Certificate – Administration fee: $150 per certificate.

   (c) Construction Certificate and Complying Development Certificate – Assessment fee up to $5,000 building cost: 0.6% of cost.

   (d) Construction Certificate and Complying Development Certificate – Assessment fee $5,001 - $100,000: (c) + 0.5% for next $95,000.

   (e) Construction Certificate and Complying Development Certificate – Assessment fee $100,001- $250,000: (c+d) + 0.4% for next $150,000.

   (f) Construction Certificate and Complying Development Certificate – Assessment fee $250,001- $1 million: (c+d+e) + 0.2% for next $750,000.

   (g) Construction Certificate and Complying Development Certificate – Assessment fee $1 million+: (c+d+e+f) + 0.1% over $1 million.

   (h) Notification fee for Complying Development Certificate: $190 per application.

   (i) Occupation certificate application fee (interim or final): $150

3. Adopts the Rating Structure for 2017–18 contained on page 59 of the Operational Plan 2017–18 in Attachment 2, together with the proposed Pricing Policy, Fees and Charges 2017–18 as in Attachment 3, in accordance with sections 497, 516, 518 , 529(2)(d), 534, 535 and 548(3) of the *Local Government Act*, making the following rates and charges for every parcel of rateable land within the Waverley Council Local Government Area for the period of 1 July 2017 to 30 June 2018:

   (a) That an ordinary rate of zero point one one zero five one cents (0.11051) in the dollar subject to a minimum rate of $614.26 in accordance with section 548(3) of the Act, on all rateable land categorised Residential in accordance with section 516 of the Act be now made for the period 1 July 2017 to 30 June 2018.

(b) That an ordinary rate of zero point five one nine nine six cents (0.51996) in the dollar on all rateable land categorised Business in accordance with section 518 of the Act be now made for the period 1 July 2017 to 30 June 2018.

(c) That an ordinary rate of zero point eight four six nine three cents (0.84693) in the dollar on all rateable land categorised Business in accordance with section 518 of the Act and subcategorised Bondi Junction in accordance with section 529(2)(d) of the Act be now made for the period 1 July 2017 to 30 June 2018.

(d) That in accordance with section 496 of the *Local Government Act*, the charge for the Domestic Waste Management Service is set at $515.00 per service per annum for the period 1 July 2017 to 30 June 2018.

CM/7.4/17.06 Draft Bondi Junction Green Infrastructure Master Plan (A16/0286)

MOTION / UNANIMOUS DECISION Mover: Cr Wakefield
Seconder: Cr Goltsman

That Council:

1. Adopts the draft Bondi Junction Green Infrastructure Master Plan.

2. Proceeds to the delivery of the waste, energy and water solutions in the implementation plan.

CM/7.5/17.06 Voluntary Planning Agreement Associated with Development Application at 695 Old South Head Road, Vaucluse (DA-156/2016)

MOTION / UNANIMOUS DECISION Mover: Cr Goltsman
Seconder: Cr Cusack

That Council:

1. Endorses the draft Planning Agreement attached to this report applying to land at 695 Old South Head Road, Vaucluse, that provides a total contribution of $230,380. Of this amount, $207,342 is to be dedicated towards public works for the improvement of Kimberley Reserve, Vaucluse. The remaining $23,038 (10%) is to be dedicated towards Waverley's Affordable Housing Program in accordance with the Waverley Planning Agreement Policy 2014.

2. Authorises the Mayor and General Manager to sign and execute the agreement and affix the Council seal to the documentation.

Division
For the Motion: Crs Betts, Burrill, Clayton, Cusack, Goltsman, Guttman-Jones, Kay, Masselos Mouroukas and Wakefield.
Against the Motion: Nil.

CM/7.6/17.06 Campbell Parade Footpath Seating Pilot Project (FPS-12/2015)

Cr Kay declared a pecuniary interest in this item, and informed the meeting that his parents-in-law own property located close to Bondi Pacific. Cr Kay was not present at, or in sight of, the meeting for the consideration and vote on this item.

MOTION / DECISION

Mover: Cr Goltsman
Seconder: Cr Burrill

That Council:

1. Revokes resolutions 1 and 4 from CM/7.2/15.08 of its meeting held on 18 August 2015 concerning the Bondi Pacific Pilot Project for outdoor dining at Campbell Parade relating to the waiving of footpath dining fees for a three year period, and which prevented the southern footpath dining area from being used or associated with any proposed hotel licensed premises within the adjacent Pacific Bondi development.

2. Endorses the Bondi Pacific footpath seating Pilot Project operating for a four-year period with footpath seating fees being waived for the duration of this period.

3. Supports, in principle, the use of the southern footpath dining area being constructed and used by the operator of the adjacent licensed hotel premises, subject to:

    (a) The assessment and determination of the outdoor dining development application for construction and use of the southern outdoor dining location.

    (b) Any approval for this location, being restricted to the nominated hotel operator and the style of premises and management of the operation as detailed by the applicant and detailed in this report.

    (c) The range of management and risk mitigation outlined by the applicant being enforced as conditions of consent and included in the approved Plan of Management for the Pilot Project.

Division
For the Motion: Crs Betts, Burrill, Cusack, Goltsman and Mouroukas.
Against the Motion: Crs Clayton, Guttman-Jones, Masselos and Wakefield.

CM/7.7/17.06 Evaluation of Tender - Environmental Data System (A17/0150)

MOTION / UNANIMOUS DECISION

Mover: Cr Goltsman
Seconder: Cr Mouroukas

That Council:

1. Treats the Tender Evaluation Matrix attached to this report as confidential as it relates to a matter specified in section 10A(2)(c) of the *Local Government Act 1993*. The attachment contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

2. Enters into a contract under clause 178 of the *Local Government (General) Regulation 2005* with Planet Footprint Pty Ltd for the provision of an Interval Data Evaluation and Alerts System.

3. Notifies unsuccessful tenderers of the decision in accordance with clause 179 of the *Local Government (General) Regulation 2005*.

CM/7.8/17.06 Draft Related Party Disclosures Policy (A17/0161)

MOTION / UNANIMOUS DECISION Mover: Cr Kay
Seconder: Cr Mouroukas

That Council adopts the draft Related Party Disclosures Policy (Attachment 1) in line with the requirements of Accounting Standard AASB 124, subject to the following amendments:

1. (Page 8 of the Policy/page 359 of the agenda): Council officers to consider including some of the statements in Section 5.4 of the Policy as a description in the two disclosure forms to provide improved comprehension.

2. (Page 8 of the Policy/page 359 of the agenda): replace 'This is required by June 30 or as requested' with 'This is required by July 14 for the prior financial year, or as requested.'

CM/7.9/17.06 Councillors' Fees - Local Government Remuneration Tribunal Determination for 2017–18 (A03/1343)

MOTION / DECISION Mover: Cr Kay
Seconder: Cr Cusack

That Council:

1. Receives and notes this report and the 2017 determination from the Local Government Remuneration Tribunal attached to this report.

2. In accordance with the Local Government Remuneration Tribunal's determination, endorses the annual fees for the year 1 July 2017 to 30 June 2018 as follows:

   (a) All Councillors (including the Mayor) – $19,310.

   (b) Mayor – $42,120 in addition to the Councillor fee.

   (c) Deputy Mayor – $3,728 in addition to the Councillor fee, and that this amount be paid from the fees paid to the Mayor.

Division
For the Motion: Crs Betts, Burrill, Clayton, Cusack, Goltsman, Guttman-Jones, Kay, Masselos and Mouroukas
Against the Motion: Cr Wakefield.

CM/7.10/17.06 Investment Policy Review - 2017 (A05/0197)

MOTION / UNANIMOUS DECISION Mover: Cr Cusack
Seconder: Cr Burrill

That Council adopts the draft revised Investment Policy, as attached to this report.

CM/7.11/17.06 Investment Portfolio Report – May 2017 (A03/2211)

MOTION / UNANIMOUS DECISION Mover: Cr Cusack
Seconder: Cr Burrill

That Council:

1. Receives the investment Portfolio Report – May 2017.

2. Notes that all investments have been made in accordance with the requirements of section 625 of the *Local Government Act 1993* and directions from the Minister for Local Government, including Ministerial Investment Orders and Council's Investment Policy.

CM/7.12/17.06 Venue Hire Grants Program Awards 2017-18 (A17/0227)

Cr Clayton declared an interest in this item, and informed the meeting that she is on the committee of the Eastern Suburbs branch of the NSW Justices Association, and also a patron of the Association. Cr Clayton was not present at, or in sight of, the meeting for the consideration and vote on this item.

Cr Betts declared a significant non-pecuniary interest in this item, and informed the meeting that she is on the management committee of WAYS. Cr Betts vacated the Chair, and was not present at, or in sight of, the meeting for the consideration and vote on this item. Cr Kay assumed the Chair for this item.

MOTION / UNANIMOUS DECISION Mover: Cr Goltsman
Seconder: Cr Mouroukas

That Council, under s 356 of the *Local Government Act*, provides the financial assistance as set out in Attachment 1 to this report, to support those listed organisations with venue hire costs until 30 June 2018 under Council's Venue Hire Grant Program 2017-18.

8. Notices of Motion

CM/8.1/17.06 Tamarama Surf Life Saving Club (A02/0422)

MOTION / UNANIMOUS DECISION Mover: Cr Masselos
Seconder: Cr Mouroukas

That Council congratulates Tamarama Surf Life Saving Club on the holding of a very successful safe surfing, swimming and fishing education day for migrants on Thursday, 11 May 2017, at Tamarama Surf Club.

CM/8.2/17.06 Footpath Seating - Bronte Beach (A03/2371)

MOTION / UNANIMOUS DECISION Mover: Cr Masselos
Seconder: Cr Wakefield

That:

1. The Sunday hours of operation for the outdoor footpath dining areas for the cafes and restaurants at Bronte Beach be amended to a 7 am starting time until the adoption of the next DCP amendment changes.

2. All existing cafes and restaurants with approved footpath dining areas be notified of this change.

9. Urgent Business

There were no items of urgent business.

10. Closed Session

CM/10/17.06 Closed Session

Cr Betts vacated the Chair for this item, and was not present at, or in sight of, the meeting for the consideration and vote on this item. Deputy Mayor Cr Kay assumed the Chair for this item.

Crs Clayton and Guttman-Jones left the Chamber during the consideration of this item, and were not present for the vote.

Before the motion to close the meeting was put, the Chair provided an opportunity for members of the public to make representations as to whether this part of the meeting should be closed. Representations were received from E Morel and M Cox that the meeting should not be closed.

MOTION Mover: Cr Goltsman
Seconder: Cr Mouroukas

That:

1. Council moves into closed session to deal with the matters listed below, which are classified as confidential under the provisions of section 10A(2) of the *Local Government Act 1993* for the reasons specified:

   CM/10.1/17.06 CONFIDENTIAL REPORT - New lease, Spotlight Pty Ltd, Upper floor, 65 Ebley Street, Bondi Junction

   This matter is considered to be confidential in accordance with Section 10A(2)(c) of the *Local Government Act*, and Council is satisfied that discussion of the matter in an open meeting would, on balance, be contrary to the public interest as it deals with information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

CM/10.2/17.06 CONFIDENTIAL REPORT - Code of Conduct Complaint - May 2016

This matter is considered to be confidential in accordance with Section 10A(2)(i) of the *Local Government Act*, and Council is satisfied that discussion of the matter in an open meeting would, on balance, be contrary to the public interest as it deals with alleged contraventions of any code of conduct requirements applicable under section 440.

2. Pursuant to section 10A(1), 10(2) and 10A(3) of the *Local Government Act 1993*, the media and public be excluded from the meeting on the basis that the business to be considered is classified confidential under the provisions of section 10A(2) of the *Local Government Act 1993*.

3. The correspondence and reports relevant to the subject business be withheld from the media and public as provided by section 11(2) of the *Local Government Act 1993*.

AMENDMENT Mover: Cr Wakefield
Seconder: Cr Masselos

That the Motion be adopted subject to Item CM/10.1/17.06 being considered in closed session and Item CM/10.2/17.06 being considered in open session.

THE AMENDMENT WAS PUT AND DECLARED LOST.

Division
For the Amendment: Crs Masselos and Wakefield.
Against the Amendment: Crs Burrill, Cusack, Goltsman, Kay and Mouroukas.

THE MOTION WAS THEN PUT AND DECLARED CARRIED.

Division
For the Motion: Crs Burrill, Cusack, Goltsman, Kay and Mouroukas.
Against the Motion: Crs Masselos and Wakefield.

DECISION: That the Motion be adopted.

At 8.21 pm, Council moved into closed session.

At 8.23 pm, the Chair adjourned the meeting for 10 minutes to clear the public gallery.

At 8.35 pm, the meeting resumed with members of the public still present. The following Motion was then moved:

MOTION Mover: Cr Kay
Seconder: Cr Goltsman

That the meeting be adjourned to 8 am Sunday, 25 June 2017, in the Council Chambers.

AMENDMENT Mover: Cr Wakefield
Seconder: Cr Masselos

That the Motion be adopted subject to the meeting being adjourned to 10 am Saturday, 24 June 2017, in the Council Chambers.

THE AMENDMENT WAS PUT AND DECLARED LOST.

THE MOTION WAS THEN PUT AND DECLARED CARRIED.

DECISION: That the Motion be adopted.

At 8.39 pm, the meeting adjourned while in closed session.

THE MEETING RECONVENED IN CLOSED SESSION IN THE COUNCIL CHAMBERS ON SUNDAY, 25 JUNE, AT 8.04 AM. AT THE COMMENCEMENT OF PROCEEDINGS, THOSE PRESENT WERE AS FOLLOWS: CRS KAY (CHAIR), BETTS (MAYOR), BURRILL, CLAYTON, CUSACK, GOLTSMAN, GUTTMAN-JONES, MASSELOS AND MOUROUKAS. CR WAKEFIELD ARRIVED AT 8.06 AM.

THE FIRST ITEM FOR CONSIDERATION WAS AS FOLLOWS:

CM/10.1/17.06 CONFIDENTIAL REPORT - New lease, Spotlight Pty Ltd, Upper floor, 65 Ebley Street, Bondi Junction (A02/0257)

MOTION / UNANIMOUS DECISION Mover: Cr Cusack
Seconder: Cr Burrill

That Council:

1. Treats this report as confidential in accordance with section 11(3) of the *Local Government Act 1993*, as it relates to a matter specified in section 10A(2)(c) of the *Local Government Act 1993*. The report contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

2. Approves a new lease to Spotlight Pty Ltd on the key terms and conditions outlined in this report.

3. Authorises the Mayor and General Manager to finalise negotiations, sign and execute the necessary documentation.

Cr Wakefield was not present for the consideration and vote on this item.

CM/10.2/17.06 CONFIDENTIAL REPORT - Code of Conduct Complaint - May 2016 (A16/0343)

Cr Clayton declared an interest in this item, and was not present at, or in sight of, the meeting for the consideration and vote on this item.

Cr Guttman-Jones declared an interest in this item, and was not present at, or in sight of, the meeting for the consideration and vote on this item.

Cr Betts declared a significant non-pecuniary interest in item, and was not present at, or in sight of, the meeting for the consideration and vote on this item.

AT THIS STAGE IN THE PROCEEDINGS, THE CHAIR (DEPUTY MAYOR CR KAY) INVITED CR BETTS INTO THE CHAMBER TO ADDRESS THE MEETING, IN ACCORDANCE WITH CL 8.47 OF THE CODE OF CONDUCT PROCEDURE FOR COUNCILLORS & GENERAL MANAGER.

BEFORE CR BETTS ENTERED THE CHAMBER, A COUNCILLOR LEFT THE CHAMBER, LEAVING THE MEETING WITHOUT A QUORUM. THE COUNCILLORS PRESENT WERE CRS KAY, BURRILL, CUSACK, GOLTSMAN, MASSELOS AND MOUROUKAS.

DUE TO THE MEETING BEING INQUORATE, THE CHAIR ADJOURNED THE MEETING WHILE IN CLOSED SESSION TO 8.30 PM TUESDAY, 27 JUNE 2017, IN THE COUNCIL CHAMBERS.

At 8.19 am, the meeting adjourned.

THE MEETING RECONVENED IN CLOSED SESSION IN THE COUNCIL CHAMBERS ON TUESDAY, 27 JUNE 2017, AT 8.31 PM. AT THE COMMENCEMENT OF PROCEEDINGS, THOSE PRESENT WERE AS FOLLOWS: CRS KAY (CHAIR), BURRILL, CUSACK, GOLTSMAN, MOUROUKAS, MASSELOS AND WAKEFIELD.

THE CHAIR INVITED CR BETTS INTO THE CHAMBER TO ADDRESS THE MEETING, IN ACCORDANCE WITH CL 8.47 OF THE CODE OF CONDUCT PROCEDURE FOR COUNCILLORS & GENERAL MANAGER.

CR BETTS ADDRESSED THE MEETING, AND THEN IMMEDIATELY LEFT THE CHAMBER. CR BETTS WAS NOT PRESENT AT, OR IN SIGHT OF, THE MEETING FOR THE CONSIDERATION AND VOTE ON THIS ITEM.

MOTION

Mover: Cr Cusack
Seconder: Cr Goltsman

That Council:

A. Treats this report as confidential in accordance with section 11(3) of the *Local Government Act 1993*, as it relates to a matter specified in section 10A(2)(i) of the *Local Government Act 1993*. The report contains alleged contraventions of any code of conduct requirements applicable under section 440.

B. Notes that the Office of Local Government (OLG) review of the OCM Investigation Report and related matters determined the following:

'With respect to Council's meeting on 17 May 2016, OLG notes the following:

- *Cr Betts made a decision as to the result of the vote on the voices and appears to have been satisfied that the majority of councillors had voted for the motion to adjourn the meeting. Having obtained the audio recording of the meeting in question from Council, OLG believes that it was reasonably open to Cr Betts to arrive at the decision she did.*

- *The investigators determined, and OLG agrees, that a division was not demanded in the manner prescribed under clause 251(3).*

- *Under these circumstances:*

  - *Cr Betts' decision as to the result of the vote was final; and*

  - *Neither the Act nor the Regulation required Cr Betts to initiate a division or confirm the outcome of the vote by other means.*

In light of this, it is not clear to OLG that the final investigation report sufficiently establishes that Cr Betts' conduct was inconsistent with her obligations under the Act and Regulation, or that Cr Betts failed to exercise a reasonable degree of care and diligence in carrying out her functions as chairperson under the Act.'

C. Therefore:

1. Notes the letter from OLG attached to this report.

2. Notes the OCM Investigation Report into the Code of Conduct complaints attached to this

report.

3. In view of the findings of the OLG letter, resolves not to adopt:

   (a) Recommendation 1 of the OCM Report.

   (b) The findings of inappropriate conduct contained within the OCM Report.

4. Finds that, in accordance with the review of the OCM Investigation by the OLG:

   (a) Cr Betts acted within her obligations under the Act and Regulations.

   (b) She did exercise a reasonable degree of care and diligence in carrying out her role as chairperson under the Act.

   (c) Cr Betts did not illegally adjourn the meeting on Tuesday 17 May 2016.

   (d) Cr Betts made a decision about the result of the vote on the voices and the OLG, having obtained the audio recording of the meeting, believes that it was reasonably open for Cr Betts to have arrived at the decision she did.

   (e) Cr Betts was therefore not guilty of any inappropriate conduct.

   (f) No sanction should be imposed on Cr Betts.

5. Expresses great concern that OCM's:

   (a) Failure to ensure the 'confidentiality' of their final findings to Complainants; and

   (b) Failure to establish that Cr Betts' conduct was inconsistent with her obligations under the Act and Regulation, as outlined by OLG

   has led to misleading, inaccurate and harmful statements regarding Cr Betts' conduct being discussed in the press, local blogs and the NSW Parliament, causing her to experience considerable financial, emotional and reputational impact that ought to be remedied.

6. Requests the General Manager to meet with OCM to request that they:

   (a) Explain their findings in the light of the OLG review.

   (b) Explain why they did not immediately discount the allegations that the Mayor 'illegally' closed the meeting when, as acknowledged and in reality, the Mayor only adjourned the meeting, and then explain why they did not acknowledge the difference in the report.

   (c) Explain why they released their findings to complainants without a confidentiality clause.

   (d) Outline how OCM intends to remedy the harm that this oversight has caused to Mayor Cr Sally Betts and Waverley Council.

7. Should immediately ensure that the OLG 'Guide to Code of Conduct Processes for Complainants' becomes a part of Council's and any reviewer's processes, in particular the paragraph which states: 'As a complainant you should not make public allegations of suspected breaches of the code or disclose information about the consideration of a matter under the

code'.

8. Agrees that Council's Code of Meeting Practice should be urgently reviewed in line with the recommendations of the OCM Report.

9. Endorses public release of the OLG letter and the OCM Report simultaneously, subject to OLG approval.

AT THIS STAGE IN THE PROCEEDINGS, AND IN ACCORDANCE WITH CL 11.15 OF THE CODE OF MEETING PRACTICE, CR MOUROUKAS MOVED A PROCEDURAL MOTION THAT THE MOTION BE NOW PUT.

THE PROCEDURAL MOTION WAS PUT AND DECLARED CARRIED.

THE SUBSTANTIVE MOTION WAS THEN PUT AND DECLARED CARRIED.

Division
For the Motion: Crs Burrill, Cusack, Goltsman, Kay and Mouroukas.
Against the Motion: Crs Masselos and Wakefield.

DECISION: That the Motion be adopted.

11. Resuming in Open Session

CM/11/17.06 Resuming in Open Session

MOTION / UNANIMOUS DECISION Mover: Cr Cusack
Seconder: Cr Goltsman

That Council:

1. Resumes in open session.

2. Adjourns the meeting for 15 minutes to allow members of the public to access the public gallery.

At 9.17 pm, Council resumed in open session.

At 9.18 pm, the meeting adjourned for 15 minutes.

At 9.30 pm, the meeting resumed.

Resolutions from closed session made public

In accordance with clause 253 of the Local Government (General) Regulation 2005, when the meeting resumed after the adjournment the Chair announced the resolutions made by Council, including the names of the movers and seconders, while the meeting was closed to members of the public and the media.

12. Meeting Closure

THE MEETING CLOSED AT 9.38 PM.

.....
SIGNED AND CONFIRMED
MAYOR
18 JULY 2017

CONFIRMATION AND ADOPTION OF MINUTES CM/4.2/17.07

Subject: **Adoption of Minutes - Waverley Traffic Committee Meeting - 22 June 2017**

TRIM No.: SF17/98

Author: Natalie Kirkup, Governance and Internal Ombudsman Officer

RECOMMENDATION:

That Part 1 of the minutes of the Waverley Traffic Committee Meeting held on 22 June 2017 be received and noted, and that the recommendations contained therein be adopted.

Introduction/Background

The Waverley Traffic Committee (WTC) is not a committee of Council. The WTC operates under delegation from the Roads and Maritime Services (RMS), an agency of the NSW Government. It is advisory only and has no decision-making powers.

The purpose of the WTC is to make recommendations and provide advice to Council on the technical aspects of proposals to regulate traffic on local roads in Waverley. The recommendations of the WTC must be adopted by Council before they can be implemented.

Part 1 of the minutes of Waverley Traffic Committee meetings must be submitted to Council for adoption in accordance with clause 18 of the Waverley Traffic Committee Charter.

Council has the opportunity to 'save and except' any of the recommendations listed in Part 1 of the minutes for further consideration in accordance with clause 18.1 of the Waverley Traffic Committee Charter.

Attachments

1. Waverley Traffic Committee Minutes - 22 June 2017

MINUTES OF THE WAVERLEY TRAFFIC COMMITTEE MEETING HELD AT WAVERLEY COUNCIL CHAMBERS, CNR PAUL STREET AND BONDI ROAD, BONDI JUNCTION ON THURSDAY, 22 JUNE 2017

Voting Members Present:

Cr T Kay	Waverley Council (Chair)
Sgt L Barrett	NSW Police – Traffic Services, Eastern Suburbs Local Area Command
Mr B Borger	Roads and Maritime Services – Traffic Management (South)
Ms D Blackburn	Representing Gabrielle Upton, MP, Member for Vaucluse

Also Present:

Cr B Mouroukas	Waverley Council (Deputy Chair)
Mr E Graham	Sydney Buses (Eastern Region)
Sgt A Birchansky	NSW Police – Traffic Services, Eastern Suburbs Local Area Command
Mr D Joannides	Waverley Council – Executive Manager, Creating Waverley
Mr G Garnsey	Waverley Council – Manager, Transport and Development
Mr K Mowad	Waverley Council – Senior Traffic Engineer
Mr S Samadian	Waverley Council – Traffic Engineer

At the commencement of proceedings at 10.02 AM, those present were as listed above with the exception of Cr Mouroukas who arrived at 10.06 AM..

Apologies

There were no apologies.

Declarations of Pecuniary and Non-Pecuniary Interests
The Chair called for declarations of interest and none were received.

Adoption of previous Minutes by Council - 25 May 2017

The recommendations contained in Part 1 - Matters Proposing That Council Execise Its Delegated Functions - of the Minutes of the Waverley Traffic Committee meeting held on 25 May 2017 were adopted by Council at its meeting on 20 June 2017 with the exception of item TC/C.01/17.05 Watson Street, Bondi – 'No Stopping' zone extension which was adopted subject to the retention of the one car space.

PART 1 – MATTERS PROPOSING THAT COUNCIL EXERCISE ITS DELEGATED FUNCTIONS

NOTE: The matters listed under this part of the Agenda propose that Council either does or does not exercise the traffic related functions delegated to it by the RMS. The recommendations made by the Committee under this part of the Agenda will be submitted to Council for adoption.

TC/C STATE ELECTORATE OF COOGEE

Nil

TC/V STATE ELECTORATE OF VAUCLUSE

TC/V.01/17.06 Wairoa Avenue, North Bondi - "P Motor Bikes Only" (A02/0637-02)

COUNCIL OFFICER'S PROPOSAL:

That Council installs 3.5m of 'P Motor Bikes Only' in Wairoa Avenue between the driveways to 19 Wairoa Avenue and 8-12 Fredrick Street, North Bondi.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, RMS representative and Waverley Council representative (Chair).

TC/V.02/17.06 Multiple Streets - Installation of 'No Stopping' Zones (A02/0637-02)

COUNCIL OFFICER'S PROPOSAL:

That Council installs 'No Stopping' yellow line marking as follows:

1. Mitchell Street at O'Donnell Street, North Bondi:
   (a). 10m on the eastern side of Mitchell Street, south of O'Donnell Street,
   (b). 10m on the western side of Mitchell Street, north of O'Donnell Street,
   (c). 10m on the southern side of O'Donnell Street, east of Mitchell Street,
   (d). 10m on the southern side of O'Donnell Street, west of Mitchell Street,
   (e). 10m on the northern side of O'Donnell Street, west of Mitchell Street,
   (f). 10m on the northern side of O'Donnell Street, east of Mitchell Street,
2. Clyde Street at Oakes Place, North Bondi:

(a). 10m on the southern side of Clyde Street, east of Oakes Place,

(b). 10m on the eastern side of Oakes Place, south of Clyde Street,

(c). 10m on the western side of Oakes Place, south of Clyde Street.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, RMS representative and Waverley Council representative (Chair).

TC/V.03/17.06 Wairoa Avenue, NorthBondi - Construction Zone (A03/2514-04)

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a "No Parking 7am-5pm Monday-Friday; 8am-3pm Saturday Authorised Council Vehicles Excepted" zone on the Wairoa Avenue frontage of No.114 Blair Street, North Bondi north of the existing "No Stopping" zone for a distance of 19m.

2. Delegates authority to the Executive Manager, Creating Waverley, to cancel, extend the duration and length of the construction zone as necessary.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, RMS representative and Waverley Council representative (Chair).

TC/V.04/17.06 Chaleyer Street, Rose Bay - "P Motor Bikes Only" (A02/0637-02)

COUNCIL OFFICER'S PROPOSAL:

That Council installs 3 m of 'P Motor Bikes Only' in Chaleyer Street, Rose Bay between the driveways to 2 Chaleyer Street and the driveway on the Chaleyer Street frontage of 459 Old South Head Road, Rose Bay.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, RMS representative and Waverley Council representative (Chair).

TC/V.05/17.06 8 Owen Street, North Bondi - Construction Zone (DA-21/2016)

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a 12m long, "No Parking 7am-5pm Monday-Friday 8am-3pm Saturday Authorised Council Vehicles Excepted" zone along the frontage of 8 Owen Street, North Bondi.

2. Delegate's authority to the Executive Manager, Creating Waverley, if found necessary following receipt of the Construction Vehicle and Pedestrian Plan of Management, to install a "No Parking 7am-5pm Monday-Friday; 8am-3pm Saturday" zone on the opposite, southern side of the road in order to maintain the legal travel lane width and traffic flow.

3. Delegate's authority to the Executive Manager, Creating Waverley, to cancel, extend the duration or alter the length of the construction zone(s) as necessary.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted subject to clause 1 and clause 2 being amended to read as follows:

1. Installs a 12m long, "No Parking 8am-5pm Monday-Friday 8am-3pm Saturday Authorised Council Vehicles Excepted" zone along the frontage of 8 Owen Street, North Bondi.

2. Delegate's authority to the Executive Manager, Creating Waverley, if found necessary following receipt of the Construction Vehicle and Pedestrian Plan of Management, to install a "No Parking 8am-5pm Monday-Friday; 8am-3pm Saturday" zone on the opposite, southern side of the road in order to maintain the legal travel lane width and traffic flow.

Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, RMS representative and Waverley Council representative (Chair).

TC/V.06/17.06 Owen Street, North Bondi - Construction Zone (421 Old South Head Road) (DA-469/2015/A)

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a 26m long, "No Parking 7am-5pm Monday-Friday 8am-3pm Saturday Authorised Council Vehicles Excepted" zone along the Owen Street frontage of 421 Old South Head Road, North Bondi.

2. Delegate's authority to the Executive Manager, Creating Waverley, if found necessary following receipt of the Construction Vehicle and Pedestrian Plan of Management, to install a "No Parking 7am-5pm Monday-Friday; 8am-3pm Saturday" zone on the opposite, southern side of the road in order to maintain the legal travel lane width and traffic flow.

3. Delegate's authority to the Executive Manager, Creating Waverley, to cancel, extend the duration or alter the length of the construction zone(s) as necessary.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted subject to clause 1 and clause 2 being amended to read as follows:

1. Installs a 16m long, "No Parking 8am-5pm Monday-Friday 8am-3pm Saturday Authorised Council Vehicles Excepted" zone along the Owen Street frontage of 421 Old South Head Road, North Bondi.

2. Delegate's authority to the Executive Manager, Creating Waverley, if found necessary following receipt of the Construction Vehicle and Pedestrian Plan of Management, to install a "No Parking 8am-5pm Monday-Friday; 8am-3pm Saturday" zone on the opposite, southern side of the road in order to maintain the legal travel lane width and traffic flow.

Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, RMS representative and Waverley Council representative (Chair).

TC/CV ELECTORATES OF COOGEE AND VAUCLUSE

Nil

.....
SIGNED AND CONFIRMED
MAYOR
18 JULY 2017

MAYORAL MINUTES
CM/5/17.07

Subject: **Mayoral Minutes**

Author: Mayor of Waverley, Cr Sally Betts

Mayoral minutes are permissible at Waverley Council meetings under the provisions of the *Local Government (General) Regulation 2005* and Council's Code of Meeting Practice. Clause 243 of the Regulation and section 9.1 of the Code state:

> *If the mayor is the chairperson at a meeting of Council, the chairperson is, by minute signed by the chairperson, entitled to put to the meeting without notice any matter or topic that is within the jurisdiction of Council or of which Council has official knowledge.*
>
> *Such a minute, when put to the meeting, takes precedence over all business on Council's agenda for the meeting. The chairperson (but only if the chairperson is the mayor) may move the adoption of the minute without the motion being seconded.*
>
> *A recommendation made in a minute of the chairperson (being the mayor) or in a report made by a Council employee is, so far as adopted by Council, a resolution of Council.*

As noted in Council's Code of Meeting Practice, mayoral minutes should not be used to introduce, without notice, matters that are routine, not urgent, or need research or a lot of consideration by councillors before coming to a decision. These types of matters would be better placed on the agenda, with the usual period of notice given to the councillors.

OBITUARIES
CM/6/17.07

Subject: **Obituaries**

Author: Cathy Henderson, Acting General Manager

The Mayor will ask councillors for any obituaries.

Council will rise for a minute's silence as a mark of respect for the deceased and for the souls of people generally who have died in our Local Government area.

REPORT
CM/7.1/17.07

Subject: **Planning Proposal at 194-214 Oxford Street and 2 Nelson Street, Bondi Junction - Post-exhibition Report**

TRIM No.: PP-1/2015

Author: Dan Starreveld, Principal Strategic Planner

Director: Peter Monks, Director, Waverley Futures

RECOMMENDATION:

That Council:

1. Not supports the planning proposal at 194–214 Oxford Street and 2 Nelson Street, Bondi Junction, for the following reasons:

   (a) The proposed height and floor space ratio will result in an overdevelopment of the site and will present an unacceptable built form scale, particularly to Oxford Street.

   (b) The proposal has not sufficiently addressed the impacts of bulk and scale on heritage items on the subject site (Norfolk Island Pine) and in the surrounding area (Nelson Hotel).

   (c) The majority of community feedback received opposes the proposal.

   (d) The proposal does not provide a public benefit offer consistent with Council's Planning Agreement Policy 2014 and the public benefit offered is inadequate compared to benchmarks as stated in the draft District Plans. No planning agreement has been entered into as part of this planning proposal.

   (e) The proposal results in a net community benefit that does not adequately offset the scale and density of development sought on the subject sites.

   (f) The proposal is inconsistent with the recommendations of the Government Architect's Office Final Report on the West Oxford Street Precinct Plan.

   (g) Inconsistency with the following directions under Waverley Together 3:

      i. L5a - Ensure planning controls for new buildings and building upgrades deliver high quality urban design that is safe and accessible, in which heritage and open space is recognised, respected and protected.

      ii. L5b - Protect and maintain heritage significant buildings while ensuring they are fit for use.

      iii. L5c - Consider the use of planning controls and agreements to provide improvements to built infrastructure.

2. Agrees to forward this report and any other relevant information to the Department of Planning and

Environment (DPE), acting as a delegate of the Greater Sydney Commission, to make a final decision regarding the planning proposal.

1. Executive Summary

The Department of Planning and Environment (the Department) granted a Gateway Determination for the planning proposal relating to 194-214 Oxford Street and 2 Nelson Street, Bondi Junction (the subject site). The proposal seeks to amend the Waverley Local Environmental Plan (LEP) 2012 in relation to the subject site by:

- Increasing the height standard from 15 metres to 36 metres;
- Increasing the floor space ratio standard from 1.5:1 to 3.5:1;
- Removing the heritage status of 4 terrace houses at 194-200 Oxford Street; and
- Correcting a zoning anomaly on the corner of Syd Einfeld Drive and York Road as identified by the Roads and Maritime Services (RMS).

The Gateway Determination required Council to place the planning proposal on public exhibition for a period of 28 days (Attachment 1). This report details the outcome of the public exhibition period and the feedback received from the community (412 submissions received).

This report also includes an assessment of the planning proposal in accordance with the criterion set out in the Department of Planning and Environment's (DPE) "A Guide to preparing Planning Proposals" (August 2016).

2. Introduction/Background

2.1 The site and surrounds

The subject sites (comprising a western and eastern site) are located at the western end of the Bondi Junction Centre and are bounded by Syd Einfeld Drive to the north, Nelson Street to the east, Oxford Street to the south and York Street to the west (see Figure 1).

The western site consists of six (6) properties with an area of 1,490m^2, including:

- 194 - 200 Oxford Street (Lots 10, 11, 12 and 13 DP 260116) - four x two storey row houses.
- 202 - 210 Oxford Street (Lot 1 DP 79947 and Lot 16 DP 68010) - car and truck hire business and includes an office reception and vehicle display area.
- 214 Oxford Street (Lot 1 DP 708295) - shop top housing style building which is currently occupied as a commercial premises.

The eastern site is known as 2 Nelson Street (SP 34942) and contains a two storey residential flat building located to the north of Osmund Lane. 2 Nelson Street has a site area of 991m^2.

The total site area for the subject sites is 2,481m^2.

Figure 1 – Aerial photograph of subject sites at 194-214 Oxford Street and 2 Nelson Street, Bondi Junction (identified by red outline)

The following series of photographs have been sourced from the planning proposal documentation submitted by the applicant and illustrate the site and surrounds.

Photo 1: View of the site taken from the intersection of Oxford Street and York Road, Bondi Junction. It shows the existing row houses, car yard and shop top housing.

Photo 2: View of the row houses at: 194-200 Oxford Street.

Photo 3: View of the car and truck rental facility at 204-212 Oxford Street.

Photo 4: View of the shop top development at No 214 Oxford Street (site identified in red). This shows the mixed use occupation of the shop top housing.

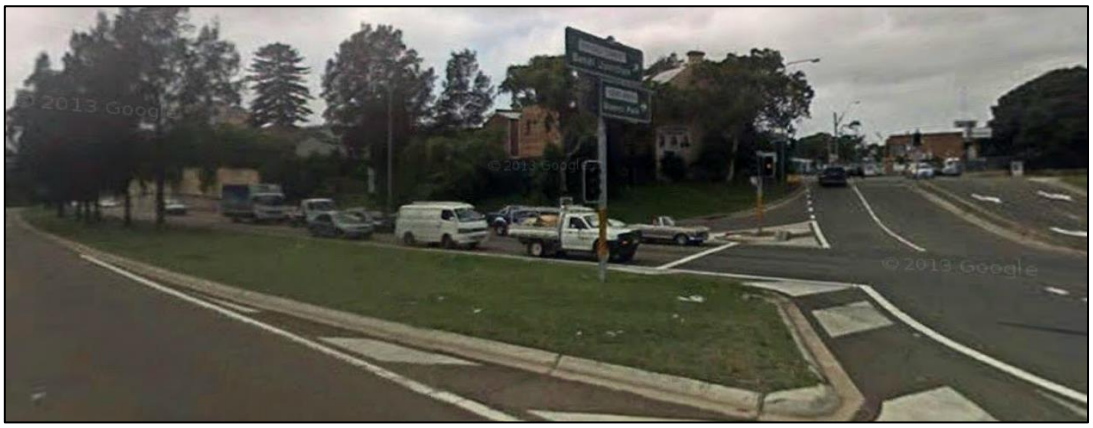


Photo 5: View of the rear of the sites taken from Syd Einfeld Drive looking south-east. This shows the side and rear of the row houses at 194-200 Oxford Street (right) and the rear of 204-212 Oxford Street (centre) currently occupied as a car rental premises.

Photo 6: View of the existing apartment building and garage structure at 2 Nelson Street taken from the intersection of Nelson Street and Osmund Lane looking north-west. The central tree is also listed as a local heritage item. A key pedestrian path of travel is located along the eastern boundary and connects to the pedestrian bridge over Syd Einfeld Drive.

2.2 West Oxford Street Precinct Plan

The site formed part of the West Oxford Street Precinct Plan which was an ideas-driven investigation focusing on the western end of Oxford Street, Bondi Junction. Using the design charrette process, concepts for the area were developed by three multi-disciplinary design teams to enable Council and the community to visualise ideas and opportunities for the precinct.

A final report was prepared in partnership with the Government Architect's Office (GAO). The report details all of the design ideas for the area which are categorised into the broad themes of traffic, public domain, art, culture and heritage, and built form. The final report considered community feedback received in late 2014 on the ideas in the draft report via submissions and a statistically valid phone survey.

On 31 March 2015, the West Oxford Street Precinct Plan report was adopted by Council. All recommendations relating to changes in height and floor space standards for the subject sites as part of the West Oxford Street Precinct Plan were deferred pending a thorough assessment of the planning proposal.

2.3 Current planning controls for subject site

The Waverley Local Environmental Plan 2012 (WLEP 2012) applies to the subject sites which are zoned B4 Mixed Use with a maximum height of 15 metres and floor space ratio of 1.5:1 (refer to Figures 2, 3 and 4).

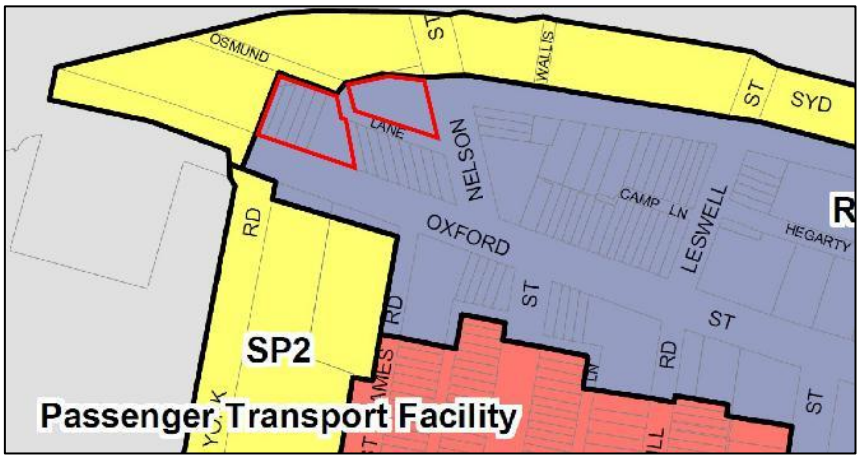


Figure 2: Land Use Zoning – B4 Mixed Use [site outlined in red]

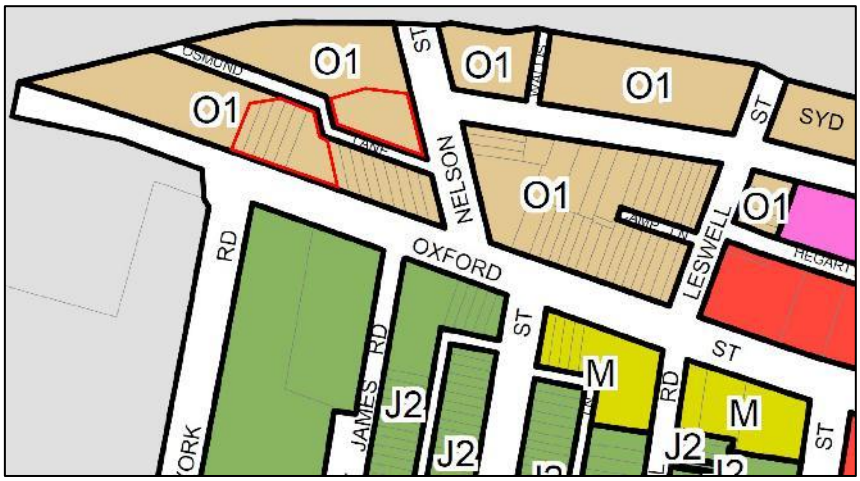


Figure 3: Height of Buildings – 15m [site outlined in red]

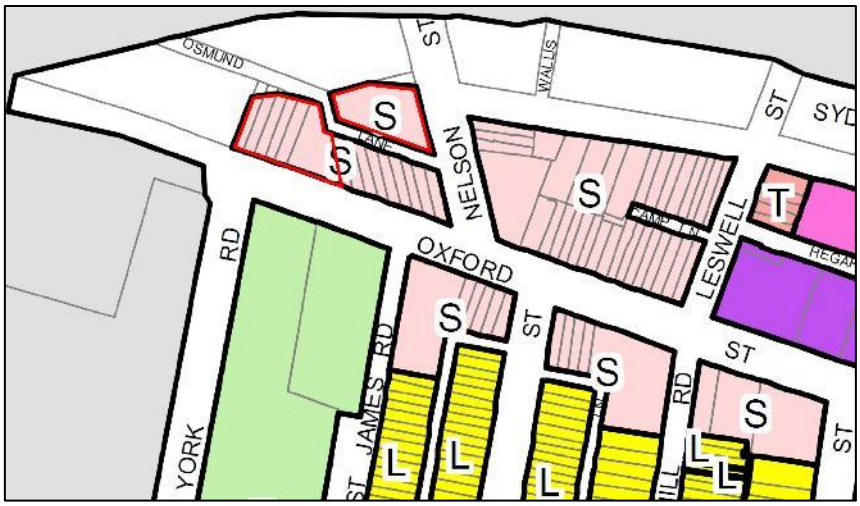


Figure 4: FSR – 1.5:1 [site outlined in red]

Clause 5.10 - Heritage Conservation and Schedule 5 - Environmental Heritage of the WLEP2012 require development consent for any demolition or alteration to an item of environmental heritage and also for the erection a building on land on which a heritage item is located or that is within a heritage conservation

area. Figure 5 below indicates the location of heritage items and conservation areas in relation to the subject site.

Figure 5: Items of Environmental Heritage and Heritage Conservation Areas [site outlined in blue]

Clause 6.5 of the WLEP2012 requires development consent for identified sites in the Bondi Junction Centre zoned B4 Mixed Use that must not be granted for a building unless the building has an active street frontage, particularly for the purposes of business or retail premises, at the ground and first floor. As provided in Figure 6 below, the subject sites are required to have an active street frontage along the Oxford Street address.

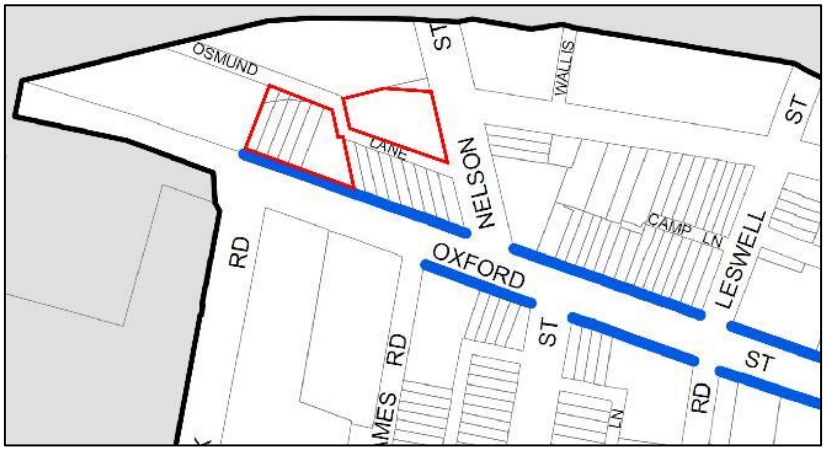


Figure 6: Required Active Street Frontages [site outlined in red]

2.4 Planning Proposal documentation & history

On 11 March 2015, City Plan Services submitted a planning proposal on behalf of Stargate Property Group, the land owners of the subject sites. The proposal originally sought to amend the WLEP 2012 in relation to 194-204 Oxford Street and 2 Nelson Street ('the sites') to:

- Increase the height standard from 15 metres to 38 metres;
- Increase the floor space ratio standard from 1.5:1 to 5:1; and
- Remove the heritage status of 4 terrace houses at 194-200 Oxford Street.

Council officers reviewed the initial planning proposal documentation and initiated an informal public notification period seeking preliminary comments. Ongoing discussions were held with the applicant in the initial stages of the assessment and, as a result, Council sent preliminary assessment comments and a request for additional information to the applicant on 24 August 2015.

Amended Planning Proposal

Council officers then met with the applicant on 17 September 2015 and 13 October 2015 to consider more suitable standards for the subject sites. The applicant provided an amended concept design to Council on 13 October 2015 (shown in Figure 7 below), which in summary:

- Reduced the proposed height from 38m to 36m.
- Reduced the proposed floor space ratio standard from 5:1 to 3.5:1.
- Minimised overshadowing to adjoining residential properties.
- Provides an increased separation between the indicative residential tower forms of 24 metres in accordance with the State Environmental Planning Policy 65 (Design Quality of Residential Apartment Development) and the Apartment Design Guide.
- Reconfigured the proposed public plaza on Nelson Street to allow for increased solar access to the plaza and increased curtilage from the neighbouring heritage items (Norfolk Island Pine and Nelson Hotel).
- Reconfigured the proposed through-site link to allow for better pedestrian amenity and to maintain the fine grain aesthetic of the Oxford Street streetscape.
- Reconfigured the proposed vehicular access and rear lane (Osmund Lane) to allow for a wider carriage width, two-way paved access and for driveway access directly with the western end of Osmund Lane.
- Created a 2/3 storey street wall to continue the existing pattern along Oxford Street.
- Allowed for increased solar access and amenity to any potential redevelopment of adjoining sites, particularly 216-230 Oxford Street, Bondi Junction.

Figure 7: ***Indicative*** photomontage of subject planning proposal from corner of Oxford Street and Nelson Street.

On 15 December 2015, the revised planning proposal was considered by Council and it resolved as follows:

"Council does not support the planning proposal at 194-204 Oxford Street and 2 Nelson Street, Bondi Junction for the following reasons:

1. *The proposed height will result in the overdevelopment of the site and present an unacceptable built form scale, particularly to Oxford Street, in an area that borders the Mill Hill Conservation area.*
2. *The proposal will result in unacceptable overshadowing of the public domain and Centennial Park.*
3. *The proposal may set a precedent for adjoining sites seeking additional height and floor space.*
4. *The proposal is not in the public interest of the West Oxford Street Precinct.*
5. *The proposal is in excess of the current LEP height limit of 15m and the FSR of 1.5:1"*

Pre-Gateway Review

Consequently, the applicant lodged a pre-gateway review for the planning proposal (36m height and 3.5:1 FSR) with the Department of Planning and Environment on 4 January 2016. The Department of Planning and Environment's Pre-Gateway Review Information Assessment and Recommendation Report (22 April 2016) recommended:

> *"…the proposal be referred to the Sydney East Joint Regional Planning Panel for independent review. The proposal demonstrates broad strategic and site-specific merit."*

On 31 May 2016, the Joint Regional Planning Panel considered the proposal and recommended that the planning proposal submitted to Council seeking to amend the building height to 36 metres and FSR to 3.5:1 for both sites proceed to a Gateway Determination with the following requirements met before the proposal is exhibited:

- *The applicant is to enter into negotiations for a planning agreement with Waverley Council;*
- *The applicant is to prepare a site-specific DCP, which shall be exhibited together with the planning proposal;*
- *A clause should be included in the draft LEP requiring a design competition to be held before a development application is lodged. The design competition should be run according the Director-General's Design Competition Guidelines.*

The Department of Planning and Environment issued a Gateway Determination (Attachment 1) for the applicant's proposal on 22 December 2016 requiring general updates to the planning proposal documentation for community consultation.

2.5 Planning Agreement

The applicant's planning proposal is accompanied by a public benefit offer (detailed later in this report). The public benefit offer was placed on public exhibition with the applicant's planning proposal. Council has not entered into a planning agreement with the applicant in relation to the public benefit offer. An assessment of the public benefit offer is provided under 4.2(c) ("Is there net community benefit?") of this report.

Council have a draft methodology for valuing uplift from planning proposals and associated planning agreements and process for negotiating planning agreements of this nature. This draft methodology adopts a value sharing approach, seeking to share 50% of the profit generated from any planning uplift associated with a rezoning. The public benefit offer does not employ this methodology.

2.6 Site-specific Development Control Plan (DCP)

A site-specific Development Control Plan was drafted by Council and was placed on public exhibition with the applicant's planning proposal. The site-specific Development Control Plan outlines objectives and controls for built form, design excellence, public domain and transport, and includes possible design outcomes for the subject sites. Should the Department of Planning and Environment, as delegate for the Greater Sydney Commission, determine to support the applicant's planning proposal, the site-specific Development Control Plan will be incorporated as an amendment into the Waverley Development Control Plan 2012 for any future development application.

2.7 Design Competition

In accordance with the Department of Planning and Environment's Gateway Determination the applicant has provided a statement of intent regarding a local provision for an architectural design competition. Council has separately prepared a design excellence clause to apply to certain areas in Waverley (including

the subject site) which forms part of the housekeeping amendment to the Waverley Local Environmental Plan (WLEP Amendment 12). The amendment is awaiting finalisation with the Department of Planning and Environment.

The design excellence clause will apply to the subject site and require in-depth consideration of a number of matters including, but not limited to, overshadowing of the surrounding area including Centennial Park and the impact on heritage items in the vicinity of the site.

The site-specific Development Control Plan also includes objectives and controls relating to design excellence with a requirement that a design competition be carried out in accordance with the 'Draft Waverley Design Excellence and Competitive Design Policy' (to be prepared pending finalisation of Council's 2016 Housekeeping Amendment to WLEP).

3. Relevant Council Resolutions

Council or Committee Meeting and Date	**Minute No.**	**Decision**
Council Meeting 15 December 2015	CM/7.1/15.12	That Council does not support the planning proposal at 194-204 Oxford Street and 2 Nelson Street, Bondi Junction for the following reasons: 1. The proposed height will result in the overdevelopment of the site and present an unacceptable built form scale, particularly to Oxford Street, in an area that borders the Mill Hill Conservation area. 2. The proposal will result in unacceptable overshadowing of the public domain and Centennial Park. 3. The proposal may set a precedent for adjoining sites seeking additional height and floor space. 4. The proposal is not in the public interest of the West Oxford Street Precinct. The proposal is in excess of the current LEP height limit of 15m and the FSR of 1.5:1
Operations Committee Meeting 31 March 2015	OC/5.1/15.03(2)	[Relevant parts] That Council: 1. Notes that the West Oxford Street Design Charrette produced ideas for the future of West Oxford Street. The ideas were publicly exhibited and tested in a statistically valid survey. 2. Notes the 'West Oxford Street Design Charrette Summary Report and Recommendations' prepared by the Government Architect's Office. … 4. Agrees with the following approach that has been recommended based on the assessment of the submissions received from the public exhibition, the Government Architects Report and the ideas from the design charrette teams that for the Waverley LEP 2012 (WLEP) floor space ratio and height of buildings controls: … b) That any decision on whether changes to the WLEP 2012 are warranted relating to blocks 1, 2 and 3a as identified on Map 2 [provided below] be deferred until the

		assessment of the Planning Proposal received for 194–214 Oxford Street and 2 Nelson Street has taken place. Understand that the assessment and investigations will consider use, heritage, overshadowing, wind effects, impact on the skyline, views and vistas of Centennial Park, design excellence and traffic impacts. … Sends an information sheet on the Planning Proposal received for 194–214 Oxford Street and 2 Nelson Street to the residents in the surrounding area up to Denison Street, Birrell Street and Syd Einfeld Drive and send a copy to Woollahra Council.

4. Discussion

4.1 Community Consultation

The public exhibition period was notified in the Wentworth Courier and was open for 31 days from 8 February 2017 to 10 March 2017 inclusive. The planning proposal was exhibited at the Customer Service Centre, Waverley Library and on Council's 'Have Your Say' website. Approximately 1600 residents were notified by letter with a total of 412 submissions received. A breakdown of the submissions received is noted below:

- Submissions opposing 396
- Submissions in support 10
- Agency feedback 6

Matters raised by objectors

The submissions opposing the planning proposal covered a range of matters from urban amenity, traffic and parking, height, impacts upon Centennial Park, removal of heritage, public school capacity and pedestrian safety. The most common issues raised are categorised into the following areas:

- Traffic and parking (69%)
- Height/density, urban design and amenity (64%)
- Centennial Park (54%)
- Heritage (41%)

Traffic and parking

With regard to traffic and parking the submissions identified current traffic conditions and the congestion experienced in this locality as a significant concern. The recent approval of other larger developments in Bondi Junction were cited as a reason for the additional delays experienced by residents particularly in the morning peak period at Nelson Street, Oxford Street and Denison Street. The introduction of a development on the subject sites would therefore introduce additional traffic to an already congested road network.

Limited on-street parking capacity was another issue consistently raised. Objectors noted the difficulties in finding car spaces under the current conditions and that the introduction of additional residents would further reduce the availability of spaces for residents. This issue was also linked with the proposed number of on-site parking and that there weren't enough spaces to accommodate the potential future development resulting from the planning proposal. Pedestrian safety was another particular concern identified, particularly for those who use the overpass between Woollahra and Bondi Junction along Nelson Street.

The traffic concerns are an important consideration which are further addressed under the "Traffic and Parking" heading of this report (refer to Section 4.2 (i)).

Height/density, urban design and amenity

Generally, objectors consider the planning proposal to result in "unsustainable overdevelopment" that will result in a significant increase to residents in the area which will not be adequately serviced by existing infrastructure – particularly the public transport system and local schools.

A common theme raised in submissions is the protection of the "local village" feel and character of the western end of Oxford Street. Objections state that the density and height of the proposal will "destroy the amenities, local character and charm of what already exists" in the area. The western end of Oxford Street is identified in submissions as unique and "is not, and has never been, part of Bondi Junction Centre."

The most significant amenity issue raised by objectors was the overshadowing generated by the proposed buildings and how this will impact upon the existing character of the area. Of particular concern is overshadowing of existing residential properties, the public domain and Centennial Park. The density and scale of the proposal was noted as a concern with respect to the potential for resultant wind tunnelling around the subject site and the public domain in its vicinity.

Objectors also fear that the proposed height is not sympathetic to the area and will set a precedent for future developments. Some submissions note that Waverley has already met its housing targets and additional density on the subject sites is not justified.

Submissions also queried the value of the proposed public domain improvements and whether these could be considered a community benefit. The plaza and through-site link "does not go anywhere" and provides as much, if not more, value to the proposed retail tenancies proposed for the ground floor level. The lack of useable cycle paths or significant improvements to local footpaths highlighted that the proposal does not deliver any substantial improvements to the public domain.

Centennial Park

Another concern raised in submissions related to the protection of the existing amenity and heritage value of Centennial Park. Of particular concern was the lack of detail in the proposal about how the buildings may affect views to and from the Park and that the proposed western building casts unreasonable shadow onto its north-eastern corner. Many submissions challenged the assertion that this area of the Park was unused.

The Queens Park Precinct Executive Committee also raised the issue that the proposed increase in density would dramatically increase the number of people residing and visiting the site, negatively impacting on the amenity of residents and Park users. The impact on Centennial Park is discussed further under Section 4.2(i) of this report.

Heritage

Many submissions raised fears that the removal of heritage items at 194-200 Oxford Street will set a precedent for the removal of heritage items elsewhere. Many objections share the sentiment that "the Waverley LEP was updated in 2012 [and] it purposefully reduces the allowable height towards the West end of Oxford Street so that the heritage character of this part of Bondi Junction and the surrounding fabric can remain intact." The impact upon heritage is discussed further under Section 4.2(g) of this report.

Other issues raised

Many concerns were raised about the planning proposal process and the decisions made to date as "Waverley Council has already rejected this proposal [and] can see no justification for it to be approved by a subsequent review." Many objectors challenged the State Government as being the planning authority for a planning proposal of this nature and stressed that Council's decision of December 2015 should stand.

Submissions noted that the planning proposal undermines Clause 1.2 of Waverley LEP 2012 which aims to provide "an appropriate transition in building scale around the edge of the commercial centres to protect the amenity of surrounding residential areas" and to 'identify and conserve the cultural, environmental, natural, aesthetic, social and built heritage of Waverley". Any development of the proposed scale and density were therefore considered to be inconsistent with this Clause.

With regard to the cultural character of the area, objectors have noted the distinct "village feel" of the western end of Oxford Street and view this as a transitional area between Bondi Junction Centre and surrounding residential areas. Specifically, the proposed retail tenancies were considered to have a negative impact upon existing nearby retailers and questioned the future success of new retail tenancies given the sites

Furthermore, objectors noted that there are no environmentally sustainable aspects proposed, particularly green building elements such as green walls. Irrespective of this, objectors have also raised that the proposed design competition and process is not enough to ensure a good outcome for the site as the height and density sought by the Planning Proposal is not acceptable on any terms.

Matters raised by supporters

The 10 submissions that expressed support identified the following aspects of the proposal:

- The proposal is a transit oriented development;
- Active frontages and improved pedestrian spaces;
- Shadows cast will not affect residences or the Park;
- Increase in density helps alleviate urban sprawl;
- Upgrade of west Oxford Street intersection;
- Deletion of poorly maintained heritage items; and
- Improved Bondi Junction skyline.

The general sentiment of submissions supporting the planning proposal is that revitalisation of the area will help "get Bondi Junction's pride back again" as the site is currently a "mess" with "dangerous and unsightly back lanes" which will benefit from the proposal's "people friendly streets, landscaping" and public plaza. Supporters also noted that as a result of the proposal "more people = better security for the area."

Supporters also questioned the heritage value of the terraces at 194-200 Oxford Street which were considered "poorly maintained," "have been altered and are marooned in no man's land. They are unsightly as they have had their cement render removed. They are not a good example and are not rare terraces" and there "are sufficient examples of their style in other areas of Bondi Junction."

In terms of the proposed retail and residential uses, supporters noted that the retail tenancies will bring "vitality to that dead end of Oxford Street bringing more shops and services to that area" and that "increasing the supply of housing is necessary to keep prices from going too high" and "will create a flow on effect for young families trying to get into the market in Sydney."

Comment from State Agencies/suppliers

Sydney Water

Sydney Water confirms that the existing drinking water system and wastewater system has capacity to service the proposed development.

Ausgrid

Ausgrid comments provided general conditions to be considered for future development regarding electricity connections for consideration at a development application stage. Ausgrid did not provide any comments about implications of the planning proposal.

Centennial Park and Moore Park Trust (the Trust)

Centennial Park and Moore Park Trust reiterated concerns raised in their previous correspondence to Council from 2015. Particular concerns include "overshadowing, visual impact, increased traffic congestion at the entrance to the Park and increased parking demand inside the Park. The Trust also noted that there may be future management issues with the introduction of "a large number of new residents adjacent to the north east corner of the Park".

The Trust also noted that there had been an upgrade to the Belvedere Amphitheatre to "enhance its capacity to cater for additional, larger and more diverse events" and highlighted that there "is also potential for other recreation facilities in this corner of the Park as recommended in our recently completed Centennial Park Master Plan".

Roads and Maritime Services (RMS)

Roads and Maritime note that support for the Planning Proposal is contingent upon a zoning anomaly being corrected prior to potential gazettal of the plan. The planning proposal mapping documentation has an anomaly that shows land along Syd Enfield Drive incorrectly shown as part of the site area. Prior to the potential gazettal of the plan, the mapping is to be updated to accurately reflect the extent of the freeway boundary, SP2 Classified Road zoning and subject property boundary. The planning proposal's documentation and proposed mapping is to be considered in this context if the pending gazettal of the proposal is finalised by the Department of Planning and Environment. If the subject planning proposal does not proceed, the mapping amendment will be implemented as a future housekeeping amendment to the WLEP 2012.

RMS supports proposed vehicular access to/from the development via Osmund Lane with restriction of vehicular access retained on Syd Enfield Drive and "has no objection to the provision of a 25m right turn lane on Oxford Street on the eastbound approach and the dedication of land, measuring approximately 3 metres in width and 60 metres in length, along Oxford Street to enable the retention of the two eastbound lanes and foot path widths along Oxford Street".

RMS recommends that the "Planning Proposal should be supported by an Infrastructure Staging Plan that identifies the proposed package of infrastructure upgrade works and an associated delivery mechanism for the agreed intersection improvements. The Infrastructure Staging Plan should identify funding responsibilities, timing, [and] cost and trigger points for the delivery of the intersection upgrade and extent of land dedication prior to the gazettal of the plan.

The infrastructure upgrade works and the land dedication from the planning proposal site area along Oxford Street should be confirmed with Roads and Maritime. The intersection treatment would need to be designed in accordance with Austroads standards and the geometric design agreed by Roads and Maritime prior to the execution of any planning agreement for land dedication." This is to be considered as part of

the planning agreement process as assessed under Section 4.2(c) ("Is there net community benefit?") of this report.

In response to RMS comments, it is noted that as per Council's urban design and cycle path considerations for the site (refer to heading "Inconsistency with the design advice provided in the West Oxford Street Design Charrette and Reimagining Syd Einfeld Drive Study" under 4.2(b) of this report), the planning proposal's land dedication, surrounding roadways and footpath arrangement may change.

NSW Environmental Protection Agency (EPA)

EPA commented that the proposal presents "minimal environmental change to the proposed project site" and therefore no further assessment was provided by EPA.

NSW Office of Environment & Heritage (OEH)

OEH commented that the removal of the heritage items from the subject site needs to be considered on the basis of their heritage significance. OEH note that the context of the heritage items on site have been affected due to the freeway development and removal of the other terraces on the western sides. OEH note that the "Architectural Design Report dated 2016 prepared by MHNDU provides detailed shadow analysis, unfortunately, this analysis has not shown the State Heritage Register (SHR) curtilage of the Centennial Park and as a result, the overshadowing impact of the proposed tower, if any, on the Centennial Park cannot be ascertained. Therefore, it is requested that revised shadow diagram indicating the overshadowing impact as a result of the proposed development on the SHR item be undertaken."

Council carried out their own overshadowing analysis (refer to heading "Consideration of the Amenity of Neighbouring Properties" under Section 4.2(i) of this report). The proposed building controls for 194-214 Oxford Street will result in a tower that will overshadow the corner of Centennial Park in the early morning in mid-winter. Centennial Park is a National Heritage site and should not be adversely impacted by the proposal. Overshadowing occurs to a large portion of the corner of Centennial Park between 9am-10.30am mid-winter. During the rest of the year (equinox and summer) the overshadowing is minimal on Centennial Park.

OEH recommend that Waverley Council may wish to give consideration to alternative options which do not involve demolition/ removal of the subject item, but would incorporate the terraces in a broader design option that will extend the heritage character of Oxford Street towards the subject sites when viewed from the east. OEH also recommend that "Council may also wish to give consideration to any adverse impact the proposed development on the subject sites would have on the locally listed items and the heritage conservation areas in the vicinity."

As discussed in Section 4.2(g) of this report, demolition of the existing heritage terraces is only supported if the resultant building is of a higher quality and provides significant community benefit to the surrounding area.

Submissions from adjoining Councils

Randwick City Council (RCC) provided comments on the planning proposal. RCC supports the planning proposal's potential "objectives of achieving sustainable transport … however, it is recommended that consideration is given to provision of car parking in a suitable location to cater to the retail uses of the site. Use of car share and electric bicycle/car charging points within the development to encourage more sustainable travel modes is supported."

The draft Site-specific Development Control Plan prepared by Council (as placed on public exhibition with the planning proposal in accordance with the Gateway Determination provided at Attachment 1 to this

report) has provisions for electrical infrastructure to support charging of electric vehicles and electric bicycles and for a minimum of 5 car share spaces to be provided.

RCC also note that "the Planning Proposal provides an opportunity to review the road layout of Oxford Street between Nelson Street and York Road, to provide safer access to cyclists, and for pedestrians crossing from the subject site to the south side of Oxford Street." As discussed in "Inconsistency with the design advice provided in the West Oxford Street Design Charrette and Reimagining Syd Einfeld Drive Study" under 4.2(b) of this report, Council have given further thought to improving pedestrian and cyclist linkages.

RCC note in order to ensure the delivery of these public benefits "it is recommended that the scope and timing of a VPA is clarified." The planning agreement process has been progressed and carried out as discussed in Section 4.2(c) ("Is there net community benefit?") of this report.

From RCC's review of the planning proposal, it is noted "due to its height, it appears that the proposed development will have some visibility from various parts of Centennial Park, including the vicinity of Oxford Street and more distant areas. It is also expected that some morning overshadowing of the north-east corner of the Parklands will be experienced … [however, the proposal] will not dominate the north-east corner of Centennial Park and will not significantly impact on the streetscape setting of the Parklands, or views to and from the Parklands."

Applicant response to public exhibition

The applicant requested a copy of submissions made throughout the public exhibition period in order to address some of the matters raised. On 10 May 2017, the applicant sent through a 'Response to submissions received' and a 'Photomontage Certificate Report' prepared by Richard Lamb & Associates (refer to Attachments 3 and 4). The Photomontage Certificate Report was prepared in response to the concerns regarding the views to and from the development from certain vantage points within Centennial Park.

4.2 Review of Planning Proposal

An assessment of the planning proposal is included within this section which references and responds to assertions put forward by the community and the applicant.

(a) Is the planning proposal the result of any strategic study or report?

The subject sites have been subject to a number of strategic studies including The Bondi Junction Urban Design Review (BJUDR) and the West Oxford Street Precinct Plan (WOSP).

The BJUDR of 2013 was prepared by City Plan Services with the purpose of reviewing the appropriateness of the controls in WLEP 2012 within the Bondi Junction Centre and to identify sites that were suitable for amended planning controls. The recommendations of the BJUDR focused on improvements to public domain amenity and increases in development potential.

The WOSP design charrette process (as detailed in Section 2.2 of this report) culminated in the preparation of a Final Report in partnership with the Government Architect's Office (February 2015). The Final Report included a number of recommendations for the area which tied any proposed changes in density with significant public domain improvements. It is noted that recommendations on any changes to height or controls were deferred pending a detailed planning proposal assessment of the subject sites.

The removal of the heritage listings for the terrace houses at 194-200 Oxford Street was noted as appropriate if the built form replacing it displayed exceptional architectural design.

The planning proposal includes supporting studies and reports which provide further analysis of the traffic, heritage, urban design, sustainable transport and planning issues for the subject sites.

(b) Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

The planning proposal has been prepared in response to the recommendations contained within the Government Architect's Office Final Report for the West Oxford Street Precinct area. The recommendations identified the subject sites as areas for further investigation for potential changes in development standards aligned with public domain improvements.

A planning proposal is the only means of achieving the intended outcomes given that it includes changes to the height and floor space ratio development standards beyond what could be reasonably sought through a Clause 4.6 variation under WLEP 2012 for a development application.

(c) Is there net community benefit?

Council notes the applicant's offer to enter into a planning agreement details the following public benefits:

1. *"Land, for the purpose of road/footpath widening and/or traffic improvements, along the Oxford Street frontage of the site will be dedicated to Waverley Council. Approximately 60m in length by 3.5m in width (208sqm), (page A35-ADR),*
2. *Creation of a Pedestrian/Cycle thru-site link from Oxford Street to Osmund Lane for improved connectivity in and around the area. Approximately 136sqm, (page A35-ADR),*
3. *Creation of a Public Plazetta at street level at No.2 Nelson Street, Bondi Junction. Approximately 311sqm, (page A35-ADR),*
4. *Public Domain works as set out in the public works plan (page A45-ADR) landscape plan prepared by Tract, including but not limited to:*
   - *Street paving*
   - *Street lighting*
   - *Street furniture*
   - *Public Art*
   - *Landscaping*
   - *Stormwater Drainage"*

The applicant's offer is to enter into a Planning Agreement in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* and *Regulations*. The public benefit offer is not consistent with the methodology as per Waverley Council's Planning Agreement Policy 2014 (Draft Amendment No. 1). Council's Planning Agreement Policy 2014 (Draft Amendment No. 1) ('the Policy') was reported to Council on 20 October 2015 seeking endorsement for the purpose of public exhibition. The subject planning proposal was to be utilised as a guide to test the effectiveness of the Policy, prior to the Policy being finalised by Council. However, the public benefit offered as part of this planning proposal is inconsistent with the value sharing methodology.

The appropriateness of the public benefits offered and whether or not the monetary value of the public benefits is comparable to any uplift of the development potential on the subject sites has been assessed.

Importantly, the through-site link and plazetta may not necessarily be dedicated to Council. The works may be required to provide public access to the shops and/or may be necessary as part of development / conditions of development consent. The spaces may be retained as common property under the strata plan. Under this scenario their inclusion in the VPA assessment is questionable.

There is a significant difference between what Council has calculated as the potential profit associated with the value uplift arising from the planning proposal and the value of the public domain improvements

offered by the applicant. Accordingly, negotiations on the proposed planning agreement have not been conducted at this stage.

To further contextualise the public benefit offer associated with the planning proposal, beyond expectations associated with Council's value sharing methodology, the public benefit offer has been compared to the Greater Sydney Commissions draft District Plan Affordable Housing Target.

The draft District Plans released in November 2016 indicated that, when preparing planning proposals or strategic plans for new urban renewal or greenfield areas, the relevant planning authority will include an Affordable Rental Housing Target as a form of inclusionary zoning.

The draft District Plans identify that the Affordable Rental Housing Target should be between 5-10% of floor space uplift associated with planning controls. Based on a 10% uplift, and assuming a mix of one and two bedroom units, the subject planning proposal could provide around seven affordable rental houses. The number of affordable rental units could vary between six and nine, depending on the mix of 1 and two bedroom units.

	Area (sqm)
Current allowable floor space	3,722
Proposed allowable floor space	8,684
Uplift in floor space	4,962
10% Affordable Housing Target	
10% of uplift	496sqm
1 BR apartment - 55sqm	9.0
2 BR apartment - 85sqm	5.8
Mix of 1 and 2 BR apartments - 70sqm	7.1

Assuming an average unit value of around $1.25 million (based on the 1 and 2 bedroom split of 50:50), the contribution of affordable housing that will soon be a mandated public benefit in the District Plan would be valued at around $8.75 million (7 units x $1.25mil).

The proposal makes no offer in regard to the dedication of affordable housing.

When assessed against the Policy position of 50% value sharing and the draft District Plans Affordable Rental Housing Targets, the public benefit offered by this planning proposal is inadequate.

The importance of the public benefit offered with this planning proposal is significant. The JRPP chose to support the planning proposal to proceed to public exhibition under the amended form submitted to Council (36m height and 3.5:1 FSR) as it was concerned that any reduction in the floor space of the proposal would also reduce the public benefit that will be possible to negotiate in respect of this proposal.

Council officers have commenced planning agreement negotiations with the applicant. As briefly outlined above, the value of the public benefit offer sits below the value of the uplift as calculated by Council. There has been no agreement at this stage, however should the proposal proceed, the Department of Planning and Environment should include a requirement to provide a reasonable net community benefit commensurate with the value uplift. Any public benefit should be consistent with the Waverley Planning Agreement Planning Agreement Policy 2014 (draft Amendment 1) and the draft Central District Plan affordable housing targets.

(d) Is the planning proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?

The planning proposal is consistent with the broader objectives and actions contained within *A Plan for Growing Sydney* (Metropolitan Strategy) and the draft Central District Plan. The draft Central District Plan (draft DCP) includes the following specific priorities for Bondi Junction:

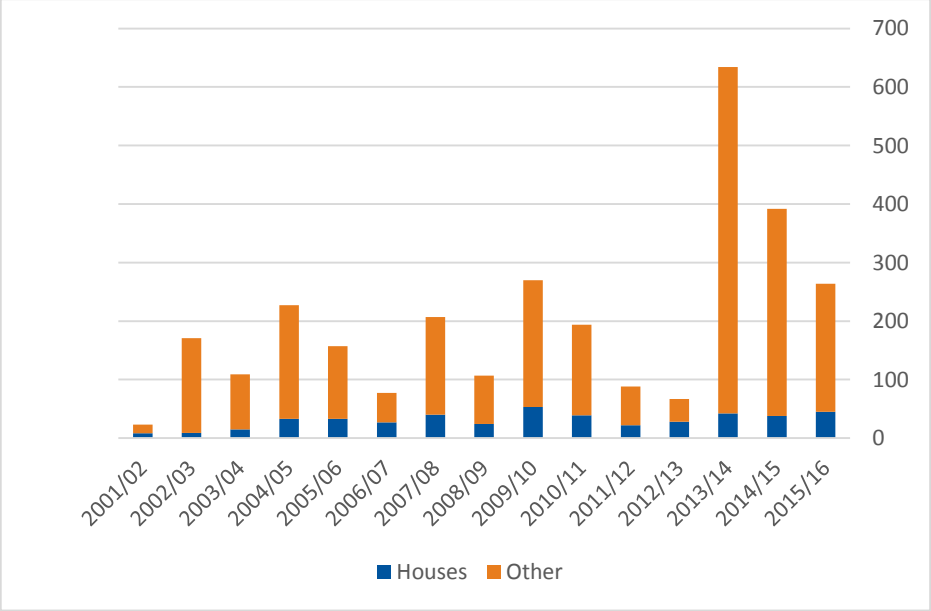
- "Consider potential options for future public transport connections to the south east of the District in order accommodate forecast population and employment growth and provide better connectivity between the south east of the District and the rest of Greater Sydney. This should enhance economic, social and environmental outcomes for the District
- Expand the function and type of land uses in the centre including attracting A-Grade office tenants and knowledge-intensive jobs
- Improve access from the centre of Bondi Junction to nearby open space and recreation facilities such as Queens Park, Centennial Park and Bondi Beach
- Recognise the centre's health attributes to support the Randwick health and education precinct and mechanisms for increasing floor space for health uses, including a health focused business incubator"

The draft CDP also includes a 5-year housing target of 1250 dwellings, 20-year forecasted jobs requirement of between 3200 and 6700, and an affordable housing target of 5-10% (of uplift sought through rezonings) for Waverley. The applicant notes that the planning proposal will "assist the LGA in meeting this [housing] target whilst improving housing choice to meet the demand and lifestyle requirements of the existing and future residents of this area".

Recent supply

A review of recent dwelling approvals in Waverley show that there has been fluctuations in approvals with an average of around 100 dwellings approved per annum since 2001. Approvals have increased dramatically peaking at 643 dwellings from 2013/14, driven by several large tower approvals in Bondi Junction (Figure 8).

Figure 8: Residential building approvals, Waverley

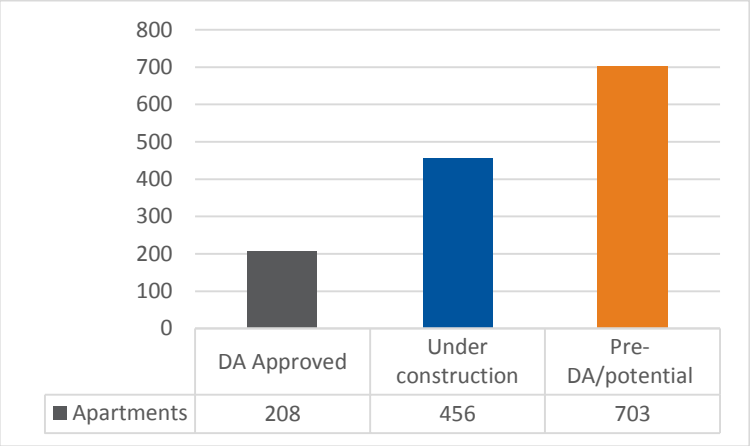


Source: ABS, Building Approvals Cat. No. 8731.0.
Note: 'Other' includes non-detached forms of housing and is likely to be mostly comprised of apartments.

Bondi Junction supply pipeline

Reflecting the above approvals, and considering pre-development application / potential development, there is a large supply pipeline of developments in Bondi Junction expected to be delivered in the coming years. Figure 9 shows that there are approximately 650 apartments approved or under construction and another 700 apartments in the pipeline as potential developments; totalling approximately 1,350 apartments in Bondi Junction alone. In short, the reliance upon a contribution to Waverley's housing targets is therefore not considered a benefit of the planning proposal.

Figure 9: Supply pipeline, Bondi Junction



Source: Waverley Council DA data, 2016; Cordell Construction, 2016.

(e) Is the planning proposal consistent with the local Council's community strategic plan or other local strategic plan?

The table below assesses the consistency of the planning proposal with "Waverley Together 3" and the Delivery Program 2013-2017.

Strategy	Consistent?
C3 - Housing options are available to enable long term residents and those with a connection to the community to remain in Waverley.	
C3a - Promote a mix of housing types in new developments, including housing that is affordable and accessible.	The claim that the proposal will provide affordable housing, and housing for first home buyers, young families and the downsizing elderly (page 26) is not substantiated by any supporting evidence. The planning proposal does not detail the manner in which the mix of housing will be provided and secured for the various groups listed. The commitment can therefore only be taken on face value as there is no legally binding manner proposed by the applicant in which these claims can be secured for community benefit. For example, the draft Public Benefit Offer could have included the provision of a number of affordable housing units. As it stands, the statement in the planning proposal therefore merely conveys that a range of apartment types (including adaptable housing units) could be available at market rates. Should the planning proposal proceed it is considered appropriate for the Greater Sydney Commission or their Delegate to require a minimum provision of 5-10% of apartments in the development to

Strategy	Consistent?
	be dedicated to Waverley Council as affordable housing and for the other claims regarding different buyer groups to be substantiated by the applicant.
C3c - Investigate and pursue housing initiatives through joint venture and other forms of partnership opportunities.	Refer to response to C3a above. This planning proposal process provides an ideal opportunity to pursue a partnership with the property owners in order to secure housing types beyond those ordinarily sought through a redevelopment process.
L1 - Waverley's economy is vibrant and robust and supports the creation of a variety of jobs and business opportunities.	
L1a - Reinforce Bondi Junction's role as a regional centre with a mix of residential, retail, hospitality, business, commercial, professional services and entertainment activities.	The subject site is capable of achieving the Strategy under the current or proposed development standards.
L5 - Buildings are well designed, safe and accessible and the new is balanced with the old.	
L5a - Ensure planning controls for new buildings and building upgrades deliver high quality urban design that is safe and accessible, in which heritage and open space is recognised, respected and protected.	The amended height and floor space ratio controls sought through the planning proposal are inconsistent with this Strategy. The 36m height and floor space ratio of 3.5:1 result in unacceptable built form and scale impacts upon the heritage listed Norfolk Island Pine and Nelson Hotel.
L5b - Protect and maintain heritage significant buildings while ensuring they are fit for use.	Refer to Section 4.2(i). The planning proposal proposes the removal of four heritage listed terraces. Despite this being inconsistent with this Strategy, the professional advice received throughout the WOSP charrette process and the applicant's heritage report all suggest that their removal is possible subject to the replacement building displaying exceptional architectural design.
L5c - Consider the use of planning controls and agreements to provide improvements to built infrastructure.	Refer to Section 4.2(c).

(f) Is the planning proposal consistent with applicable state environmental planning policies?

The planning proposal is consistent with all applicable State Environmental Planning Policies. In relation to compliance with State Environmental Planning Policy 65 (Design Quality of Residential Apartment Development) (SEPP65), the applicant states that "detailed compliance with the SEPP will be demonstrated at the time of making an application for development consent". Any future development application to be submitted to Council for the subject site will be required to demonstrate that the development satisfies the requirements of SEPP65.

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

The planning proposal is consistent with the applicable Ministerial Directions (s117 directions), except *2.3 Heritage Conservation*. Direction 2.3, in part, states:

> *(4) A planning proposal must contain provisions that facilitate the conservation of:*
> *(a) items, places, buildings, works, relics, moveable objects or precincts of environmental heritage significance to an area, in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item, area, object or place, identified in a study of the environmental heritage of the area,*

There are two key heritage aspects of the planning proposal which relate to the removal of the heritage listing for the four terraces at 194-200 Oxford Street and the scale impacts upon the heritage listed Norfolk Island Pine tree and Nelson Hotel. The removal of the heritage listing is discussed further below and the scale impacts are discussed in Section 4.2(i).

The applicant's Heritage Report prepared by Urbis notes that the terraces "were once part of a more comprehensive streetscape of dwellings that were demolished for the expressway" however the "immediate context of the terrace group has changed significantly over time as a result of urbanisation and freeway development and retains little of its original historical setting." Given that these terraces were not identified as rare or numerous but under threat the removal of the listing is considered acceptable on condition.

Removal of the heritage listings for the terraces at 194-200 Oxford Street is only supported if they are replaced by a building of a substantially higher quality and provides significant community benefit and streetscape value to the locality. As part of the West Oxford Street Precinct Plan the design teams worked through a range of design options for the sites including their retention, replacement or adaptation. Should the planning proposal proceed, various design options should be considered as part of a development application process.

(h) 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?

It is not considered that any critical habitat or threatened species, populations or ecological communities, or their habitats will be adversely affected as a result of the proposal.

(i) Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

Traffic and Parking

Council reviewed the planning proposal's Traffic Study (prepared by GTA Consultants) and noted inadequate information had been provided as follows:

- The modelling in the report is based on traffic survey data from March 2013, this data is not acceptable due to the length of time since the survey was carried out and the changed traffic conditions in the Bondi Junction area over this period. Updated surveys must be undertaken to assess the impact of the proposal.
- The intersection models needs to be modelled as a network rather than individual intersections due to their proximity to each other.
- GTA's report post development modelling and phase times is not acceptable as existing phase times need to be applied to all models unless concurrence is received from the RMS to change phase times of the current signals post development.

- All surrounding key intersections need to be modelled particularly the intersection of Osmund Lane and Nelson Street which is not modelled in the report.
- Updated survey data and SIDRA analysis to include a range of traffic growth scenarios including a worst case scenario.
- The report needs to consider the impact of the proposed development on surrounding roads with consideration for local road environmental capacities as well as impacts on local amenities.
- The traffic report needs to provide an assessment of the traffic impacts and a road safety audit/assessment of the proposed access shared zone/laneway along Osmund Lane including details of any mitigation measures proposed (e.g. central median, roundabout, signals).

The above points formed the basis for a consultant brief to independently review the likely traffic impacts associated with the planning proposal. Council engaged Bitzios Consulting to prepare independent Traffic Advice (Attachment 2) for the subject sites. The Traffic Advice includes an assessment of the performance of intersections within a defined study area. A preliminary design Road Safety Audit for the Osmund Lane shared zone was also completed.

The traffic advice regarding the performance of intersections within the study area concluded the following:

- "The development produces an additional 121 vehicles during the critical PM peak hour;
- Most key intersections near the subject site are operating at capacity in the future regardless of the development. In this context, the additional development traffic has a marginal effect on the performance of intersections within the local road network.
- In all cases, queues form at the Oxford Street / Nelson Street intersection which consequentially affect upstream intersections along Oxford Street;
- In general and where possible, the targeted introduction of longer turning pockets/lanes will reduce the incidence of blocking and increase the capacity of intersections;
- Reasonable levels of on-street parking are available over-night, with over 80 spaces available across the study area at both 10pm and 6am. The development is not expected to have a significant impact on available overnight parking capacity; and
- 30% of vehicles surveyed over-night displayed Residential Permits, and hence parking turnover during the hours with parking restriction may be higher than expected due to the expected low use by local residents during these times."

Based on the above advice, the development will have "a marginal effect on the performance of intersections within the local road network". It is however acknowledged that the Oxford Street/Nelson Street & Oxford St/York Road intersections experience considerable queuing and that investigating the phasing of lights may need to be undertaken if this planning proposal is to proceed.

The preliminary design Road Safety Audit for Osmund Lane noted some 'Low' and 'Medium' risks associated with the concept design accompanied by some recommendations aimed at reducing and managing the identified risks. Additional investigations will be required through any future development application in the event that the planning proposal proceeds.

Impact of tower forms of streetscape

Following the West Oxford Street Design Charrette process, the community expressed significant concerns regarding the perceived impacts of tower forms on the streetscape character of the West Oxford Street area. The existing "village feel" is characterised by small 2-3 shop fronts and a fine grain subdivision pattern.

Council officers have previously noted the need for a better heritage response to the listed Norfolk Island Pine at 2 Nelson Street and the neighbouring heritage listed Nelson Hotel, whereby the proposed maximum height and FSR for the site should be reduced. This was seen to elevate the prominence of the Norfolk Island Pine when viewed from the public domain and provide a better transition from the 15m height limits to the east of the subject sites.

It is considered that the proposed 36m height at 2 Nelson Street is unsuitable for this locality (Figure 10). Building height controls for 2 Nelson Street must respond to the existing heritage listed Norfolk Island Pine on the site and be sympathetic to the adjacent heritage item, the Nelson Street Hotel. Built form on this site should be recessive in the streetscape and complement heritage items rather than dominate the urban form. The following figure shows the height proposed under this planning proposal with an indicative height of the heritage listed Norfolk Island Pine (refer to Figure 10).

Figure 10: Proposed development showing an 11 storey tower with a 36 metre height limit. The green line shows the height of the existing heritage listed Norfolk Island Pine (approx. 25m high)

Inconsistency with the design advice provided in the West Oxford Street Precinct Plan and Reimagining Syd Einfeld Drive Study

The design charrette process resulted in three schemes from design experts in architecture, urban design, planning and public art. The built form outcomes from the West Oxford Street Precinct Plan relate to sites 2 and 3 (refer to Figure 11).

The overall heights proposed by the applicant exceed the recommendations from the three design teams. The proposed 36 metre towers on both subject sites do not align with the professional design advice provided. A 36 metre height was noted by one team as an option on site 2, but the consistent advice on site 3 at 2 Nelson Street was for a lower height limit to be more sympathetic to the surrounding heritage context and provide a transition from the lower scale block to the east. Notwithstanding this, a reduced height for both sites was recommended by two of the three design teams which highlights the inappropriateness of the heights sought in this planning proposal.

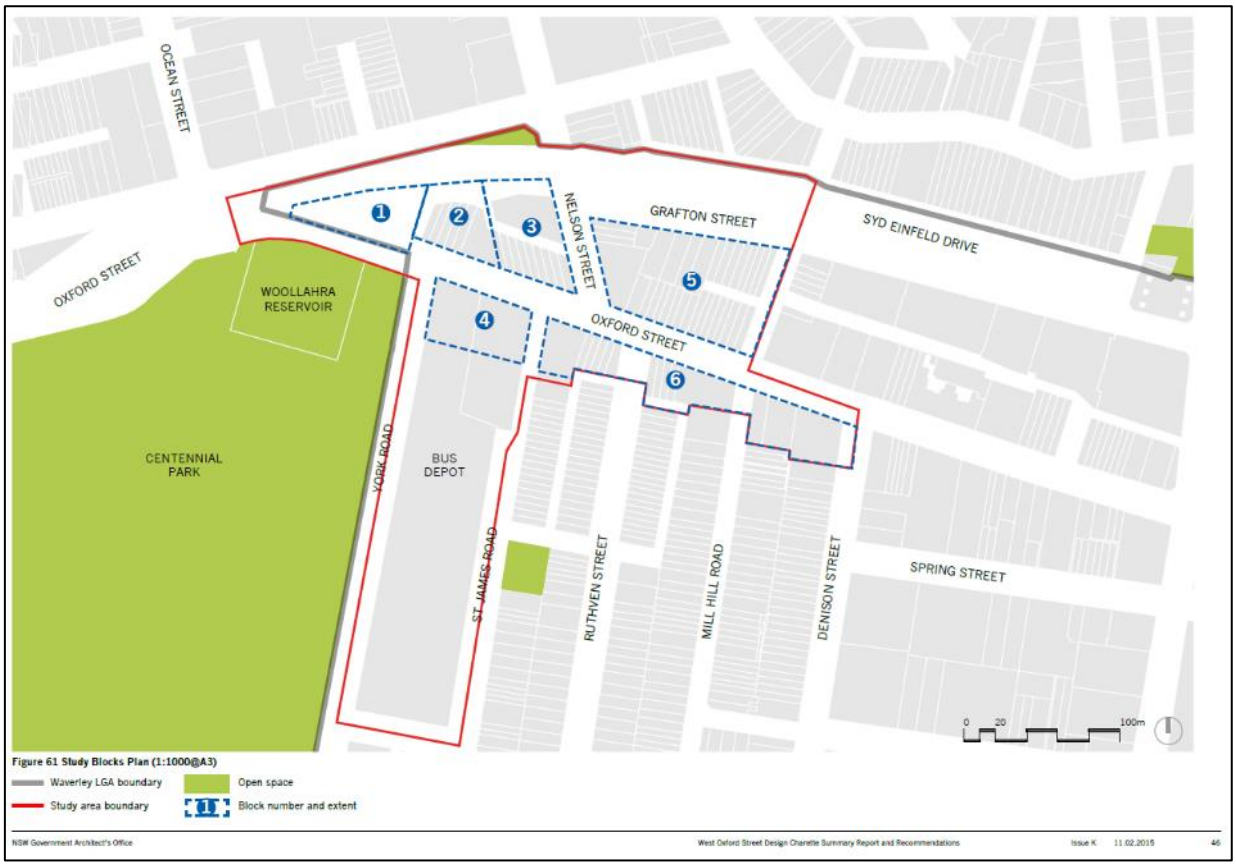


Figure 11: Map identifying blocks specified in the Government Architect Office's report for West Oxford Street (Figure 3 below). In regards to the planning proposal Block 2 includes sites 194-214 Oxford Street and Block 3 includes 2 Nelson Street.

Further work has been conducted in regard to the road widening which may have implications for the site. Hill Thalis has identified the need for improvements to the pedestrian bridge in the Draft Reimagining Syd Einfeld Drive study, which states:

> *"This critical pedestrian and cycle link between Woollahra and Waverley is currently too narrow with poor access at either end. The redesign of the footbridge, combined with the widening of the western verge allows for generous connections from the northern verge of Grafton Street to the proposed terrace along Syd Einfeld Drive. The existing pedestrian bridge, stairs and ramps are not sufficiently generous to connect Nelson Street to Woollahra. A 4m wide bridge is proposed with 2m wide compliant ramps shown indicatively. The bridge is positioned to reinstate the street footpath along the entire west edge of the street."*

Improvements to this pedestrian link would significantly improve accessibility to Bondi Junction contains a number of recommendations potentially impact on the site.

There is an opportunity to convey the following alternative public domain improvements/public benefit works as part of the planning agreement negotiations:

- Land dedication on the western corner of the site that enables reconfiguration of the intersection of Syd Einfeld Drive and York Road as per the Reimagining Syd Einfeld Drive Study (refer to Figure 12).
- Redesign and construction of the Syd Einfeld Drive pedestrian footbridge as per the Reimagining Syd Einfeld Drive Study recommendations.
- The draft Reimagining Syd Einfeld Drive Study will be subject to a future report to Council for endorsement.

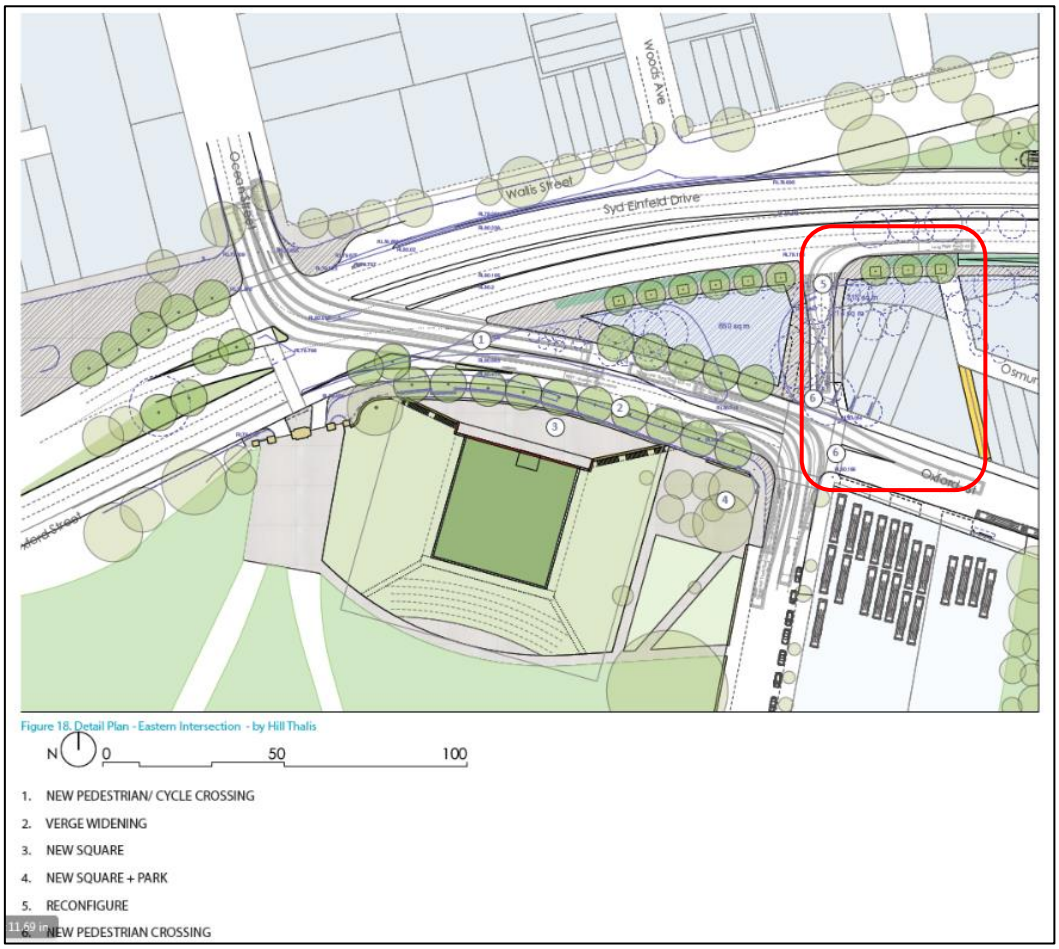


Figure 12: Proposed redesign of the Syd Einfeld Drive, Oxford Street, Ocean Street and York Street intersection.

Consideration of the Amenity of Neighbouring Properties

Council's shadow impact analysis of the proposed indicative building footprints is provided as follows. Figures 13 to 20 show impacts on neighbouring properties to the south east of the site and Centennial Park to the south west. Blue shadows indicate existing shadows and yellow indicates proposed 36m (approx. 11 storeys).

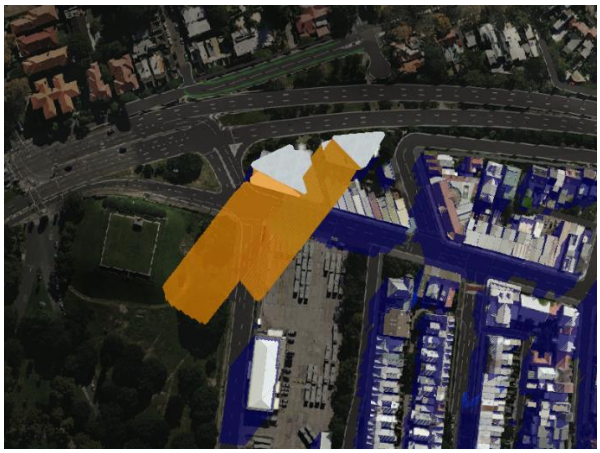


Figure 13 - 9am Winter

Figure 14 - 9.30am Winter

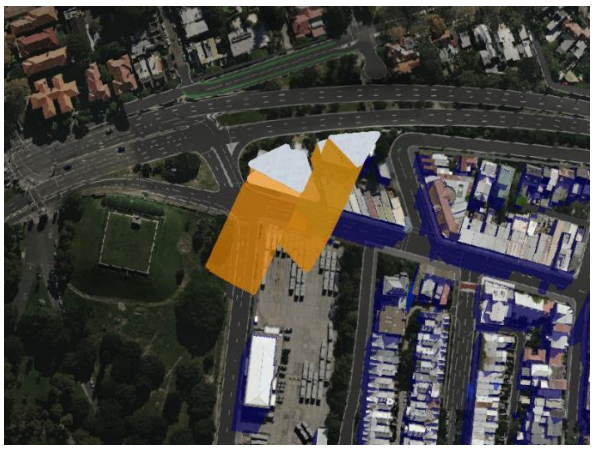


Figure 15 - 10am Winter

Figure 16 - 11am Winter

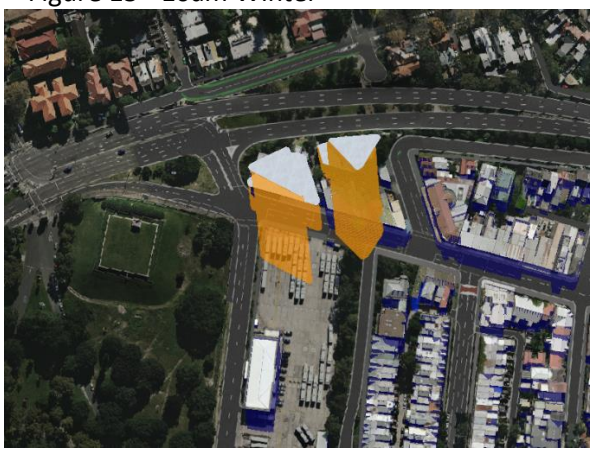


Figure 17 - 12pm Winter

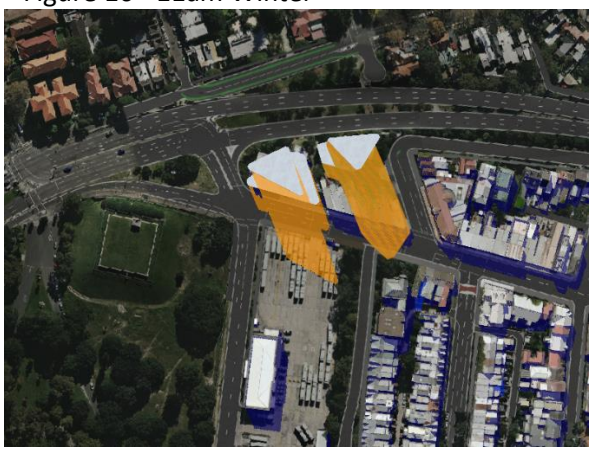


Figure 18 - 1pm Winter

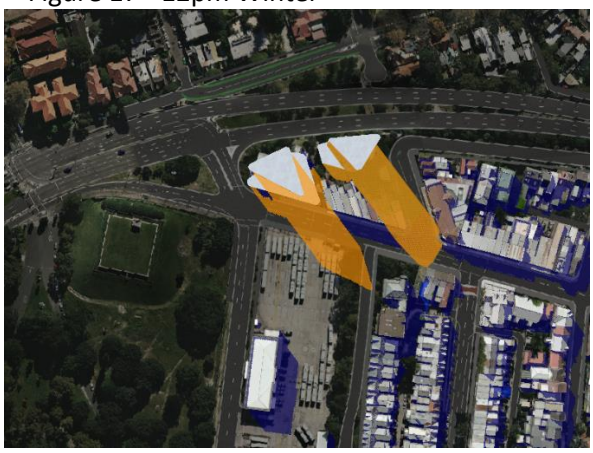


Figure 19 - 2pm Winter

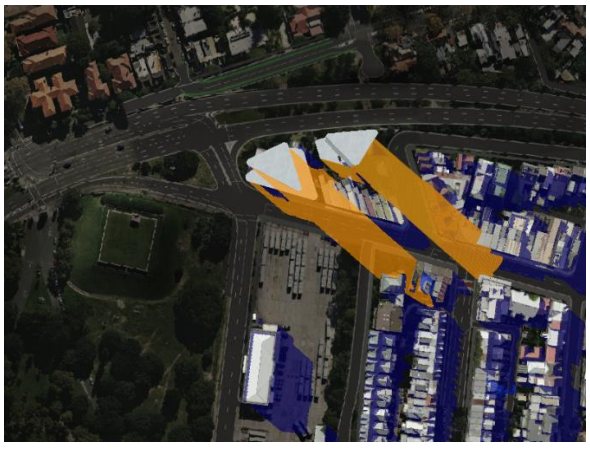


Figure 20 - 3pm Winter

The proposed tower at 194-214 Oxford Street overshadows the corner of Centennial Park in the early morning in mid-winter. Overshadowing occurs between 9am to approximately 10.30am mid-winter to the corner of Centennial Park. This extent of overshadowing is generally considered to be acceptable given that this is the worst case scenario and it leaves the park relatively early in the morning with full solar access for the remainder of the day. During the remainder of the year (equinox and summer) the overshadowing is minimal on Centennial Park.

It should however be noted that the area of the park which is overshadowed is identified by the Centennial Park Masterplan as the site for a future skate facility. Additionally, the area was identified by all three design teams in the West Oxford Street Design Charrette process as a potential future access point, connecting Bondi Junction with Centennial Park by opening a new Park entrance on the corner of Oxford Street and York Road.

The additional height of a 36m tower form at 2 Nelson Street results in additional overshadowing of the public domain in winter. Figure 21 shows the 3pm winter perspective showing the length of shadowing from the 36 metre building height (yellow). This is the northern edge of the Mill Hill Conservation Area and includes a popular outdoor seating space currently utilised by residents and visitors (refer to Figure 22). Maintaining uninterrupted solar access along the southern retail frontages is fundamental to the enjoyment of the public domain and should be protected to retain the 'village feel' and to reduce overshadowing of heritage items such as the Nelson Hotel.

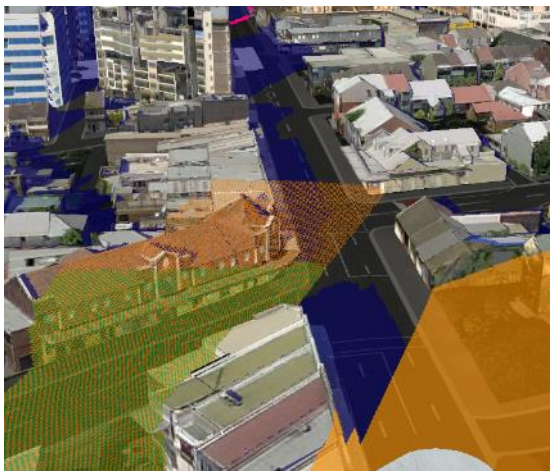


Figure 21: Overshadowing impacts

Figure 22: Existing outdoor seating

(j) How has the planning proposal adequately addressed any social and economic effects?

The commercial and retail tenancies at the western end of Oxford Street have limited growth opportunities. The absence in the area of a substantial western anchor, limited population growth in the area, as well as a relatively poor public domain arrangement which lacks excellent pedestrian connections through the area, results in a lack of active uses and spaces configured to create a desirable setting at street level. An amended proposal, reduced in scale, has the potential to re-invigorate the western end of Bondi Junction and activate the West Oxford Street Precinct.

(k) Is there adequate public infrastructure for the planning proposal?

There is inadequate public transport (train and bus) and open space within the vicinity of the site to accommodate the planning proposal. Section 4.2 (i) notes that the phasing of lights in the vicinity of the site should be considered to improve the performance of the intersections particularly at Oxford Street/Nelson Street and Oxford Street/York Road.

(l) What are the views of State and Commonwealth Public Authorities consulted in accordance with the gate way determination and have they resulted in any variations to the planning proposal?

As discussed in Section 3.1 of this report, Council consulted with State Agencies as required.

5. Relationship to Waverley Together 3 & Delivery Program 2013-17

The relationship to *Waverley Together 3* and *Delivery Program 2013-17* is as follows:

Direction:	L1 Waverley's economy is vibrant and robust and supports the creation of a variety of jobs and business opportunities.
Strategy:	L1a Reinforce Bondi Junction's role as a regional centre and a focus for retail, hospitality, business, commercial and professional services and entertainment activities.
Deliverable:	Well utilised, integrated and welcoming public and private domains in

	Bondi Junction achieved through the development approval process
Direction:	L5 Buildings are well designed, safe and accessible and the new is balanced with the old.
Strategy:	L5a Ensure planning and building controls for new buildings and building upgrades deliver high quality urban design that is safe and accessible, in which heritage and open space is recognised, respected and protected.
Deliverables:	- Comprehensive local environment plan (LEP) updated annually in line with Council's Land Use Strategy and the requirements of the NSW Department of Planning & Infrastructure - Strategic Land Use policies and plans reviewed regularly
Direction:	L5 Buildings are well designed, safe and accessible and the new is balanced with the old.
Strategy:	L5c Consider the use of planning controls and agreements to provide improvements to built public infrastructure.
Deliverable:	Opportunities to deliver public infrastructure through Voluntary Planning Agreements (VPA)

6. Financial impact statement/Timeframe/Consultation

Financial Impact Statement

There have been no upfront or recurrent costs associated with this Planning Proposal other than staff and consultancy costs associated with the administration, assessment and exhibition of the proposal and these have been budgeted.

Timeframe

The estimated timeframe for completing the LEP amendment is set out below and satisfies the requirement of 9 months specified in the Gateway Determination:

Gateway Determination	22 December 2016
Public Exhibition	8 February - 10 March 2017
Report to Council	July 2017
Consideration by Department of Planning and Environment	July - December 2017

Consultation

Public consultation

As discussed in Section 3.1 of this report, Council carried out a community consultation period in accordance with the Gateway Determination (Attachment 1) for the subject planning proposal.

7. Conclusion

The public exhibition period highlighted the community opposition to the planning proposal noting a number of significant issues with the proposal.

The planning proposal should not proceed as the amendment to height and floor space ratio results in an overdevelopment of the site. In particular, the tower at 2 Nelson Street will dominate the heritage listed Norfolk Island Pine and will not provide an acceptable transition between the adjoining 15m block to the east which includes the heritage listed Nelson Hotel.

Despite Council officers previously noting merit in a reduced scheme, the JRPP found that the planning proposal had strategic merit in the 36m height and 3.5:1 floor space ratio standard as an avenue for additional public benefit. As detailed in Section 4.2(c) of this report, the public benefit offer put forward by the applicant does not provide a public benefit offer consistent with Council's Planning Agreement Policy 2014 and the public benefit offered is inadequate compared to benchmarks as stated in the draft District Plans.

The planning proposal therefore cannot be supported.

8. Attachments

1. Gateway Determination & Letter to Council - 22 December 2016
2. Bitzios Traffic Advice (abridged) July 2017
3. Submission Response - City Plan - May 2017
4. Photomontage Certification Report - RLA - 26 April 2017

ATTACHMENT 1 - Gateway Determination dated 22 December 2017

NSW GOVERNMENT Planning & Environment

Gateway Determination

***Planning proposal (Department Ref: PP_2016_WAVER_003_00)**: to amend height and floor space ratio controls for 194-214 Oxford Street and 2 Nelson Street, Bondi Junction.*

I, the Executive Director, Regions, Planning Services at the Department of Planning and Environment as delegate of the Greater Sydney Commission, have determined under section 56(2) of the *Environmental Planning and Assessment Act 1979* (the Act) that an amendment to the Waverley Local Environmental Plan (LEP) 2012 to amend height and floor space ratio controls for 194-214 Oxford Street and 2 Nelson Street, Bondi Junction should proceed subject to the following conditions:

1. Prior to community consultation, the planning proposal is to be updated as follows:

   (a) to demonstrate consistency with the draft Central District Plan, released on 21 November 2016;
   (b) the proposed LEP mapping and planning proposal be updated to reflect the correct SP2 Infrastructure zoning identified on the corner of Syd Einfield Drive and York Street;
   (c) remove the proposed design excellence local provision including bonus provision scheme for undertaking a design competition;
   (d) provide a statement of intent regarding a local provision for an architectural design competition to apply to this site, conducted in accordance with the Design Excellence Guidelines as issued by the Secretary and amended from time to time, and addressing:
      - overshadowing of surrounding area including Centennial Park;
      - the impact on heritage items in the vicinity of the site; and
   (e) a site specific draft DCP is to be exhibited with the planning proposal.

2. Community consultation is required under sections 56(2)(c) and 57 of the Act as follows:

   (a) the planning proposal must be made publicly available for a minimum of **28 days**; and
   (b) the relevant planning authority must comply with the notice requirements for public exhibition of planning proposals and the specifications for material that must be made publicly available along with planning proposals as identified in section 5.5.2 of *A Guide to Preparing LEPs* (NSW Department of Planning and Environment 2016).

3. Consultation is required with the following public authorities under section 56(2)(d) of the Act and/or to comply with the requirements of relevant section 117 Directions:

   - Woollahra Council;

- Randwick Council;
- Office of Environment and Heritage;
- Transport for NSW;
- Roads and Maritime Services;
- Energy Australia;
- Sydney Water;
- Department of Education and Communities,
- NSW Ministry of Health; and
- Centennial Park and Moore Park Trust

Each public authority is to be provided with a copy of the planning proposal and any relevant supporting material, and given at least 21 days to comment on the proposal.

4. A public hearing is not required to be held into the matter by any person or body under section 56(2)(e) of the Act. This does not discharge Council from any obligation it may otherwise have to conduct a public hearing (for example, in response to a submission or if reclassifying land).

5. The timeframe for completing the LEP is to be **12 months** from the week following the date of the Gateway determination.

Dated 22nd day of December 2016

Stephen Murray
Executive Director, Regions
Planning Services
Department of Planning and Environment

Delegate of the Greater Sydney Commission

PP_2016_WAVER_003_00 (16/01614)

NSW GOVERNMENT Planning & Environment

Our ref: PP_2016_WAVER_003_00 (16/01614)

Arthur Kyron
General Manager
Waverley Council
55 Spring Street
Bondi Junction NSW 2022

Dear Mr Kyron

Planning proposal to amend Waverley Local Environmental Plan 2012

I am writing in response to your Council's request for a Gateway determination under section 56 of the Environmental Planning and Assessment Act 1979 (the Act) in respect of the planning proposal to amend height and FSR controls at 194-214 Oxford Street and 2 Nelson Street, Bondi Junction.

As delegate of the Greater Sydney Commission, I have now determined the planning proposal should proceed subject to the conditions in the attached Gateway determination.

Council may still need to obtain the agreement of the Department's Secretary to comply with the requirements of relevant Section 117 Directions, particularly with regard to Direction 2.3 Heritage Conservation. Council should ensure this occurs prior to the plan being made.

In accordance with the recommendations of the Panel as part of the Pre-Gateway review, it is agreed that the planning proposal provides an opportunity to address improvements to the intersection of Oxford and York Streets and access between Bondi Junction and Centennial Park. This relates to the consideration of traffic and public domain improvements. Council is requested to consider this issue and undertake relevant consultations to address this matter.

Plan making powers were delegated to councils by instrument of delegation dated 14 October 2012. It is noted that Council has accepted this delegation. I have considered the nature of Council's planning proposal and have decided not to issue an authorisation for Council to exercise delegation to make this plan, as the proposal involves a number of policy matters.

The amending Local Environmental Plan (LEP) is to be finalised within 12 months of the week following the date of the Gateway determination. Council should aim to commence the exhibition of the planning proposal as soon as possible. Council's request for the Department of Planning and Environment to draft and finalise the LEP should be made 6 weeks prior to the projected publication date.

Department of Planning and Environment
320 Pitt Street Sydney 2000 | GPO Box 39 Sydney 2001 | planning.nsw.gov.au

The State Government is committed to reducing the time taken to complete LEPs by tailoring the steps in the process to the complexity of the proposal, and by providing clear and publicly available justification for each plan at an early stage. In order to meet these commitments, the Greater Sydney Commission may take action under section 54(2)(d) of the Act if the time frames outlined in this determination are not met.

Should you have any queries in regard to this matter, I have arranged for Ms Charlene Nelson of the Department's regional office to assist you. Ms Nelson can be contacted on (02) 9274 6570.

Yours sincerely

22 December 2016

Stephen Murray
Executive Director, Regions
Planning Services

Encl: Gateway Determination

OXFORD STREET AND NELSON STREET JUNCTION, BONDI

TRAFFIC ADVICE

FOR

WAVERLEY COUNCIL

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Project No:	P3133	Version No:	003	Issue date:	11-July-2017

DOCUMENT CONTROL SHEET

Issue History

Report File Name	Prepared by	Reviewed by	Issued by	Date	Issued to
P3133.001R Oxford Street and Nelson Street Bondi Junction Traffic Advice	G. Yin	A. Giyahi	A.Giyahi	19/06/2017	Angela Hynes Waverley Council Angela.hynes@waverley.nsw.gov.au
P3133.002R Oxford Street and Nelson Street Bondi Junction Traffic Advice	G. Yin / S. Daizli	D.Bitzios	A.Giyahi	26/06/2017	Tim Sneesby Waverley Council tim.sneesby@waverley.nsw.gov.au
P3133.003R Oxford Street and Nelson Street Bondi Junction Traffic Advice	G. Yin / S. Daizli	T.Wheatley	T. Wheatley	11/07/2017	Tim Sneesby Waverley Council tim.sneesby@waverley.nsw.gov.au

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Appendices

Appendix A: GTA Traffic Report (2016)
Appendix B: SIDRA Intersection Performance Summaries
Appendix C: Road Safety Audit Report

1. INTRODUCTION

1.1 BACKGROUND

1.1.1 History

In October 2015, a Planning Proposal was submitted to Waverley Council by City Plan Services Pty Ltd on behalf of Westgate BJ Pty Ltd, relating to the western end of Bondi Junction Town Centre, also known as Oxford Street West Precinct.

The Proposal explains and justifies the intended effect of amendments to the Waverley Local Environment Plan (LEP) 2012, site specific for No's 194-214 Oxford Street and No 2. Nelson Street, Bondi Junction.

Bitzios Consulting was engaged by Waverley Council to undertake a Traffic Impact Assessment (TIA) of the proposed development concept as part of the Planning Proposal. The findings of this report are expected to inform the preparation of the post-exhibition report to Council and may be included as an attachment to the Council Report.

1.1.2 Planning Proposal

The planning controls that are sought to be amended for the site through the proposal include:

- Increasing the Floor Space Ratio (FSR) from 1:5 to 3.5:1;
- Increasing the allowable building height from 15m to 36m;
- Removing heritage status of No 194-200 Oxford Street, Bondi Junction; and
- Introduce new clause for design excellence

These amended planning controls will make way for proposed development to achieve the following objectives:

- enhance the future character of Bondi Junction as a strategic centre by enabling redevelopment of the site for higher density mixed use development that contributes to the achievement of employment and housing targets;
- provide an enhanced built form outcome which will enable the provision of improved public domain areas at street level near Centennial Park;
- provide better access and permeability by site improvements to traffic, pedestrian and cycling connectivity;
- incentivising investment and revitalisation to create an alternate shopping and living experience at the gateway to Bondi Junction; and
- introduce design excellence provisions to ensure 'key sites' within the Waverley LGA exhibit high design and architectural standards.

The proposal was issued a *Gateway Determination* in December 2016. Public exhibition of the Proposal was conducted from 8 February 2017 to 10 March 2017, with approximately 400 submissions received from the community. The impact of the proposal upon local traffic and parking conditions was one of the primary concerns raised during the consultation period.

1.2 LOCATION

The site is located at the western-most end of the Bondi Junction town centre, bounded by Syd Einfeld Drive, Oxford Street and Nelson Street, as shown in Figure 1.1. The site is currently zoned as *Mixed Use (B4)* under *Waverley LEP (2012)*, with buildings in the surrounding area comprised of residential dwellings with commercial frontages at street level.

Source: NSW SIX Maps

Figure 1.1: Site Location

2. LITERATURE REVIEW

2.1 TRAFFIC REPORT FOR THE DEVELOPMENT APPLICATION

A traffic report was produced by GTA Consultants in 2016 as a part of the development application for 214-218 Oxford Street and 2 Nelson Street, Bondi Junction. This report is provided in Appendix A.

Report's Recommendations

The GTA report identified:

- a Traffic generation of 121 vehicles/hour during peak periods;
- a minimum parking provision of 101 spaces (residential provision only);
- that the traffic volumes due to post-development traffic generation was found to adversely affect the capacity of the Oxford Street/York Road intersection; and
- a recommendation for the installation of a 25m long right turn bay at the Oxford Street/York Road intersection (westbound on Oxford Street) to reduce future queues to 124m (from 207m).

Growth Factoring Limitations

The growth factor to estimate future year traffic volumes was taken from traffic counts conducted by Roads and Maritime Services (RMS) of eastbound traffic along Syd Einfeld Drive, approximately 20m north of Oxford Street. These counts indicated -3% growth between 2006 and 2016 and -0.4% growth between 2013 and 2016. Based on these rates, an assumption of zero growth was deemed appropriate.

Traffic volumes of Syd Einfeld Drive are essentially a function of the signal green times which release traffic at either end of this road. A negative growth rate may simply have indicated less green time allocated to the through movement phase rather than a reduction in through traffic demand. Also, traffic varies from day to day for a variety of reasons and comparing recorded volumes at a specific point is time is often not a reliable method for calculating underlying traffic demand. Population growth, employment growth and increasing parking demands are better proxies for traffic growth in/near key centres than simply relying on specific point-in-time traffic counts

Limited Modelling

The SIDRA Intersection models developed for the purpose of assessing intersection performance included two intersections: York Road / Oxford Street and Oxford Street / Nelson Street. Whilst these intersections are located closest to the development, a number of other intersections are located nearby the development and could be potentially be affected by the increase in traffic due to the development and due to background population growth. More specifically, there are six intersections within a 300m section of Oxford Street near the site.

Further, traffic queues found at York Road / Oxford Street were found to exceed 200m affecting both the Nelson Street / Oxford Street and Ruthven Street / Oxford Street intersections. The Ruthven Street / Oxford Street intersection was not included in the GTA analysis.

2.2 GOVERNING DOCUMENTS

2.2.1 Waverley Local Environment Plan 2012

The *Waverley Local Environment Plan 2012* (LEP) is the principal planning instrument used by Waverley Council to regulate land use affecting planning and development decisions within the Waverley LGA.

The LEP contains zoning and land use information, specifying what uses are permitted or prohibited in each zone. Development controls include height of buildings, floor space ratios, incentives for affordable housing, provisions for the reservation of land, protection of trees and heritage conservation, and a number of other environmental requirements.

The purpose of the Planning Proposal is to modify and make amendments to the LEP, including building height, floor space ratios and heritage building status.

2.2.2 Waverley Development Control Plan

Waverley Council's *Development Control Plan 2012* (DCP) aims to steer the development of the Waverley area in line with the visions of the various overarching strategies. It supports the controls outlined in the LEP with more specific planning and design guidelines including built form controls, parking, biodiversity and tree preservation, signage, heritage conservation and safety.

The DCP provides guidelines for new residential developments as well as residential alterations and extensions. It also details general controls for commercial developments, and identifies areas where more specific guidelines apply, such as the Bondi Junction town centre, the Bondi beachfront and the local villages.

2.2.3 Waverley Transport Plan 2011

The Waverley Transport Plan was released in December 2011 and addresses key transport issues across the Waverley LGA by developing sustainable transport options over the next 10 years. The key aims of the strategic plan include:

- People regularly use public transport particularly for trips to work and our beaches;
- Roads and intersections are safer and less congested;
- Parking both on street and off street is equitably accessed and effectively managed;
- People frequently walk and ride their bikes particularly for local trips;
- Public transport, cycling and pedestrian alternatives are improved and encouraged;
- All pedestrian routes are high quality, safe and accessible;
- Our bike network and facilities are safe and connected; and
- All stakeholder needs for improvement to transport effectiveness and usefulness are appropriately planned and delivered.

2.2.4 Transport for NSW Shared Zone Guidelines

Transport for NSW's Safer Speeds Policy and Guideline on Shared Zones (published July 2012) provides the policy and guidelines for the identification and installation of Shared Zones such that pedestrians and vehicles may share a road space safely.

The document helps to identify the road and traffic issues that need to be considered in designing and implementing Shared Zones.

3. EXISTING CONDITIONS

3.1 LOCAL ROAD NETWORK

3.1.1 Oxford Street

Oxford Street is a regional road (classified by RMS), linking the Sydney CBD to Bondi Junction and the Eastern Suburbs.

It is primarily one lane in each direction with a speed limit of 50km/h, three signalised intersections and several side streets. Ticketed on-street parking is present on both sides of the road between Nelson Street and Newland Street. Oxford Street is a bus route for multiple bus services leaving Bondi Junction Interchange towards the city and includes multiple bus stops.

3.1.2 York Road

York Road is a regional road linking Bondi Junction and Randwick. It is a two-lane, two-way road with kerbside parking in each direction and a sign-posted speed limit of 50km/h. York Road is in a low-density residential area, runs parallel to Centennial Park on the eastern side and provides entry/exit access for the Waverley Bus Depot.

3.1.3 Syd Einfeld Drive

Syd Einfeld Drive is a state road with three lanes of traffic in each direction. This road is used as a main bypass for Bondi Junction, and provides a major transport corridor between the Sydney CBD, the Eastern Suburbs and eastern beaches.

Syd Einfeld Drive has a sign posted speed limit of 80km/h between York Road and Old South Head Road, 60km/h between Moore Park Road and York Road, with another 40m section limited to 60km/h west of the intersection with Old South Head Road.

No dedicated cycling infrastructure exists on Syd Einfeld Drive.

3.1.4 Nelson Street

Nelson Street is a two-lane local road with ticketed parking located on its eastern side and a Loading Zone on its western side, south of Osmund Lane. It intersects with Oxford Street and Osmund Lane, before turning east and becoming Grafton Street. Wide footpaths are provided along both sides of Nelson Street. The assumed speed limit is 50km/h.

3.1.5 Grafton Street

Grafton Street is a two-lane local road with kerbside parking in each direction. It runs parallel to Syd Einfeld Drive and connects with Nelson Street to the west and Adelaide Street to the east, providing access to Woollahra and surrounds by the intersections.

3.1.6 Osmund Lane

Osmund Lane is a narrow, two-way local road, approximately 4.8m wide, and forms the eastern approach to the intersection with Nelson Street. It currently provides access to the rear of properties fronting Oxford Street. A turn-around facility is located at the end of Osmund Lane.

3.2 JOURNEY TO WORK

Based on *Journey to Work Data* provided by the Bureau of Transport Statistics, a substantial number of residents use public transport to travel from the study area while most workers utilise private vehicles to travel to the study area.

The journey to work mode share for workers (inbound trips) and residents (outbound trips) are presented in Table 3.1 and shown in Figure 3.1.

Table 3.1: Mode Share of Workers and Residents

Mode	To Study Area (Workers)	From Study Area (Residents)
Private Vehicle	43%	36%
Train	29%	32%
Bus	12%	12%
Walk	9%	10%
Passenger	4%	4%
Other	4%	5%

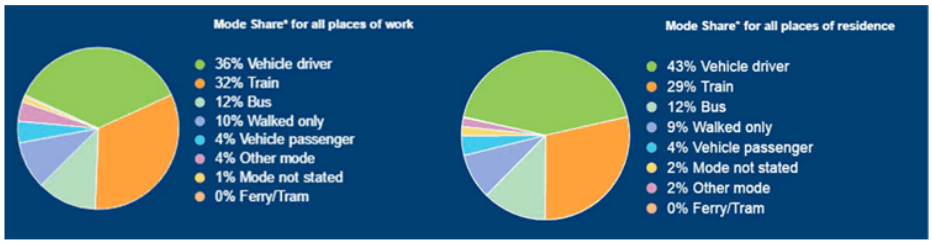


Figure 3.1: Mode Share of Residents (left) and workers (right) in the Study Area

3.3 PUBLIC TRANSPORT

3.3.1 Buses

Oxford Street caters for seven bus routes as listed in Table 3.2.

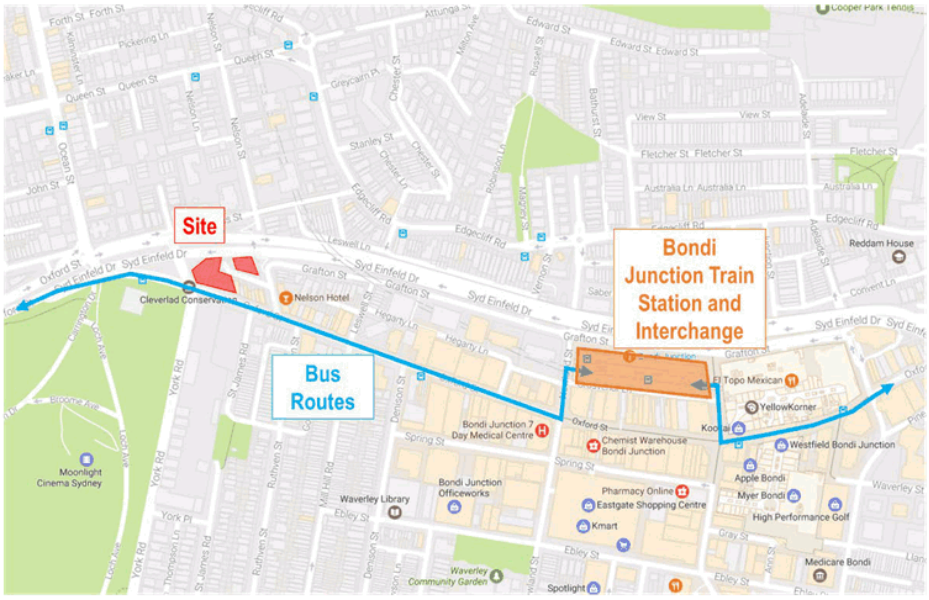
Table 3.2: Bus Routes Along Oxford Street, Bondi Junction

Route No.	Destination
333	Circular Quay to North Bondi via Bondi Junction
352	Bondi Junction to Marrickville Metro via Oxford Street, Crown Street and King Street
355	Bondi Junction to Marrickville Metro via Moore Park & Erskineville
380	Circular Quay to Watson's Bay via Bondi Junction
389	Maritime Museum to North Bondi
440	Rozelle to Bronte via Bondi Junction
M40	Chatswood to Bondi Junction

Inbound and outbound bus stops are located within 100m of the site on Oxford Street east of Nelson Street. The Waverley Bus Depot is also located opposite the site on Oxford Street.

3.3.2 Train Station

Bondi Junction Train Station and Interchange is located within walking distance of the site at approximately 650m. It is serviced by the T4 Eastern Suburbs & Illawarra Line, with trains every three minutes during peak periods and every 10 minutes at other times. The location of the site relative to Bondi Junction Train Station and Interchange is shown in Figure 3.2.

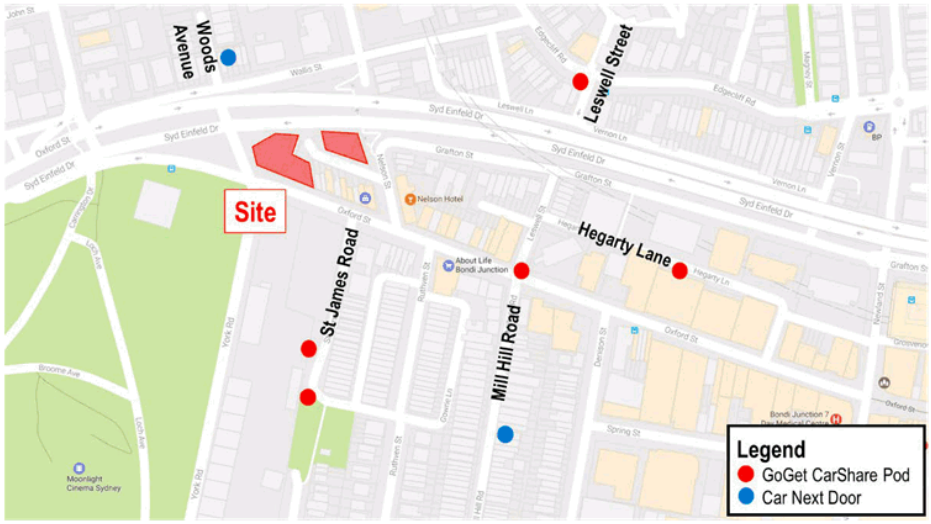


Adopted from Google Maps

Figure 3.2: Buses and Train Station in Bondi Junction

3.4 CAR SHARE

The Oxford Street West Precinct and surrounding areas include five *GoGet* CarShare Pods and two *Car Next Door* sharing vehicles. Their locations are indicated in Figure 3.3.



Adopted from Google Maps

Figure 3.3: Car Sharing Locations

3.5 ACTIVE TRANSPORT

3.5.1 Cycling

The Oxford Street Cycleway is located approximately 150m west of the site, starting at the Carrington Road Gates to Centennial Park, running parallel to Oxford Street on the southern side. A shared path exists along the south side of Oxford Street from Carrington Drive Gates to York Road connecting Oxford Street West Precinct to the Oxford Street cycleway and Centennial Park.

Whilst no formal cycling infrastructure is currently present, Oxford Street west is a popular cycling route connecting Bondi Junction, Centennial Park and the City. It is considered a *'main bicycle route on high-traffic street'* in the Cycling in Waverley and Woollahra cycling map, as shown in Figure 3.4.

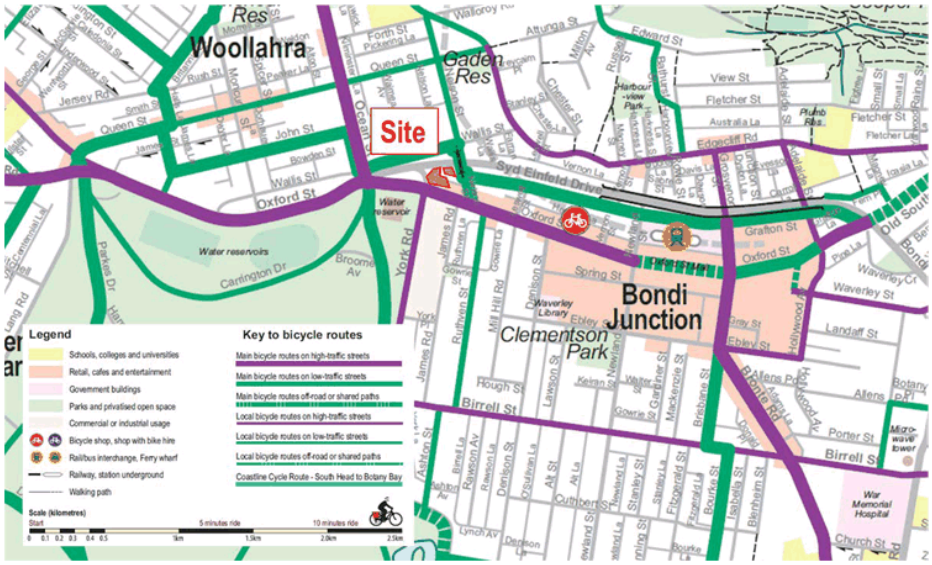


Figure 3.4: Waverley and Woollahra Cycling Map

3.5.2 Pedestrians

Pedestrians are provided for by footpaths on both sides of Oxford Street, Nelson Street, Grafton Street and York Road. Footpaths are also provided on the narrower side streets. Pedestrian traffic in the area is generally high due to commercial and retail frontages along Oxford Street. The site is also located well within a public transport catchment area.

A pedestrian bridge over Syd Einfeld Drive to Wallis Street (Woollahra) is located at the corner of Nelson Street and Grafton Street, immediately north-east of the site.

Pedestrian crossing facilities near the site include:

- Signalised crossing – south approach at Oxford Street/York Road intersection;
- Signalised crossing – west and north approaches at Oxford Street/Nelson Street intersection; and
- Zebra crossing – east and south approaches of Oxford Street/Denison Street intersection.

4. PROPOSED DEVELOPMENT

The proposed development includes:

- Tower A and B at a height of 36m each;
- A total of 94 apartments and 831m^2 of retail space;
- Urban streetscaping, including a Public "Plazetta" adjacent to Nelson Street;
- Improved cycling and pedestrian connections; and
- A shared zone along Osmund Lane.

The proposal aims to prioritise sustainable transport opportunities, including walking and cycling, by maximising access to and connectivity with the surrounding areas via the proposed site link with pedestrian/bicycle/traffic improvements and road widening as well as improved access to public transport, nearby centres and activity hubs.

The proposed development concept is shown in Figure 4.1.

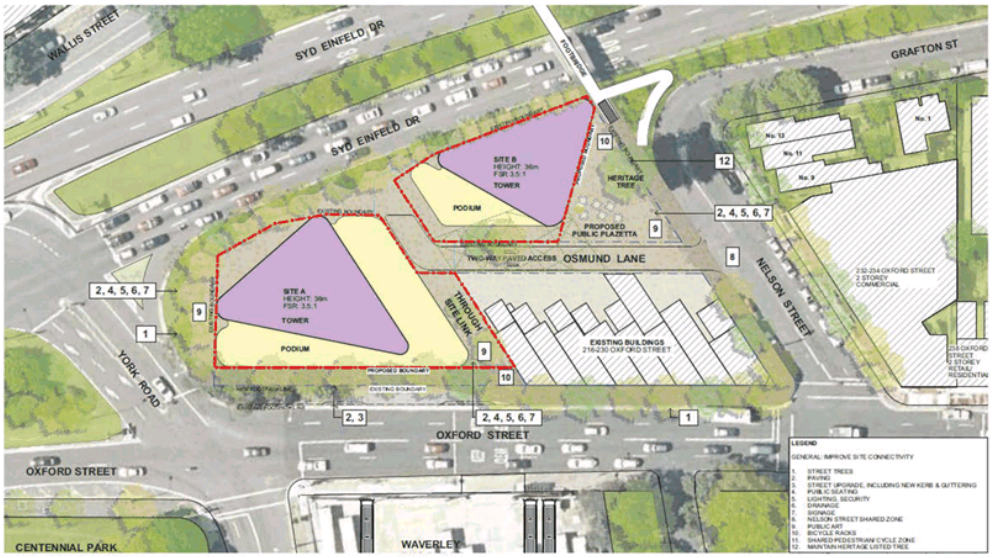


Figure 4.1 Proposed Development Concept

5. INTERSECTION PERFORMANCE ASSESSMENT

To identify the impacts of development-generated traffic, the performance of relevant intersections within the local road network near the development site were assessed using SIDRA Intersection analysis.

5.1 TRAFFIC GENERATION

Roads and Maritime Services *Guide to Traffic Generating Developments (2002)* and Roads and Maritime Services *Technical Direction 2013/04a* were used to provide a basis for assumed traffic generation rates as shown in Table 5.1.

Table 5.1 Development Traffic Generation

Site	Land Use	Peak Traffic Generation Rate	Quantity	Peak Traffic Generation (veh/hr)
A and B	Residential Apartments	0.19/unit	94 units	18
	Retail	12.3/100m^2	831m^2	103
			Total	121

It expected that peak traffic generation would most likely occur during the evening commuter peak period due to the relative proportion of traffic generated by the retail component of the development.

It was assumed the retail space of the proposed development could accommodate a mix of retail businesses presented in the *Roads and Maritime Services Guide to Traffic Generating Developments (2002).*

5.2 GROWTH RATE

A growth rate of 2% per annum was applied to develop future background traffic at 10 years post-opening of the development. This is considered a reasonable indication of likely population and employment growth in Bondi Junction generally. Furthermore, based on :Profile ID" data, the average annual population growth rate for the past five years was 1.5% and traffic growth typically is slightly higher than population growth, albeit that the level of traffic growth could be considered conservatively high in this case due to the presence of mature public and active transport networks..

5.3 SIDRA ANALYSIS

5.3.1 Intersections Assessed

Traffic surveys and IDM data were used to establish input traffic volumes and signal phasing. Diagrams representing traffic volumes at each intersection are provided in Appendix B.

The intersections included in the analysis are listed in Table 5.2.

Table 5.2: Intersections Included in SIDRA Modelling

Intersection Number	Intersection Roads	Intersection Type
101	Oxford Street/Syd Einfeld Drive/Ocean Street	Signalised
102	Syd Einfeld Drive/York Road	Signalised
103	Oxford Street/York Road	Signalised
104	Osmund Lane / Nelson Street	Signalised
105	Oxford Street / Nelson Street	Priority (Give-Way)
106	Oxford Street / Ruthven Street	Priority (Give-Way)
107	Oxford Street / Leswell Street / Mill Hill Road	Priority (Give-Way)
108	Oxford Street / Denison Street	Priority (Give-Way)
109	Oxford Street / Newland Street	Signalised
110	Newland Street / Grafton Street	Signalised

The intersections assessed along with the study area are shown in Figure 5.1.

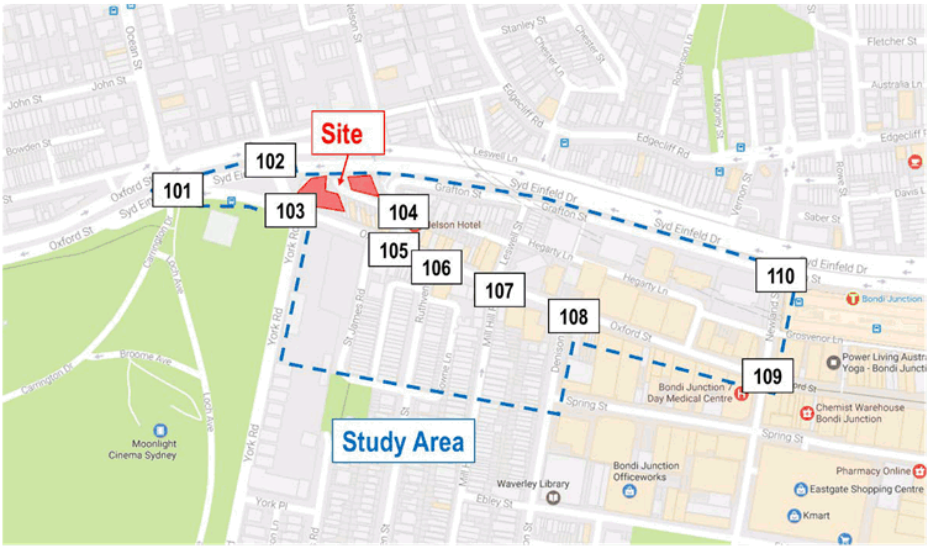


Figure 5.1: Intersections Included in Model and Study Area

5.3.2 Assessment Criteria

Roads and Maritime Services defines assessment criteria to evaluate the performance of intersections, primarily based on average delay encountered by vehicles at the intersection. SIDRA modelling software determines this average delay for vehicles and provides a measure of the level of service.

Table 5.3 outlines the criteria adopted by Roads and Maritime Services in assessing the level of service.

Table 5.3 RMS Level of Service Assessment Criteria

Level of Service	Average Delay (seconds/vehicle)	Traffic Signals and Roundabouts	Give Ways and Stop Signs
A	< 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, roundabouts require other control mode	At capacity, requires other control mode
F	70+	Above capacity	Above capacity

Source: RMS RTA Guide to Traffic Development (2002)

Level of Service (LoS) D is typically taken as the minimum acceptable performance level of urban signalised intersections.

5.3.3 Model Scenarios

The scenarios analysed were:

- Existing traffic conditions;
- Existing traffic conditions with additional development traffic volumes;
- Existing traffic conditions and 2% growth at 10 years; and
- Existing traffic conditions with additional development traffic and 2% growth at 10 years.

5.3.4 Model Assumptions

The following assumptions were made:

- all generated traffic uses Osmund Lane to access / leave the site parking;
- site peak traffic generation was applied in AM, PM and Saturday peak periods;
- generated traffic was proportioned 15% inbound and 85% outbound during the AM peak;
- generated traffic was proportioned 85% inbound and 15% outbound during the PM peak;
- generated traffic was proportioned 50% inbound and 50% outbound during Saturday peak; and
- traffic distribution was assumed to be proportionate with existing traffic distributions at intersections.

5.4 SIDRA RESULTS

5.4.1 AM Peak

Intersection performance summaries for intersections for the AM peak period across all scenarios are displayed in tables Table 5.4 through to Table 5.777, including outputs for Degree of Saturation (DoS), Average Vehicle Delay, level of Service (LoS) and 95th Percentile Back of Queue (queue length).

Existing Traffic Conditions

Table 5.4 summarises the results of the SIDRA traffic model under existing traffic conditions in the study area. Results are shown overall per intersection.

Table 5.4 AM Peak Existing Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Overall Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	0.89	18.8	LOS B	269.2	LOS D through movements from Oxford Street (west approach)
Syd Einfeld Drive / York Road	0.908	13.4	LOS A	283.9	LOS C left turn from Syd Einfeld Drive (east approach)
Oxford Street / York Road	0.875	18.8	LOS B	174.2	LOS D right turn from York Road (south approach), affects heavy vehicles only.
Nelson Street / Osmund Lane	0.163	0.3	NA	10.9	Queueing on Nelson Street due to downstream queueing (Oxford Street Intersection)
Oxford Street / Nelson Street	0.444	16.8	LOS B	67.6	overall good, queueing on Oxford Street (W)
Oxford Street / Ruthven Street	0.472	2.2	NA	49.7	queueing on Oxford Street due to downstream queueing at Nelson Street
Oxford Street / Leswell Street / Mill Hill Road	0.396	2.9	NA	7.5	overall good, LOS C right turn from Mill Hill Road (south approach)
Oxford Street / Denison Street	0.382	4.1	NA	15.6	No issues
Oxford Street / Newland Street	0.527	19.3	LOS B	77.4	LOS D right turn from Oxford Street (west approach), queueing on Newland Street (south approach)
Newland Street / Grafton Street	0.874	23.1	LOS B	100.2	LOS D on Grafton Street (east and west approaches) Queueing on Grafton Street and Newland Street

Model outputs are consistent with site observations on the day of survey. Overall, intersections within the study area are performing above the acceptable level LoS D with LoS B or better. Some specific movement at Syd Einfeld Drive, Oxford Street / Ocean Street intersection, Oxford Street / Newland Street intersection and Newland Street / Grafton Street intersection are operating less well but at the acceptable level of LOS D.

Existing plus Development Traffic

Table 5.5 summarises the performance of local intersections under existing plus additional development traffic.

Table 5.5 AM Peak Existing plus Additional Development Traffic Scenario Results

Intersection	Degree of Saturation (DOS)	Average Delay (sec)	Overall Level of Service (LOS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	0.894	19.1	LOS B	273.5	LOS D for all movements and queueing along Oxford Street (west approach)
Syd Einfeld Drive / York Road	0.908	13.3	LOS A	283.9	overall good, queueing along Syd Einfeld Drive (east approach)
Oxford Street / York Road	0.916	22.3	LOS B	196.8	LOS D for all movements and queueing on York Road (south approach)
Nelson Street / Osmund Lane	0.252	1.5	NA	11.3	Queueing on Nelson Street due to downstream queueing (Oxford Street Intersection)
Oxford Street / Nelson Street	0.496	19.9	LOS B	81.4	Queues on Oxford Street affect upstream intersections (Osmund Lane and Ruthven Street)
Oxford Street / Ruthven Street	0.474	2.2	NA	66.3	Queueing on Nelson Street due to downstream queueing (Nelson Street intersection)
Oxford Street / Leswell Street / Mill Hill Road	0.398	2.9	NA	7.9	overall good
Oxford Street / Denison Street	0.383	4.1	NA	15.6	overall good
Oxford Street / Newland Street	0.528	19.5	LOS B	77.5	LOS D movements from Oxford Street (west), queueing along Newland Street (north and south approaches)
Newland Street / Grafton Street	0.875	23.1	LOS B	100.3	LOS D movements along Grafton Street (east and west approaches) with queueing on Grafton Street (east)

Overall, intersections within the study area are performing above the acceptable level at LOS C or better. A number of particular vehicle movements are operating at the acceptable level of LOS D. Queues along Newland Street exceed the queue storage capacity and affect upstream intersections at Spring Street and at Grafton Street.

Future Traffic Conditions

Table 5.6 summarises intersection performance under future (10 year) traffic conditions.

Table 5.6 AM Peak Future Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Overall Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	1.219	140.8	LOS F	1218.7	**LOS F** for all movements along Oxford Street (west approach) with extensive queueing
Syd Einfeld Drive / York Road	0.935	17.2	LOS B	316.6	LOS B for all movements along Syd Einfeld Drive (east approach) with acceptable queueing
Oxford Street / York Road	1.425	454.7	LOS F	1432.6	**LOS F** for movements along York Road (south approach) and Oxford Street East (through and right turns) with extensive queueing
Nelson Street / Osmund Lane	0.196	0.3	NA	38.2	Minor queueing on Nelson Street due to downstream queueing (Oxford Street intersection)
Oxford Street / Nelson Street	0.847	30.6	LOS C	94.5	LOS D for right turn movements from Oxford Street (east approach), queueing along Oxford Street (west approach). other queues affect upstream intersections (Ruthven Street and Osmund Lane)
Oxford Street / Ruthven Street	0.679	3.7	NA	98.6	Queueing on Oxford Street due to downstream queueing (Nelson Street intersection)
Oxford Street / Leswell Street / Mill Hill Road	0.554	4.3	NA	89.9	**LOS E** for right turn movements from Mill Hill Road (primarily heavy vehicles). Queueing along Oxford Street due to downstream queues.
Oxford Street / Denison Street	0.921	12.8	NA	138.9	queueing along Denison Street
Oxford Street / Newland Street	0.973	50.6	LOS D	283.7	**LOS E** for right turn movements from Newland Street (north approach) with queueing on north and south approaches. LOS C for movements along Oxford Street (west approach)
Newland Street / Grafton Street	1.195	130.8	LOS F	442.4	**LOS F** for through and right turn movements along Grafton Street (east approach), large left turn volumes from east approach causing queues blocking other traffic.

The major intersections are operating at capacity (LOS F) with a number of movements along Grafton Street and Newland Street also operating at either LOS E or LOS F.

It should be noted that most intersections are operating at or above "practical capacity" which for signalised intersections is a degree of saturation exceeding 0.90.

Future plus Development Traffic Conditions

Table 5.777 summarises local intersection performance under future traffic (10 years) plus additional development traffic.

Table 5.7 AM Peak Future plus Additional Development Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	1.224	143.1	**LOS F**	1235.5	**LOS F** for through movements along Oxford Street (west approach) and extensive queueing
Syd Einfeld Drive / York Road	0.939	17.4	LOS B	316.6	**LOS F** for all movements along Syd Einfeld Drive (east approach) and extensive queueing
Oxford Street / York Road	1.448	491.4	**LOS F**	1433	**LOS F** for movements along York Road (south approach) and Oxford Street (east approach), extensive queueing on York Road (south)
Nelson Street / Osmund Lane	0.276	1.4	NA	64.1	Queueing on Nelson Street due to downstream queueing (Oxford Street intersection)
Oxford Street / Nelson Street	0.953	50.2	LOS D	105.6	**LOS E** and **F** movements along Oxford Street (east approach), with queueing on Oxford Street (west approach). Queues along Oxford Street affect upstream intersections
Oxford Street / Ruthven Street	0.682	3.7	NA	98.6	Queueing on Oxford Street due to downstream queueing (Nelson Street intersection)
Oxford Street / Leswell Street / Mill Hill Road	0.558	4.4	NA	99.7	Queueing on Oxford Street (east approach) due to downstream queues
Oxford Street / Denison Street	0.925	13.1	NA	142.3	queueing on Denison Street
Oxford Street / Newland Street	0.973	50.4	**LOS D**	284.7	**LOS F** for left turn movements on Newland Street (south approach), and queues along north and south approaches, affecting upstream intersections (Grafton Street and Spring Street)
Newland Street / Grafton Street	1.188	114.6	**LOS F**	432	**LOS F** movements along Grafton Street (east approach with extensive queueing).

Results indicate the intersections of Syd Einfeld Drive / Oxford Street, Oxford Street / York Road, and Grafton Street / Newland Street are operating below the acceptable LOS F. All other intersections are operating at the acceptable level of LOS D with a number of particular movements along Grafton Street and Newland Street operating at either LOS E or LOS F.

Queues along Syd Einfeld Drive, Oxford Street, York Road and Grafton Street are extensive, affecting intersection operation and affecting adjacent intersections.

It should be noted that most intersections are operating at or above practical capacity, with degrees of saturation well exceeding 0.80 (for unsignalised intersections) and 0.90 for signalised intersections.

5.4.2 AM Peak Results Comparison

A comparison of results under "background" and "with development" traffic conditions was conducted to highlight issues or changes to the local network as a result of the introduction of additional traffic.

Comparison of Existing Scenarios

Table 5.8 through to Table 5.10 provide comparisons of Delays and Level of Service (LOS), Degree of Saturation (DOS) and blockages.

Table 5.8 AM Peak Traffic Comparison (Delays and Level of Service)

Intersection	Average Delay (sec) existing	Average Delay (sec) Exist.+ Dev	LoS Existing	LoS Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	18.8	19.1	LOS B	LOS B
Syd Einfeld Drive / York Road	13.4	13.3	LOS A	LOS A
Oxford Street / York Road	18.8	22.3	LOS B	LOS B
Nelson Street / Osmund Lane	0.3	1.5	NA	NA
Oxford Street / Nelson Street	16.8	19.9	LOS B	LOS B
Oxford Street / Ruthven Street	2.2	2.2	NA	NA
Oxford Street / Leswell Street / Mill Hill Road	2.9	2.9	NA	NA
Oxford Street / Denison Street	4.1	4.1	NA	NA
Oxford Street / Newland Street	19.3	19.5	LOS B	LOS B
Newland Street / Grafton Street	23.1	23.1	LOS B	LOS B

A comparison of vehicle delays shows a small overall increase, primarily at the major intersections at Syd Einfeld Drive, Oxford Street and York Road. The level of service (based on Roads and Maritime Services performance criteria) remain unchanged.

Overall, intersections within the study area are performing at a satisfactory level (Level of Service B or above) with the addition of development traffic under current conditions.

Table 5.9 AM Peak Traffic Comparison (Degree of Saturation)

Intersection	DoS Existing	DoS Existing and Development
Syd Einfeld Drive / Oxford Street / Ocean Street	0.89	0.894
Syd Einfeld Drive / York Road	0.908	0.908
Oxford Street / York Road	0.875	0.916
Nelson Street / Osmund Lane	0.163	0.252
Oxford Street / Nelson Street	0.444	0.496
Oxford Street / Ruthven Street	0.472	0.474
Oxford Street / Leswell Street / Mill Hill Road	0.396	0.398
Oxford Street / Denison Street	0.382	0.383
Oxford Street / Newland Street	0.527	0.528
Newland Street / Grafton Street	0.874	0.875

Overall, there are marginal increases across the network with the largest increase occurring at the Nelson Street and Osmund Lane intersection due to the additional traffic generated by the proposed development. All other intersections remain relatively stable.

It should be noted the major intersections along Syd Einfeld Drive, Oxford Street and York Road are currently operating at a Degree of Saturation above 0.90, indicating that the intersection is operating at or exceeding practical capacity.

Table 5.10 AM Peak Traffic Comparison (Back of Queue-Worst Movement)

Intersection	Back of Queue (Exist. Traffic, m)	Back of Queue (Exist + Dev. Traffic, m)
Syd Einfeld Drive / Oxford Street / Ocean Street	269.2	273.5
Syd Einfeld Drive / York Road	283.9	283.9
Oxford Street / York Road	174.2	196.8
Nelson Street / Osmund Lane	10.9	11.3
Oxford Street / Nelson Street	67.6	81.4
Oxford Street / Ruthven Street	49.7	66.3
Oxford Street / Leswell Street / Mill Hill Road	7.5	7.9
Oxford Street / Denison Street	15.6	15.6
Oxford Street / Newland Street	77.4	77.5
Newland Street / Grafton Street	100.2	100.3

The largest increase in queue length occurs at the Oxford Street / York Road intersection with an increase of approximately 20m (equivalent to three vehicles). Queues along Nelson Street (at Oxford Street) increased by over 10m.

Whilst queue increases are minimal, the proximity of intersections within the network in conjunction with queue increases may have an noticeable effect on the performance of the network, particularly along Oxford Street.

It should also be noted queues along Nelson Street, Oxford Street and Grafton Street exceed the capacity of the respective approaches to those intersections, with or without the addition of development traffic.

A comparison of the modelled road network in both scenarios has revealed the following:

- little change in performance of intersections despite the introduction of more than 100veh/hr;
- an increase in overall average delay increase of approximately 1 second across the network over the peak hour and average increase to queues by approximately one metre;
- increase in blockages towards the larger intersections, namely Syd Einfeld Drive, Oxford Street and Ocean Street, Syd Einfeld Drive and York Road, and Oxford Street and York Road; and
- Oxford Street and Nelson Street intersection causes queueing along Oxford Street affecting upstream intersections at Ruthven Street and Leswell Street / Mill Hill Road.

A comparison of blockage probability across the network reveals an increase in blockage at the Oxford Street / Nelson Street intersection, as shown in Figure 5.2 with red indicating the most severe impacts.

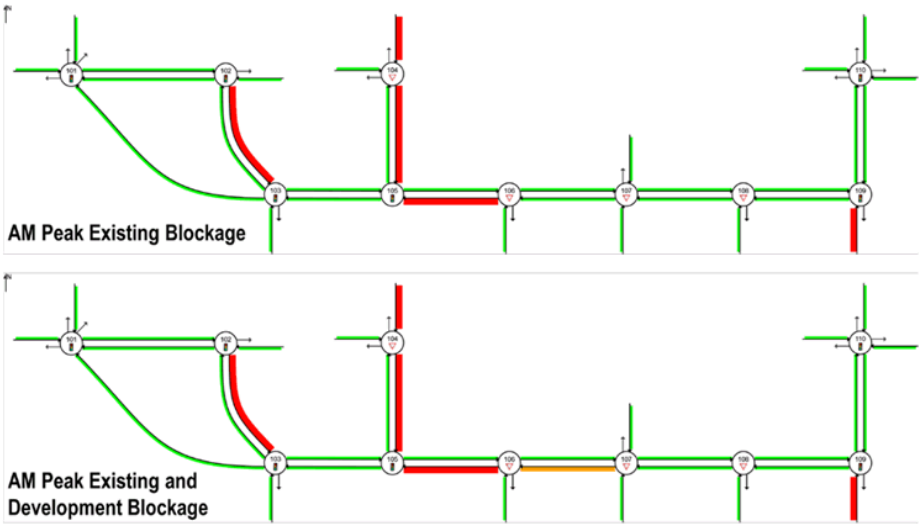


Figure 5.2 AM Peak Existing Traffic Comparison (Blockage Probability)

Blockage probability increases at the Oxford Street / Nelson Street intersection due to additional development traffic turning in and out of Nelson Street, influencing queue length along Oxford Street during the AM peak.

Comparison of Future Scenarios

Table 5.12 through to

Table 5.13 provide comparisons of Delays and Level of Service (LOS), Degree of Saturation (DOS) and Back of Queue respectively.

Table 5.11 AM Peak Future Scenario Comparison (Delay, Level of Service)

Intersection	Average Delay (sec) Exist.	Average Delay (sec) Exist + Dev.	LoS Exist.	LoS Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	140.8	143.1	**LOS F**	**LOS F**
Syd Einfeld Drive / York Road	17.2	17.4	LOS B	LOS B
Oxford Street / York Road	454.7	491.4	**LOS F**	**LOS F**
Nelson Street / Osmund Lane	0.3	1.4	NA	NA
Oxford Street / Nelson Street	30.6	50.2	LOS C	LOS D
Oxford Street / Ruthven Street	3.7	3.7	NA	NA
Oxford Street / Leswell Street / Mill Hill Road	4.3	4.4	NA	NA
Oxford Street / Denison Street	12.8	13.1	NA	NA
Oxford Street / Newland Street	50.6	50.4	LOS D	LOS D
Newland Street / Grafton Street	130.8	114.6	**LOS F**	**LOS F**

Overall, there is an increase in delays across most intersections.

The intersection of Oxford Street / York Road undergoes the largest change in performance, operating at LOS F with extensive queues as a result of additional traffic. This is caused by blockage of the through lane on the southern approach due to the number of left turning vehicles at Oxford Street.

The Oxford Street / Nelson Street intersection performs at the minimum acceptable level (LOS D).

Table 5.12 AM Peak Future Scenario Comparison (Degree of Saturation)

Intersection	Degree of Saturation (DoS) Future	Degree of Saturation (DoS) Future and Development
Syd Einfeld Drive / Oxford Street / Ocean Street	1.219	1.224
Syd Einfeld Drive / York Road	0.935	0.939
Oxford Street / York Road	1.425	1.448
Nelson Street / Osmund Lane	0.196	0.276
Oxford Street / Nelson Street	0.847	0.953
Oxford Street / Ruthven Street	0.679	0.682
Oxford Street / Leswell Street / Mill Hill Road	0.554	0.558
Oxford Street / Denison Street	0.921	0.925
Oxford Street / Newland Street	0.973	0.973
Newland Street / Grafton Street	1.195	1.188

The results show that most intersections exhibit a degree of saturation well above 0.90, indicating intersections are operating beyond their practical capacity, irrespective of additional development traffic.

Table 5.13 AM Peak Future Scenario Comparison (Back of Queue)

Intersection	Back of Queue Future (m)	Back of Queue Future and Development (m)
Syd Einfeld Drive / Oxford Street / Ocean Street	1218.7	1235.5
Syd Einfeld Drive / York Road	316.6	316.6
Oxford Street / York Road	1432.6	1433
Nelson Street / Osmund Lane	38.2	64.1
Oxford Street / Nelson Street	94.5	105.6
Oxford Street / Ruthven Street	98.6	98.6
Oxford Street / Leswell Street / Mill Hill Road	89.9	99.7
Oxford Street / Denison Street	138.9	142.3
Oxford Street / Newland Street	283.7	284.7
Newland Street / Grafton Street	442.4	432

The results indicate significant increases at Oxford Street / Nelson Street, and Nelson Street / Osmund Lane intersections. Queueing along Oxford Street affects multiple intersections due to their proximity.

Blockages

Figure 5.3 compares blockage probability at intersections within the road network with red areas indicating the most severe impacts.

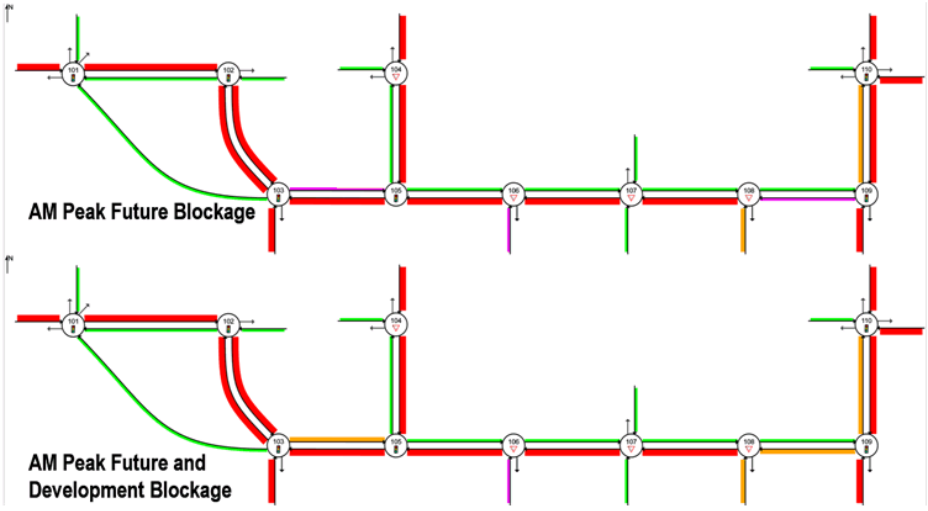


Figure 5.3 AM Peak Future Traffic Comparison (Blockage Probability)

Blockage probability is high along Oxford Street (westbound) under future traffic conditions. Blockage probability increases at Oxford Street / Denison Street, and at Nelson Street / Oxford Street intersections.

5.4.3 PM Peak

Intersection performance summaries for intersections for the PM peak period across all scenarios are displayed in tables Table 5.14 through to Table 5.171717 , including outputs for Degree of Saturation (DoS), Average Vehicle Delay, Level of Service (LoS) and 95th Percentile Back of Queue (queue length).

Existing Conditions

Table 5.14 summarises local intersection performance during the PM peak period under existing traffic conditions.

Table 5.14 PM Peak Existing Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	0.892	11	LOS A	148.5	LOS C for left turn movements from Ocean Street (north approach)
Syd Einfeld Drive / York Road	0.778	10.4	LOS A	141.4	LOS C for left turn and through movements from Syd Einfeld Drive (east approach)
Oxford Street / York Road	0.844	15.4	LOS B	149.3	LOS C for all movements along Oxford Street (east approach) with extended queueing
Nelson Street / Osmund Lane	0.141	0.2	NA	16.4	Queueing on Nelson Street due to downstream queueing (Oxford Street intersection)
Oxford Street / Nelson Street	0.62	19.2	LOS B	70.6	LOS C for right turn movements along Oxford Street (east approach), queues affect upstream intersections
Oxford Street / Ruthven Street	0.318	1.5	NA	60.1	Queueing on Oxford Street due to downstream queueing
Oxford Street / Leswell Street / Mill Hill Road	0.306	1.9	NA	41	LOS B for right turn movements along Oxford Street and Mill Hill Road.
Oxford Street / Denison Street	0.49	3.9	NA	19.3	queueing on Oxford Street (west approach) due to right turning vehicles onto Denison Street
Oxford Street / Newland Street	0.897	34.8	LOS C	119.6	queueing on Newland Street (north and south approaches)
Newland Street / Grafton Street	0.945	35.1	LOS C	174	**LOS E** for through movements along Grafton Street (east approach) due to lane blockage. **LOS E** movements along Grafton Street (west approach) with queueing on Grafton Street (east approach)

Overall, intersections are operating above the minimum acceptable level (LOS D), with movements along Grafton Street operating at LOS E.

Queues along Newland Street exceed approach capacities and affect upstream intersections at Spring Street / Grafton Street. Queues at the Oxford Street / Nelson Street intersection affect adjacent intersections along Oxford Street.

Existing and Development Conditions

Table 5.15 summarises local intersection performance during the PM peak period under existing traffic and additional development traffic conditions.

Table 5.15 PM Peak Existing and Development Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	0.893	11	LOS A	148.5	LOS C for right turn movements along Syd Einfeld Drive (east approach) and left turn movements from Ocean Street. Queueing on Ocean Street.
Syd Einfeld Drive / York Road	0.805	10.8	LOS A	147.3	LOS D for left turn movements along Syd Einfeld Drive (east approach)
Oxford Street / York Road	0.847	15.4	LOS B	149.3	LOS C for movements along Oxford Street (east approach) with queueing
Nelson Street / Osmund Lane	0.155	1.3	NA	19.7	Queueing on Nelson Street due to downstream queueing (Oxford Street intersection)
Oxford Street / Nelson Street	0.644	20.5	LOS B	76.1	LOS C for right turn movements along Oxford Street (east approach), queues on Oxford Street (west approach) and other queues affecting upstream intersections.
Oxford Street / Ruthven Street	0.321	1.5	NA	70.3	Queueing on Nelson Street due to downstream queueing
Oxford Street / Leswell Street / Mill Hill Road	0.316	2	NA	50.2	Queueing on Oxford Street due to downstream queueing
Oxford Street / Denison Street	0.573	4.2	NA	19.7	overall good
Oxford Street / Newland Street	0.912	35.8	LOS C	124.1	LOS D for movements along Newland Street (south approach), LOS D for right turn movements along Newland Street (north approach)
Newland Street / Grafton Street	0.952	36.5	LOS C	170.3	**LOS F** for right turn movements along Grafton Street (east approach), **LOS E** for left turn movements and LOS D for through and right movements along Grafton Street (west approach)

Overall, intersections are operating above the minimum acceptable level of service, with movements along Grafton Street operating at LOS E and LOS F.

Queues at Oxford Street / Nelson Street affect upstream queues along Oxford Street. Signalised intersections within the network are running at or near capacity.

Future Traffic Conditions

Table 5.161616 summarises PM peak period intersection performance under future (10 year) traffic conditions..

Table 5.16 PM Peak Future Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	1.069	28.1	LOS B	164.2	**LOS E** for all movements from Ocean Street (north approach), **LOS F** for right turn movements from Syd Einfeld Drive (east approach)
Syd Einfeld Drive / York Road	0.929	15.2	LOS B	213.4	LOS D for movements along Syd Einfeld Drive (east approach) and extensive queues
Oxford Street / York Road	1.013	46.6	LOS D	149.3	**LOS F** for movements along Oxford Street (eastern approach) and queues
Nelson Street / Osmund Lane	0.169	0.2	NA	39.9	overall good, queueing on Nelson Street due to downstream queueing (Oxford Street intersection)
Oxford Street / Nelson Street	0.745	21.1	LOS B	108	queueing on Oxford Street (west). Other queues affecting downstream intersections
Oxford Street / Ruthven Street	0.442	2.3	NA	73.1	Queueing on Oxford Street due to downstream queues
Oxford Street / Leswell Street / Mill Hill Road	0.391	2.7	NA	51.7	Queueing on Oxford Street due to downstream queues
Oxford Street / Denison Street	0.729	5.7	NA	38.9	Queueing on Oxford Street due to downstream queues
Oxford Street / Newland Street	0.937	36.7	LOS C	161.4	LOS D for movements along Newland Street (north and south approaches) and queueing
Newland Street / Grafton Street	1.188	185.3	**LOS F**	626.3	**LOS F** for movements along east, north and west approaches. **LOS E** along Newland Street Right Turn (south approach). extensive queueing on Newland Street (north approach) and Grafton Street (east approach)

Overall, intersections are operating above the minimum acceptable level, with movements along Newland Street / Grafton Street operating at LOS E or LOS F.

Future plus Development Traffic Conditions

Table 5.171717 summarises PM peak period intersection performance under future (10 year) traffic plus additional development traffic conditions.

Table 5.17 PM Peak Future plus Development Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	1.07	55.9	**LOS D**	662.6	**LOS F** for movements along Syd Einfeld Drive Right Turn (E) and Ocean Street
Syd Einfeld Drive / York Road	1.142	89.2	**LOS F**	270.1	**LOS F** for movements along Syd Enfield Drive (east and west approaches), extensive queues
Oxford Street / York Road	1.013	46.2	LOS D	149.3	**LOS F** for right turn movements from Oxford Street (east approach), long queues along Oxford Street (east)
Nelson Street / Osmund Lane	0.183	1.2	NA	45.2	overall good, queueing on Nelson Street due to downstream queueing (Oxford Street intersection)
Oxford Street / Nelson Street	0.772	23.1	LOS B	119.7	LOS D for right turn movements from Oxford Street (east approach), long queues on Oxford Street (west). Queues affect downstream intersections.
Oxford Street / Ruthven Street	0.456	2.4	NA	87.4	queueing on Oxford Street due to downstream queueing
Oxford Street / Leswell Street / Mill Hill Road	0.426	2.7	NA	64.4	queueing on Oxford Street due to downstream queueing
Oxford Street / Denison Street	0.743	5.9	NA	41	overall good
Oxford Street / Newland Street	0.965	39.5	LOS C	176	**LOS E** for movements along Newland Street (south approach), **LOS E** right turn movements from Newland Street (north approach), and extensive queueing along Newland Street approaches
Newland Street / Grafton Street	1.227	224	**LOS F**	703.6	**LOS F** for all approaches, extensive queueing on Grafton Street (east) and Newland Street (north)

5.4.4 PM Comparison

A comparison of results under "existing traffic" and "with development traffic" conditions was conducted to highlight issues or changes to the local network as a result of the introduction of additional traffic.

Comparison of Existing Traffic Scenarios

Table 5.18 through to Table 5.20 provide comparisons of Delays and Level of Service (LOS), Degree of Saturation (DOS) and 95th Percentile Back of Queue under existing traffic and existing combined with development traffic conditions.

Table 5.18 PM Peak Traffic Comparison (Delays and Level of Service)

Intersection	Average Delay (sec) Exist.	Average Delay (sec) Exist.+ Dev.	LoS Exist.	LoS Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	11	11	LOS A	LOS A
Syd Einfeld Drive / York Road	10.4	10.8	LOS A	LOS A
Oxford Street / York Road	15.4	15.4	LOS B	LOS B
Nelson Street / Osmund Lane	0.2	1.3	NA	NA
Oxford Street / Nelson Street	19.2	20.5	LOS B	LOS B
Oxford Street / Ruthven Street	1.5	1.5	NA	NA
Oxford Street / Leswell Street / Mill Hill Road	1.9	2	NA	NA
Oxford Street / Denison Street	3.9	4.2	NA	NA
Oxford Street / Newland Street	34.8	35.8	LOS C	LOS C
Newland Street / Grafton Street	35.1	36.5	LOS C	LOS C

A comparison of vehicle delays shows little change, with very few increases to delays at intersections along Oxford Street, including the Oxford Street & Nelson Street intersection. Levels of Service remain unchanged with the additional development traffic. All intersections are operating at an acceptable Level of Service.

Table 5.19 PM Peak Traffic Comparison (Degree of Saturation)

Intersection	DoS Exist.	DoS Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	0.892	0.893
Syd Einfeld Drive / York Road	0.778	0.805
Oxford Street / York Road	0.844	0.847
Nelson Street / Osmund Lane	0.141	0.155
Oxford Street / Nelson Street	0.62	0.644
Oxford Street / Ruthven Street	0.318	0.321
Oxford Street / Leswell Street / Mill Hill Road	0.306	0.316
Oxford Street / Denison Street	0.49	0.573
Oxford Street / Newland Street	0.897	0.912
Newland Street / Grafton Street	0.945	0.952

Overall, there are marginal worsening across the network as a result of development traffic and intersections remain relatively stable.

It should be noted that a number of intersections are currently operating at a Degree of Saturation above 0.90, indicating the intersection is exceeding its practical capacity. This is irrespective of the additional development traffic.

Table 5.20 PM Peak Traffic Comparison (Back of Queue)

Intersection	Back of Queue (Exist. Traffic, m)	Back of Queue (Exist. + Dev. Traffic, m)
Syd Einfeld Drive / Oxford Street / Ocean Street	148.5	148.5
Syd Einfeld Drive / York Road	141.4	147.3
Oxford Street / York Road	149.3	149.3
Nelson Street / Osmund Lane	16.4	19.7
Oxford Street / Nelson Street	70.6	76.1
Oxford Street / Ruthven Street	60.1	70.3
Oxford Street / Leswell Street / Mill Hill Road	41	50.2
Oxford Street / Denison Street	19.3	19.7
Oxford Street / Newland Street	119.6	124.1
Newland Street / Grafton Street	174	170.3

The largest increase in queue length occurs at the Oxford Street / Ruthven Street intersection, an increase of approximately 10m, primarily caused by queueing at the Oxford Street / Nelson Street intersection.

Whilst queue increases are minimal, the spacing of intersections within the network in conjunction with queue increases may have an effect on the performance of the network, particularly along Oxford Street.

It should also be noted queues along Nelson Street, Oxford Street (at York Road, Nelson Street, Ruthven Street and Mill Hill Road) and Grafton Street (at Newland Street) exceed the storage capacity of the respective approaches to those intersections, with and without the addition of development traffic.

Blockages

A comparison of blockage probability under existing and with additional development traffic conditions reveal little change in blockage probability as shown in Figure 5.4.

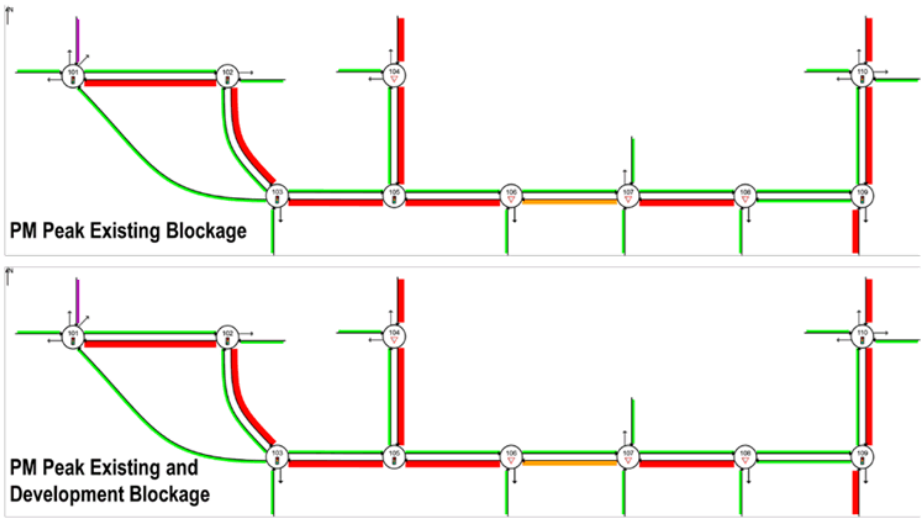


Figure 5.4 PM Peak Existing Traffic Conditions Comparison (Blockage Probability)

Comparison of Future Scenarios

Table 5.212121 through to Table 5.232323 provide comparisons of Delays and Level of Service (LOS), Degree of Saturation (DOS) and Back of Queue for the future year modelled scenarios.

Table 5.21 PM Peak Future Scenario Comparison (Delay, Level of Service)

Intersection	Average Delay (sec) Exist.	Average Delay (sec) Exist. + Dev.	LoS Exist.	LoS Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	28.1	55.9	LOS B	**LOS D**
Syd Einfeld Drive / York Road	15.2	89.2	LOS B	**LOS F**
Oxford Street / York Road	46.6	46.2	LOS D	LOS D
Nelson Street / Osmund Lane	0.2	1.2	NA	NA
Oxford Street / Nelson Street	21.1	23.1	LOS B	LOS B
Oxford Street / Ruthven Street	2.3	2.4	NA	NA
Oxford Street / Leswell Street / Mill Hill Road	2.7	2.7	NA	NA
Oxford Street / Denison Street	5.7	5.9	NA	NA
Oxford Street / Newland Street	36.7	39.5	LOS C	LOS C
Newland Street / Grafton Street	185.3	224	**LOS F**	**LOS F**

Overall, there is an increase in delays across most intersections. The intersection of Syd Einfeld Drive / York Road undergoes the largest change in performance, operating at LOS F as a result of the additional traffic. This is caused by the increase of right turning traffic from Syd Einfeld Drive (west) to York Road.

The Oxford Street / Nelson Street intersection performs at LOS B with and without additional traffic.

Table 5.22 PM Peak Future Scenario Comparison (Degree of Saturation)

Intersection	Degree of Saturation (DoS) Exist.	Degree of Saturation (DoS) Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	1.069	1.07
Syd Einfeld Drive / York Road	0.929	1.142
Oxford Street / York Road	1.013	1.013
Nelson Street / Osmund Lane	0.169	0.183
Oxford Street / Nelson Street	0.745	0.772
Oxford Street / Ruthven Street	0.442	0.456
Oxford Street / Leswell Street / Mill Hill Road	0.391	0.426
Oxford Street / Denison Street	0.729	0.743
Oxford Street / Newland Street	0.937	0.965
Newland Street / Grafton Street	1.188	1.227

The comparison shows that some intersections exhibit a degree of saturation well above 0.90, indicating intersections are operating beyond their practical capacity, both with and without the development traffic.

Table 5.23 PM Peak Future Scenario Comparison (Back of Queue)

Intersection	Back of Queue Exist. (m)	Back of Queue Exist. + Dev. (m)
Syd Einfeld Drive / Oxford Street / Ocean Street	164.2	662.6
Syd Einfeld Drive / York Road	213.4	270.1
Oxford Street / York Road	149.3	149.3
Nelson Street / Osmund Lane	39.9	45.2
Oxford Street / Nelson Street	108	119.7
Oxford Street / Ruthven Street	73.1	87.4
Oxford Street / Leswell Street / Mill Hill Road	51.7	64.4
Oxford Street / Denison Street	38.9	41
Oxford Street / Newland Street	161.4	176
Newland Street / Grafton Street	626.3	703.6

The comparison indicates an overall increase in queue length over the network, with significant increases at Syd Enfield Drive / Oxford Street / Ocean Street, Syd Einfeld / York Road, Newland Street / Grafton Street, and Nelson Street / Osmund Lane intersections.

Queueing along Oxford Street (at Nelson Street) extends to adjacent upstream intersections at York Road / Osmund Lane.

A comparison of blockage probability under existing and additional development traffic conditions reveal little change in blockage probability as shown in Figure 5.555. This figure does however indicate that most intersections within the network are operating beyond capacity under these scenarios.

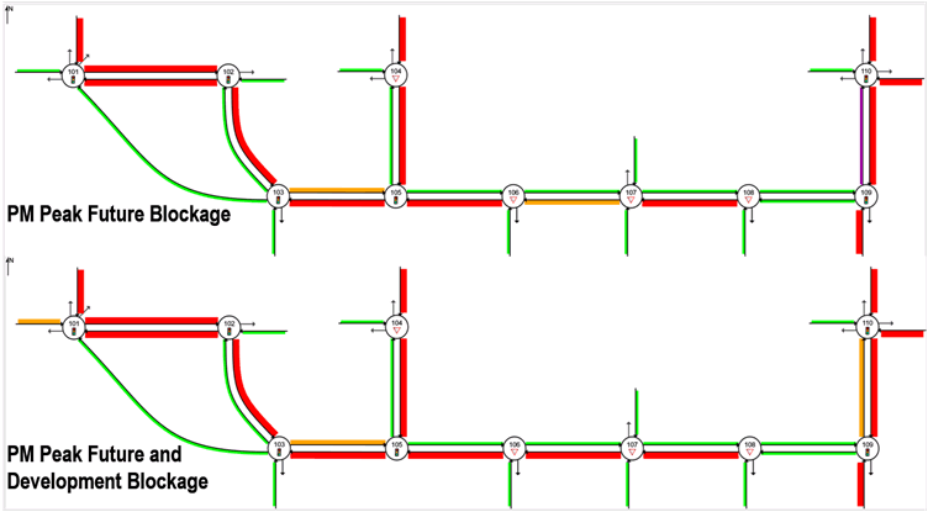


Figure 5.5 PM Peak Future Traffic Conditions Comparison (Blockage Probability)

5.4.5 Saturday Peak

Intersection performance summaries for intersections for the Saturday peak period across all scenarios are displayed in Table 5.24 through to Table 5.27 including outputs for Degree of Saturation (DoS), Average Vehicle Delay, Level of Service (LoS) and 95th Percentile Back of Queue (queue length).

Existing Conditions

Table 5.24 summarises local intersection performance during the Saturday peak period under existing traffic conditions.

Table 5.24 Saturday Peak Existing Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	0.91	26.8	LOS B	297.7	LOS D for movements along Oxford Street (west approach) and extensive queueing
Syd Einfeld Drive / York Road	0.765	12.7	LOS A	161	LOS C for movements along Syd Enfield Drive (east approach) and queueing
Oxford Street / York Road	0.905	25.5	LOS B	115	LOS D for through movements along York Road (north approach), queueing on York Road (south approach)
Nelson Street / Osmund Lane	0.129	0.1	NA	47.5	queueing on Nelson Street due to downstream queueing (Oxford Street intersection)
Oxford Street / Nelson Street	0.911	14.9	LOS B	44.1	**LOS E** for right turn movements from Nelson Street (north approach), queues affect upstream intersections
Oxford Street / Ruthven Street	0.301	1.1	NA	9.3	queueing on Oxford Street due to downstream queueing
Oxford Street / Leswell Street / Mill Hill Road	0.294	1.6	NA	3.8	No issues
Oxford Street / Denison Street	0.309	3.4	NA	14.9	No issues
Oxford Street / Newland Street	0.926	36.6	LOS C	109.8	LOS D for movements along Newland Street (south approach) right turn from Newland Street (north approach). Queues along Newland Street (both approaches)
Newland Street / Grafton Street	0.913	28.4	LOS B	95.5	**LOS E** for through and right turn movements from Grafton Street (east), blocked by large volume of left turns

Existing plus Development Traffic Conditions

Table 5.25 summarises local intersection performance during the Saturday peak period under existing plus additional development traffic conditions.

Table 5.25 Saturday Peak Existing plus Development Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	0.906	26.6	LOS B	298.6	LOS D for movements along Oxford Street (west approach) and extensive queueing on east and west approaches
Syd Einfeld Drive / York Road	0.772	12.7	LOS A	161.2	queueing Syd Einfeld Drive (east approach)
Oxford Street / York Road	0.905	26.5	LOS B	149.3	LOS D for through movements along York Road (north approach), queues on York Road (south approach) and Oxford St (east approach)
Nelson Street / Osmund Lane	0.16	1.2	NA	52.8	queueing on Nelson Street due to downstream queueing (Oxford Street intersection
Oxford Street / Nelson Street	0.91	19.3	LOS B	47.2	**LOS E** right turn movements from Nelson Street, queues affect upstream intersections
Oxford Street / Ruthven Street	0.306	1.1	NA	21.5	queueing on Oxford Street due to downstream queueing
Oxford Street / Leswell Street / Mill Hill Road	0.3	1.6	NA	5.6	No issues
Oxford Street / Denison Street	0.312	3.4	NA	15.9	No issues
Oxford Street / Newland Street	0.977	43.3	LOS D	136.5	**LOS E** for movements along Newland Street (south), with queues along Newland Street (both approaches)
Newland Street / Grafton Street	0.918	28.5	LOS C	96.6	**LOS E** for through and right turn movements from Grafton Street (east approach). LOS D for movements from Grafton Street (west approach), queueing along Grafton Street (east)

Future Traffic Conditions

Table 5.26 summarises local intersection performance during the Saturday peak period under future traffic conditions.

Table 5.26 Saturday Peak Future Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	1.019	62.3	**LOS E**	618.4	**LOS F** for through movements from Oxford Street (west approach) and extensive queues
Syd Einfeld Drive / York Road	0.909	19.3	LOS B	239.4	LOS D for movements along Syd Einfeld Drive (east approach) and queueing
Oxford Street / York Road	1.673	383.1	**LOS F**	700.8	**LOS F** for movements on York Road (both approaches), queues on York Road (south approach) and Oxford Street (east approach)
Nelson Street / Osmund Lane	0.154	0.1	NA	65.9	queueing on Nelson Street due to downstream queueing (Oxford Street intersection
Oxford Street / Nelson Street	0.901	21.6	LOS B	81.4	**LOS E** right turn from Nelson Street (north approach), queues affect upstream intersections
Oxford Street / Ruthven Street	0.363	1.4	NA	51.5	queueing on Oxford Street due to downstream queueing
Oxford Street / Leswell Street / Mill Hill Road	0.375	1.8	NA	32.9	overall good, queueing on Oxford Street due to downstream queueing
Oxford Street / Denison Street	0.455	3.9	NA	20.3	overall good, queueing on Oxford Street due to downstream queueing
Oxford Street / Newland Street	0.988	46.4	LOS D	175.1	**LOS E** for movements along Newland Street (south approach), queueing on Newland Street (both approaches) affecting upstream intersections (Grafton Street and Spring Street)
Newland Street / Grafton Street	1.596	209.6	**LOS F**	723.2	**LOS F** for movements along Grafton Street (east) and extensive queueing

Future plus Development Traffic Conditions

Table 5.27 summarises local intersection performance during the Saturday peak period under future plus development traffic conditions.

Table 5.27 Saturday Peak Future plus Development Traffic Scenario Results

Intersection	Degree of Saturation (DoS)	Average Delay (sec)	Level of Service (LoS)	95th Percentile Queue (m)	Comments
Syd Einfeld Drive / Oxford Street / Ocean Street	1.026	65.7	**LOS E**	645.2	**LOS F** for movements along Oxford Street (west approach), and extensive queueing
Syd Einfeld Drive / York Road	0.918	21.3	LOS B	259.4	**LOS E** for left turn movements from Syd Enfield Drive (east approach), and extensive queues
Oxford Street / York Road	1.74	414.2	**LOS F**	751.8	**LOS F** York Road S and N, extensive queueing York Road S
Nelson Street / Osmund Lane	0.181	1.1	NA	70.4	queueing on Nelson Street due to downstream queueing (Oxford Street intersection
Oxford Street / Nelson Street	0.912	24.8	LOS B	98.9	**LOS E** Right turn from Nelson Street, queues on oxford Street affect upstream intersections at Osmund Lane and Ruthven Street
Oxford Street / Ruthven Street	0.365	1.4	NA	62.9	queues resulting from downstream intersection at Nelson Street
Oxford Street / Leswell Street / Mill Hill Road	0.381	1.8	NA	42.9	queues on Oxford Street result of downstream queueing
Oxford Street / Denison Street	0.572	4.3	NA	24.5	No issues
Oxford Street / Newland Street	0.993	48.5	LOS D	181.2	**LOS F** Newland Street S, excessive queueing Newland Street both approaches
Newland Street / Grafton Street	1.596	225.1	**LOS F**	723.2	**LOS F** Grafton Street E, excessive queueing Grafton Street E **LOS E** Newland Street S and Grafton Street W

5.4.6 Saturday Peak Comparison

A comparison of results under existing plus development traffic conditions for the Saturday peak period was conducted to highlight impacts on the local network as a result of additional traffic.

Existing Traffic Conditions

Table 5.28 through to Table 5.30 provide comparisons of Delays and Level of Service (LOS), Degree of Saturation (DOS) and 95th Percentile Back of Queue under existing traffic and combined with development traffic conditions.

Table 5.28 Saturday Peak Existing Traffic Comparison (Delays and Level of Service)

Intersection	Average Delay (sec) Exist.	Average Delay (sec) Exist. + Dev.	LoS Exist.	LoS Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	26.8	26.6	LOS B	LOS B
Syd Einfeld Drive / York Road	12.7	12.7	LOS A	LOS A
Oxford Street / York Road	25.5	26.5	LOS B	LOS B
Nelson Street / Osmund Lane	0.1	1.2	NA	NA
Oxford Street / Nelson Street	14.9	19.3	LOS B	LOS B
Oxford Street / Ruthven Street	1.1	1.1	NA	NA
Oxford Street / Leswell Street / Mill Hill Road	1.6	1.6	NA	NA
Oxford Street / Denison Street	3.4	3.4	NA	NA
Oxford Street / Newland Street	36.6	43.3	LOS C	LOS D
Newland Street / Grafton Street	28.4	28.5	LOS B	LOS C

A comparison of vehicle delays shows little change across the network, with very few increases to delays at intersections along Oxford Street. The intersection of Oxford Street / Nelson Street experiences an increase in delays of five seconds. Levels of Service across the network remain unchanged with the additional development traffic. All intersections are operating at an acceptable Level of Service.

Table 5.29 Saturday Peak Existing Traffic Comparison (Degree of Saturation)

Intersection	DoS Exist.	DoS Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	0.91	0.906
Syd Einfeld Drive / York Road	0.765	0.772
Oxford Street / York Road	0.905	0.905
Nelson Street / Osmund Lane	0.129	0.16
Oxford Street / Nelson Street	0.911	0.91
Oxford Street / Ruthven Street	0.301	0.306
Oxford Street / Leswell Street / Mill Hill Road	0.294	0.3
Oxford Street / Denison Street	0.309	0.312
Oxford Street / Newland Street	0.926	0.977
Newland Street / Grafton Street	0.913	0.918

Overall, there are marginal increases in DoS across the network as a result of development traffic. Intersections remain relatively stable.

It should be noted a number of intersections are currently operating at a Degree of Saturation above 0.90, indicating the intersection is or its practical exceeding capacity. This is irrespective of the additional development traffic.

Table 5.30 Saturday Peak Existing Traffic Comparison (Back of Queue)

Intersection	Back of Queue (Exist. Traffic, m)	Back of Queue (Exist. + Dev. Traffic, m)
Syd Einfeld Drive / Oxford Street / Ocean Street	297.7	298.6
Syd Einfeld Drive / York Road	161	161.2
Oxford Street / York Road	115	149.3
Nelson Street / Osmund Lane	47.5	52.8
Oxford Street / Nelson Street	44.1	47.2
Oxford Street / Ruthven Street	9.3	21.5
Oxford Street / Leswell Street / Mill Hill Road	3.8	5.6
Oxford Street / Denison Street	14.9	15.9
Oxford Street / Newland Street	109.8	136.5
Newland Street / Grafton Street	95.5	96.6

The largest increase in queue length occurs at the Oxford Street / Ruthven Street intersection, an increase of approximately 10m, primarily caused by queueing downstream at the Oxford Street / Nelson Street intersection.

Whilst queue increases are minimal, due to the spacing of intersections within the network, any changes to queue lengths have an effect on the performance of the network, particularly at intersections along Oxford Street. It should also be noted queues along Nelson Street, Oxford Street (at York Road, Nelson Street, Ruthven Street and Mill Hill Road) and Grafton Street (at Newland Street) exceed the capacity of the respective approaches to those intersections, both with and without the addition of development traffic.

A comparison of blockage probability under existing and additional development traffic conditions reveal an increase along the Oxford Street south approach to the Syd Einfeld Drive / Oxford Street / Ocean Street intersection, shown in Figure 5.6, with red areas showing most severe queuing.

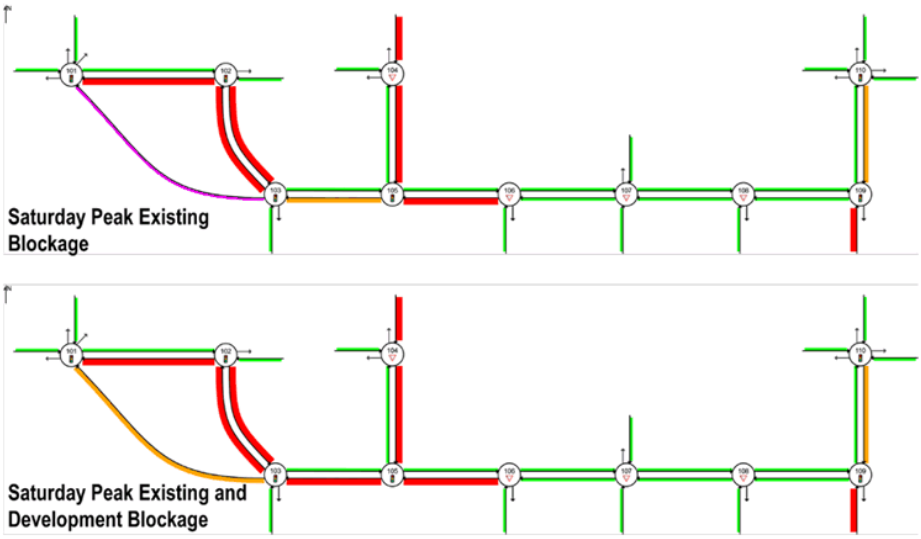


Figure 5.6 Saturday Peak Existing Traffic Conditions Comparison (Blockage Probability)

Future Traffic Conditions

Table 5.31 through to Table 5.33 provide comparisons of Delays and Level of Service (LOS), Degree of Saturation (DOS) and Back of Queue under future traffic and additional development traffic conditions.

Table 5.31 Saturday Peak Future Traffic Comparison (Delay, Level of Service)

Intersection	Average Delay (sec) Exist.	Average Delay (sec) Exist. + Dev.	LoS Exist.	LoS Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	62.3	65.7	**LOS E**	**LOS E**
Syd Einfeld Drive / York Road	19.3	21.3	LOS B	LOS B
Oxford Street / York Road	383.1	414.2	**LOS F**	**LOS F**
Nelson Street / Osmund Lane	0.1	1.1	NA	NA
Oxford Street / Nelson Street	21.6	24.8	LOS B	LOS B
Oxford Street / Ruthven Street	1.4	1.4	NA	NA
Oxford Street / Leswell Street / Mill Hill Road	1.8	1.8	NA	NA
Oxford Street / Denison Street	3.9	4.3	NA	NA
Oxford Street / Newland Street	46.4	48.5	LOS D	LOS D
Newland Street / Grafton Street	209.6	225.1	**LOS F**	**LOS F**

Overall, there is a small increase in delays across the whole network. However, Level of Service remains unchanged at each intersection.

The intersection of Newland Street / Grafton Street experiences the greatest increase in delays, and operates at a LoS F.

The introduction of development traffic in the future scenario has little effect on traffic performance relative to the future base case. However, it should be noted that long delays are experienced at a number of intersections regardless of whether development-generated traffic is included or not.

Table 5.32 Saturday Peak Future Traffic Comparison (Degree of Saturation)

Intersection	Degree of Saturation (DoS) Exist.	Degree of Saturation (DoS) Exist. + Dev.
Syd Einfeld Drive / Oxford Street / Ocean Street	1.019	1.026
Syd Einfeld Drive / York Road	0.909	0.918
Oxford Street / York Road	1.673	1.74
Nelson Street / Osmund Lane	0.154	0.181
Oxford Street / Nelson Street	0.901	0.912
Oxford Street / Ruthven Street	0.363	0.365
Oxford Street / Leswell Street / Mill Hill Road	0.375	0.381
Oxford Street / Denison Street	0.455	0.572
Oxford Street / Newland Street	0.988	0.993
Newland Street / Grafton Street	1.596	1.596

The comparison shows overall increases in traffic through the intersections, but the DoS remains relatively similar. Whilst the addition of development traffic has little effect on the network performance, it should be noted that more than half of the intersections exhibit a degree of saturation well above 0.90, indicating intersections are operating beyond their practical capacity, both with and without additional development traffic.

Table 5.33 Saturday Peak Future Traffic Comparison (Back of Queue)

Intersection	Back of Queue Exist. (m)	Back of Queue Exist. + Dev. (m)
Syd Einfeld Drive / Oxford Street / Ocean Street	618.4	645.2
Syd Einfeld Drive / York Road	239.4	259.4
Oxford Street / York Road	700.8	751.8
Nelson Street / Osmund Lane	65.9	70.4
Oxford Street / Nelson Street	81.4	98.9
Oxford Street / Ruthven Street	51.5	62.9
Oxford Street / Leswell Street / Mill Hill Road	32.9	42.9
Oxford Street / Denison Street	20.3	24.5
Oxford Street / Newland Street	175.1	181.2
Newland Street / Grafton Street	723.2	723.2

The comparison indicates an overall increase in queue length over the network, with significant increases at the Oxford Street / York Road intersection and at the Oxford Street / Nelson Street intersection.

Queueing along Oxford Street (at Nelson Street) extends to adjacent upstream intersections at York Road, Osmund Lane, Ruthven Street and Mill Hill Road.

A comparison of blockage probability under future and additional development traffic conditions reveals an increase along the Oxford Street west approach to the Oxford Street / Nelson Street intersection, shown in Figure 5.7, with the red area showing the most severe queuing.

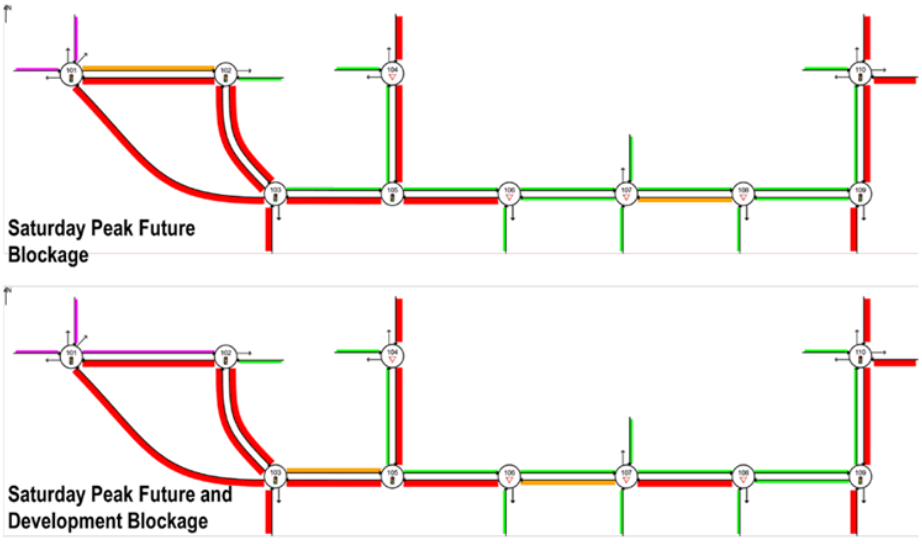


Figure 5.7 Saturday Peak Future Traffic Conditions Comparison (Blockage Probability)

6. PARKING ANALYSIS

A parking occupancy study was conducted to investigate resident parking behaviour during hours outside of parking restriction hours within the study area.

6.1 PARKING PROVISIONS

The site is located in Parking Zone 1 according to Section 8.1 of the *Waverley DCP (2012)*. Table 6.1 summarises the zone's description, proximity to public transport and parking rates. Table 6.2 outlines the minimum car parking requirements for high-density residential flat buildings within Parking Zone 1 based on the DCP.

Table 6.1: Parking Zone 1 Summary

Description	Location	Parking Provision Rate
High accessibility to public transport and services, high density and prone to traffic congestion	Within 800m of Bondi Junction Railway Station where multi-dwelling housing is permitted	Low

Source: Waverley DCP (2012)

Table 6.2: Car Parking Requirements

Land Use	Dwellings	Type	Parking Rate	Parking Required
Studio	8	Residents	0.5 spaces per dwelling	4 spaces
1 bedroom dwellings	41	Residents	0.6 spaces per dwelling	25 spaces
2 bedroom dwellings	22	Residents	0.9 spaces per dwelling	20 spaces
3 bedroom dwellings	23	Residents	1.4 spaces per dwelling	32 spaces
All of the above	94	Visitors	1 space per 5 dwellings	19 spaces
Total				**100 spaces**

6.2 PARKING OCCUPANCY STUDY

6.2.1 Context

To understand overnight parking behaviour in the local area, a parking occupancy study was undertaken.

A survey was conducted on the evening of Wednesday 24th May 2017 and the morning of Thursday 25th May 2017, to capture the number of vehicles parked, and the number of spaces available in the study area. The number of vehicles displaying Waverley Council residential parking permits was also identified.

The parking study area is shown in Figure 6.1 and includes the following street sections outlined in Table 6.3.

Table 6.3: Parking Occupancy Study Areas

Area	Street	Side	Section
A	Oxford Street	North	Nelson Street to Newland Street
B	Oxford Street	South	Newland Street to St James Road
C	St James Road	Both	Oxford Street to bend at Gowrie Street
D	Nelson Street	Both	Oxford Street to bend at Grafton Street
E	Ruthven Street	Both	Oxford Street to Gowrie Street
F	Leswell Street	Both	Oxford Street to Grafton Street
G	Mill Hill Road	Both	Oxford Street to 34 Mill Hill Road
H	Denison Street	Both	Oxford Street to Gowrie Street
I	Hegarty Lane	Both	Leswell Street to Vernon Street
J	Vernon Street	Both	Hegarty Lane to Oxford Street
K	Grafton Street	Both	Nelson Street to Newland Street

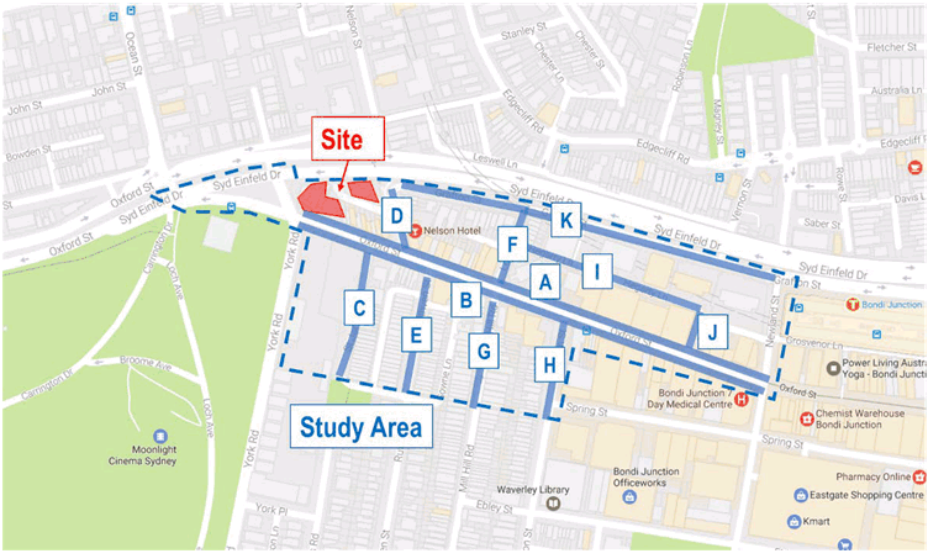


Figure 6.1: Parking Study Area

6.2.2 Parking Restrictions

Kerbside parking restrictions listed in Table 6.4 were identified in each of the study areas.

Table 6.4: Parking Restrictions in Parking Study Areas

Area	Street	Restriction	Time
A	Oxford Street (North)	1/2P Ticket	8am-12pm
		2P Ticket	12pm-7pm & 4pm-7pm
		Truck Zone	6:30am-4pm
B	Oxford Street (South)	Loading Zone	6:30am-4pm
		1/2P Ticket	8am-12pm
		2P Ticket	12pm-7pm & 4pm-7pm
C	St James Road	1P (east side only)	8am-6pm (Mon-Fri) Permit Holders Excepted Area 2 (east side)
		Unrestricted (Westside only)	Untimed
D	Nelson Street	1/2P Ticket	8am-12pm,
		Truck Zone	6:30am-4pm
		2P Ticket	4pm-7pm, 12pm-7pm
E	Ruthven Street	1P	8am-6pm(Mon-Sat) Permit Holders Excepted Area 22)
		2P	8am-6pm(Mon-Sat) Permit Holders Excepted Area 22)
		1/2P Ticket	8am-12pm
		2P Ticket	12pm-7pm
F	Leswell Street	Truck Zone	6:30am-4pm
		2P	4pm-7pm
		1/2P Ticket	8am-12pm (Permit Holders Excepted Area 22, Westside Only)
		2P Ticket	12pm-7pm, (Permit Holders Excepted Area 22, Westside Only)
G	Mill Hill Road	1P	8am-6pm (Permit Holders Excepted Area 22)
H	Denison Street	1/2P Ticket	8am-12pm
		2P Ticket	12pm-9pm
		Loading Zone	6:30am-4pm
I	Hegarty Lane	Unrestricted	Untimed
		Loading Zone	Untimed
J	Vernon Street	1/2P Ticket	8am-12pm
		2P Ticket	12pm-7pm
K	Grafton Street	1/2P Ticket	8am-12pm (Permit Holders Excepted Area 22, Northern side Only)
		2P Ticket	12pm-6pm (Permit Holders Excepted Area 22, Northern side Only)

6.3 SURVEY RESULTS

6.3.1 Parking Occupancy

Table 6.5 and Figure 6.2 summarises the findings of the parking survey

Table 6.5 Parking Occupancy Rates

Area	Street	Total Number of Spaces	Occupancy at 10pm (vehicles)	Occupancy at 6am (vehicles)
A	Oxford Street N	33	15	21
B	Oxford Street S	32	6	17
C	St James Road	27	26	24
D	Nelson Street	6	2	1
E	Ruthven Street	37	30	35
F	Leswell Street	15	7	7
G	Mill Hill Road	27	22	20
H	Denison Street	18	9	9
I	Hegarty Lane	5	4	4
J	Vernon Street	9	1	7
K	Grafton Street	68	50	48
	TOTAL	277	172	193

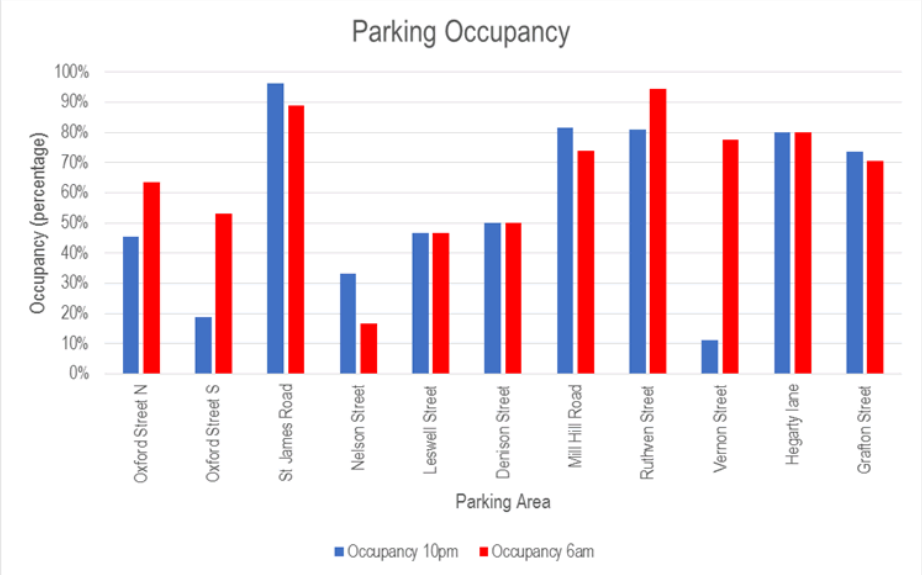


Figure 6.2 Parking Occupancy Survey Results

The survey results indicate that over 80 on-street parking spaces are spare in both count periods. Some streets, particularly St James Road and Ruthven Street are heavily occupied overnight, with occupancy rates remaining above 80% in both count periods.

6.3.2 Permit Holders

The number of vehicles displaying a residential parking permit is summarised in Table 6.6.

Table 6.6: Residential Permit Holders

Area	Street	Residential Permit Holders 10pm	Residential Permit Holders (%) 10pm	Residential Permit Holders 6am	Residential Permit Holders (%) 6am
A	Oxford Street N	33	6%	3	9%
B	Oxford Street S	32	3%	3	9%
C	St James Road	27	41%	12	36%
D	Nelson Street	6	0%	0	0%
E	Ruthven Street	37	33%	5	15%
F	Leswell Street	15	44%	9	27%
G	Mill Hill Road	27	59%	13	39%
H	Denison Street	18	41%	20	61%
I	Hegarty Lane	5	0%	4	12%
J	Vernon Street	9	0%	0	0%
K	Grafton Street	68	37%	24	73%
OVERALL		**83**	**30%**	**93**	**34%**

This data indicates most vehicles parked overnight may not belong to local residents with permits and are not exempt from some parking restrictions on residential streets. This may further indicate that parking turnover during parking restriction hours may be higher than expected due to low use by local residents.

7. PROPOSED OSMUND LANE SHARED ZONE

7.1 PROPOSAL

The urban street scaping upgrades as part of the planning proposal propose that Osmund Lane be converted to a 10km/h "Shared Zone". This street will provide vehicle access to the site's basement car park entry/exit and provide pedestrian access from Nelson Street and the proposed "Public Plazetta" through to the base of the towers and the site through link to Oxford Street. The proposed concept is shown in Figure 7.1.

Figure 7.1: Proposed Shared Zone on Osmund Lane

7.2 SHARED ZONE WARRANTS (FOR INFORMATION)

The suitability of a shared zone in Osmund Lane is subject to requirements set out by Transport for NSW's *Safer Speeds Policy and Guideline on Shared Zones*. The warrants are provided in Table 7.1 for information only.

Table 7.1: Transport for NSW Shared Zone Warrant

Features	Shared Zone Criteria
Current traffic flows	≤ 100 vehicles per hour and ≤ 1000 vehicles per day
Current speed limit ≤ 50 km/h	≤ 50 km/h
Length of proposed Shared Zone	≤ 400m
Current speed limit of adjoining roads	≤ 50 km/h
Current carriageway width minimum trafficable width of 2.8 metres	minimum trafficable width of 2.8m
Route access	must not be located along bus routes or heavy vehicle routes except delivery or garbage trucks
Streets with narrow or no footpaths	where pedestrians are forced to use the road
Kerbs	kerbs must be removed unless excepted by the RMS (See Section 4)

7.3 ROAD SAFETY AUDIT

A Road Safety Audit (RSA) was conducted to determine the suitability of the proposed shared zone and identify possible risks and hazards to both pedestrians and road users. The RSA was conducted independently from this traffic assessment report and is located in Appendix C.

For the purpose of the Road Safety Audit of the proposed shared zone, it is assumed that all development generated traffic is to use the on-site basement car park, with proposed access located at the western end of Osmund Lane.

8. CONCLUSIONS

The assessment of current and future traffic demands with and without the development, as well as potential parking demands and an Independent RSA of the shared zone proposal has resulted in the following conclusions being drawn:

- The development produces an additional 121 vehicles during the critical PM peak hour;
- Most key intersections near the subject site are operating at capacity in the future regardless of the development. In this context, the additional development traffic has a marginal effect on the performance of intersections within the local road network.
- In all cases, queues form at the Oxford Street / Nelson Street intersection which consequentially affect upstream intersections along Oxford Street;
- In general and where possible, the targeted introduction of longer turning pockets/lanes will reduce the incidence of blocking and increase the capacity of intersections;
- Reasonable levels of on-street parking are available over-night, with over 80 spaces available across the study area at both 10pm and 6am. The development is not expected to have a significant impact on available overnight parking capacity;
- 30% of vehicles surveyed over-night displayed Residential Permits, and hence parking turnover during the hours with parking restriction may be higher than expected due to the expected low use by local residents during these times; and.
- The outcomes of the independent Road Safety Audit of the proposed Shared Zone are provided in Appendix C.

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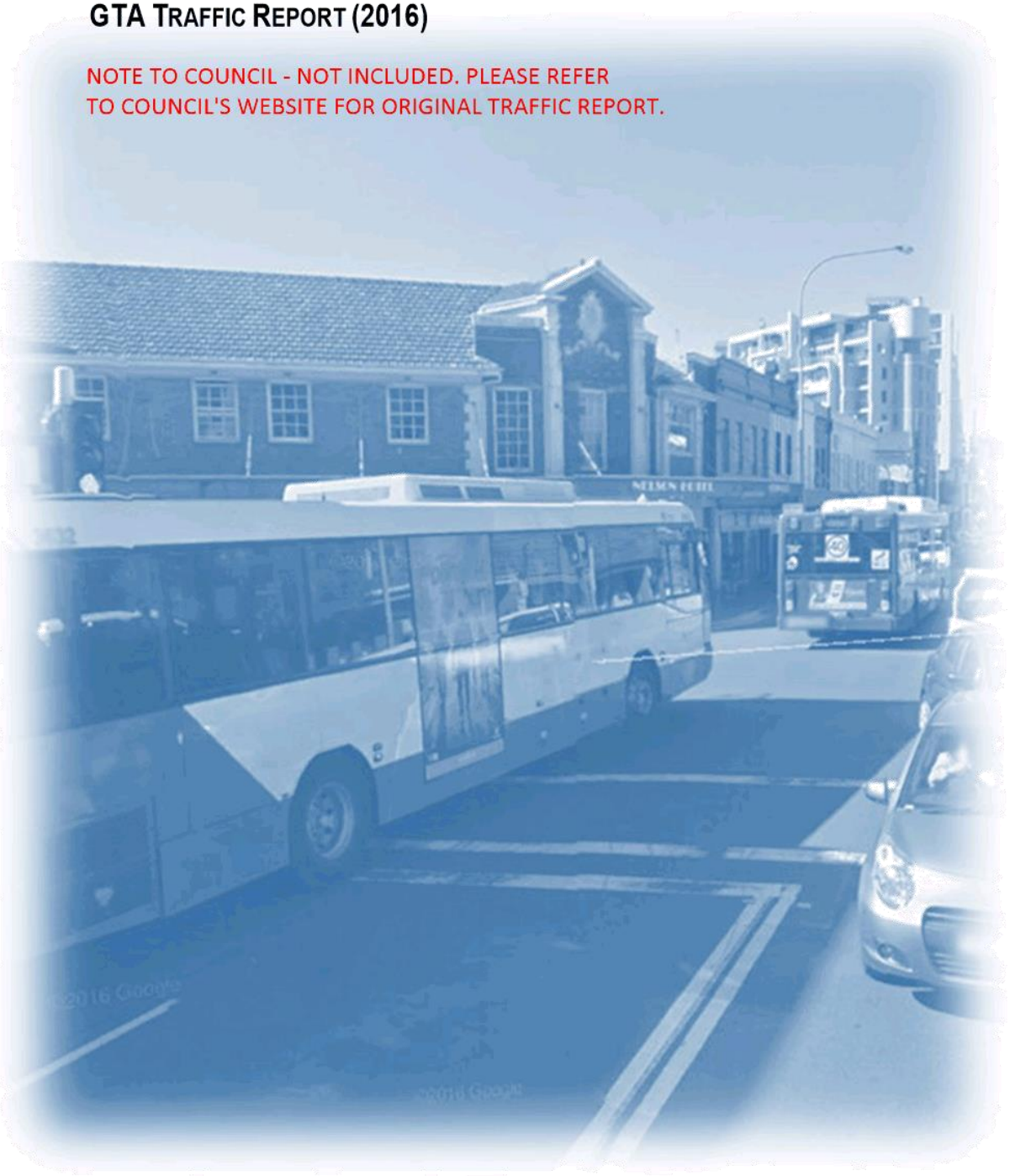
APPENDIX A

GTA TRAFFIC REPORT (2016)

NOTE TO COUNCIL - NOT INCLUDED. PLEASE REFER TO COUNCIL'S WEBSITE FOR ORIGINAL TRAFFIC REPORT.



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APPENDIX B

SIDRA INTERSECTION PERFORMANCE SUMMARIES

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 108 [Oxford Street / Denison Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Denison Street													
9	L2	322	1.6	322	1.6	0.490	6.1	LOS A	2.1	14.6	0.34	0.58	24.9
7	R2	34	2.9	34	2.9	0.490	11.4	LOS A	2.1	14.6	0.34	0.58	24.9
Approach		356	1.7	356	1.7	0.490	6.6	LOS A	2.1	14.6	0.34	0.58	24.9
East: Oxford Street													
6	L2	63	0.0	63	0.0	0.141	4.6	LOS A	0.0	0.0	0.00	0.14	43.3
5	T1	187	21.4	187	21.4	0.141	0.0	LOS A	0.0	0.0	0.00	0.14	45.8
Approach		250	16.0	250	16.0	0.141	1.2	NA	0.0	0.0	0.00	0.14	45.0
West: Oxford Street													
11	T1	284	19.7	284	19.7	0.353	1.1	LOS A	2.5	19.3	0.43	0.30	28.4
10	R2	282	1.4	282	1.4	0.353	5.7	LOS A	2.5	19.3	0.43	0.30	33.5
Approach		566	10.6	566	10.6	0.353	3.4	NA	2.5	19.3	0.43	0.30	31.6
All Vehicles		1172	9.0	1172	9.0	0.490	3.9	NA	2.5	19.3	0.31	0.35	33.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.4 %

Number of Iterations: 30 (maximum specified: 30)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 109 [Oxford Street / Newland Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Newland Street													
9	L2	140	0.7	140	0.7	0.897	49.4	LOS D	16.5	116.7	1.00	1.04	3.7
8	T1	473	1.1	473	1.1	0.897	46.9	LOS D	16.8	118.9	1.00	1.01	3.7
Approach		613	1.0	613	1.0	0.897	47.5	LOS D	16.8	118.9	1.00	1.02	3.7
North: Newland Street													
2	T1	518	1.2	518	1.2	0.712	25.8	LOS B	16.9	119.6	0.81	0.73	14.0
1	R2	110	35.5	110	35.5	0.712	51.9	LOS D	9.1	75.3	0.96	1.00	6.6
Approach		628	7.2	628	7.2	0.712	30.4	LOS C	16.9	119.6	0.83	0.78	12.1
West: Oxford Street													
12	L2	164	33.5	164	33.5	0.198	13.6	LOS A	2.6	23.7	0.33	0.63	26.6
10	R2	154	1.3	154	1.3	0.213	25.3	LOS B	4.3	30.3	0.57	0.70	19.7
Approach		318	17.9	318	17.9	0.213	19.3	LOS B	4.3	30.3	0.44	0.66	22.5
All Vehicles		1559	6.9	1559	6.9	0.897	34.8	LOS C	16.9	119.6	0.82	0.85	10.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.4 %
Number of Iterations: 30 (maximum specified: 30)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P3	North Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
All Pedestrians		150	47.8	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 110 [Newland Street / Grafton Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Newland Street													
9	L2	52	0.0	52	0.0	0.420	11.8	LOS A	5.9	41.7	0.32	0.33	40.3
8	T1	337	0.9	337	0.9	0.420	7.3	LOS A	5.9	41.7	0.32	0.33	32.7
7	R2	194	1.5	194	1.5	0.643	51.2	LOS D	9.1	64.4	0.95	0.96	13.4
Approach		583	1.0	583	1.0	0.643	22.3	LOS B	9.1	64.4	0.53	0.54	22.2
East: Grafton Street													
6	L2	214	14.0	214	14.0	0.478	13.2	LOS A	3.6	28.4	0.34	0.64	24.9
5	T1	178	2.8	178	2.8	0.915	57.6	LOS E	15.3	108.5	0.92	1.06	20.6
4	R2	90	0.0	90	0.0	0.915	62.2	LOS E	15.3	108.5	0.92	1.06	12.6
Approach		482	7.3	482	7.3	0.915	38.8	LOS C	15.3	108.5	0.66	0.87	19.5
North: Newland Street													
3	L2	77	0.0	77	0.0	0.078	5.7	LOS A	0.2	1.3	0.09	0.55	38.1
2	T1	388	1.0	388	1.0	0.945	47.0	LOS D	24.6	174.0	1.00	1.15	7.7
Approach		465	0.9	465	0.9	0.945	40.1	LOS C	24.6	174.0	0.85	1.05	10.4
West: Grafton Street													
12	L2	44	2.3	44	2.3	0.887	60.0	LOS E	8.1	57.8	1.00	0.95	19.6
11	T1	99	2.0	99	2.0	0.887	55.4	LOS D	8.1	57.8	1.00	0.95	21.1
10	R2	16	6.3	16	6.3	0.092	52.9	LOS D	0.8	5.8	0.94	0.69	17.9
Approach		159	2.5	159	2.5	0.887	56.4	LOS D	8.1	57.8	0.99	0.92	20.4
All Vehicles		1689	2.9	1689	2.9	0.945	35.1	LOS C	24.6	174.0	0.70	0.81	18.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.4 %
Number of Iterations: 30 (maximum specified: 30)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	38.8	LOS D	0.1	0.1	0.85	0.85
P2	East Full Crossing	50	31.5	LOS D	0.1	0.1	0.77	0.77
P3	North Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	50	16.9	LOS B	0.1	0.1	0.56	0.56
All Pedestrians		200	33.7	LOS D			0.78	0.78

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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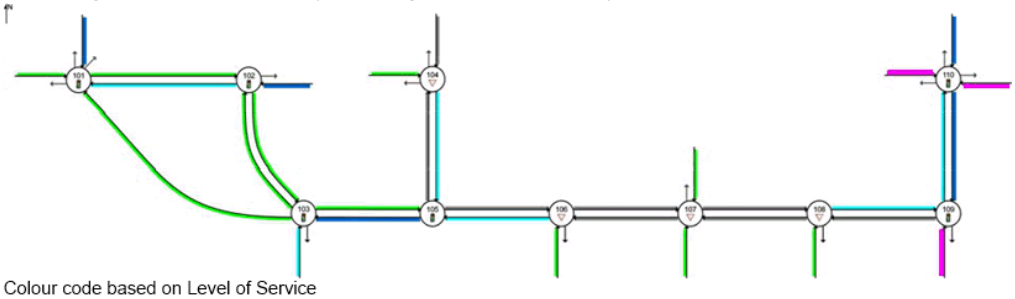
APPROACH LEVEL OF SERVICE

Approach Level of Service for Network Sites

Network: N101 [Oxford Street West Precinct+ Dev]

PM Existing Base + Dev Network
Network Cycle Time = 120 seconds (Network Cycle Time - User-Given)



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F TWSC Major Rd (HCM LOS Rule)

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Delay model settings are specified for individual Sites forming the Network.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 101 [101-Syd Einfeld Drive / Oxford Street / Ocean Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Oxford Street													
18	L1	788	5.1	788	5.1	0.648	5.1	LOS A	2.5	18.2	0.06	0.50	53.1
Approach		788	5.1	788	5.1	0.648	5.1	LOS A	2.5	18.2	0.06	0.50	53.1
East: Syd Einfeld Drive													
5	T1	874	2.3	874	2.3	0.239	3.6	LOS A	2.6	18.7	0.17	0.14	55.4
4	R2	691	2.6	691	2.6	0.893	36.0	LOS C	20.8	148.5	0.85	0.87	14.4
Approach		1565	2.4	1565	2.4	0.893	17.9	LOS B	20.8	148.5	0.47	0.47	36.7
North: Ocean Street													
17	L3	10	0.0	10	0.0	0.712	38.4	LOS C	12.6	91.6	0.76	0.79	13.7
1	L2	590	4.2	590	4.2	0.712	37.5	LOS C	12.7	92.1	0.76	0.78	8.4
Approach		600	4.2	600	4.2	0.712	37.6	LOS C	12.7	92.1	0.76	0.78	8.5
West: Oxford Street													
12	L2	56	1.8	56	1.8	0.049	9.2	LOS A	0.5	3.5	0.17	0.59	48.7
19	L1	161	0.0	161	0.0	0.153	17.9	LOS B	4.5	31.2	0.51	0.68	41.5
11	T1	2972	1.6	2972	1.6	0.718	3.3	LOS A	9.0	64.0	0.23	0.21	55.3
Approach		3189	1.5	3189	1.5	0.718	4.1	LOS A	9.0	64.0	0.24	0.24	54.1
All Vehicles		6142	2.5	6142	2.5	0.893	11.0	LOS A	20.8	148.5	0.33	0.38	44.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %
Number of Iterations: 28 (maximum specified: 30)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	40.1	LOS E	0.1	0.1	0.82	0.82
P41	West Stage 1	50	32.3	LOS D	0.1	0.1	0.73	0.73
P42	West Stage 2	50	40.9	LOS E	0.1	0.1	0.83	0.83
All Pedestrians		150	37.8	LOS D			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 102 [Syd Einfeld Drive / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	Demand Flows HV	Arrival Flows Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: York Road													
9	L2	492	2.0	492	2.0	0.212	6.8	LOS A	2.3	16.5	0.17	0.58	15.9
Approach		492	2.0	492	2.0	0.212	6.8	LOS A	2.3	16.5	0.17	0.58	15.9
East: Syd Einfeld Drive													
6	L2	65	16.9	65	16.9	0.805	43.6	LOS D	19.5	142.4	0.93	0.86	37.7
5	T1	1073	2.6	1073	2.6	0.805	37.6	LOS C	20.6	147.3	0.93	0.85	37.9
Approach		1138	3.4	1138	3.4	0.805	37.9	LOS C	20.6	147.3	0.93	0.85	37.9
West: Syd Einfeld Drive													
11	T1	2196	0.7	2196	0.7	0.390	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
10	R2	1366	4.2	1366	4.2	0.804	7.1	LOS A	5.0	36.0	0.10	0.60	29.0
Approach		3562	2.0	3562	2.0	0.804	2.7	LOS A	5.0	36.0	0.04	0.23	56.6
All Vehicles		5192	2.3	5192	2.3	0.805	10.8	LOS A	20.6	147.3	0.25	0.40	48.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %
Number of Iterations: 28 (maximum specified: 30)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 103 [Oxford Street / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York Road													
9	L2	238	1.3	238	1.3	0.316	20.3	LOS B	9.0	63.6	0.56	0.71	25.6
8	L1	330	1.2	330	1.2	0.316	16.2	LOS B	9.0	63.6	0.43	0.64	28.1
7	R2	7	100.0	7	100.0	0.316	17.0	LOS B	6.0	43.7	0.40	0.63	28.7
Approach		575	2.4	575	2.4	0.316	17.9	LOS B	9.0	63.6	0.48	0.67	27.0
East: Oxford Street													
6	L2	44	13.6	44	13.6	0.262	30.2	LOS C	6.0	44.7	0.61	0.56	25.0
5	T1	550	6.7	550	6.7	0.847	35.4	LOS C	20.3	149.3	0.85	0.82	8.6
4	R1	162	3.7	162	3.7	0.847	42.2	LOS C	20.3	149.3	0.93	0.90	8.0
Approach		756	6.5	756	6.5	0.847	36.6	LOS C	20.3	149.3	0.86	0.82	9.6
NorthWest: York Road													
3	L1	602	8.1	602	8.1	0.378	2.3	LOS A	0.6	4.2	0.03	0.51	29.0
2	R1	829	2.4	829	2.4	0.844	4.0	LOS A	5.8	41.8	0.13	0.52	42.5
Approach		1431	4.8	1431	4.8	0.844	3.3	LOS A	5.8	41.8	0.09	0.51	41.1
All Vehicles		2762	4.8	2762	4.8	0.847	15.4	LOS B	20.3	149.3	0.38	0.63	24.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %
Number of Iterations: 28 (maximum specified: 30)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	29.5	LOS C	0.1	0.1	0.70	0.70
All Pedestrians		50	29.5	LOS C			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 104 [Nelson Street / Osmund Lane]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Nelson Street													
9	L2	91	0.0	91	0.0	0.089	4.4	LOS A	0.3	2.1	0.31	0.56	25.7
8	T1	87	2.3	87	2.3	0.046	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		178	1.1	178	1.1	0.089	2.2	NA	0.3	2.1	0.16	0.29	30.8
North: Nelson Street													
2	T1	261	1.9	261	1.9	0.155	0.1	LOS A	2.8	19.7	0.05	0.03	43.5
1	R2	18	0.0	18	0.0	0.155	2.9	LOS A	2.8	19.7	0.05	0.03	27.7
Approach		279	1.8	279	1.8	0.155	0.2	NA	2.8	19.7	0.05	0.03	39.5
West: Osmund Lane													
12	L2	8	0.0	8	0.0	0.054	4.0	LOS A	0.1	0.9	0.27	0.56	22.3
10	R2	20	0.0	20	0.0	0.054	6.2	LOS A	0.1	0.9	0.27	0.56	21.9
Approach		28	0.0	28	0.0	0.054	5.6	LOS A	0.1	0.9	0.27	0.56	22.0
All Vehicles		485	1.4	485	1.4	0.155	1.3	NA	2.8	19.7	0.10	0.16	32.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %

Number of Iterations: 28 (maximum specified: 30)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 105 [Oxford Street / Nelson Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	Demand Flows HV	Arrival Flows Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Oxford Street													
5	T1	507	8.9	507	8.9	0.539	26.0	LOS B	3.8	28.1	0.69	0.61	3.7
4	R2	42	2.4	42	2.4	0.539	33.2	LOS C	3.8	28.1	0.74	0.67	3.1
Approach		549	8.4	549	8.4	0.539	26.6	LOS B	3.8	28.1	0.70	0.62	3.6
North: Nelson Street													
3	L2	32	3.1	32	3.1	0.038	16.4	LOS B	0.7	4.8	0.38	0.59	7.9
1	R2	249	1.6	249	1.6	0.644	24.9	LOS B	6.2	44.1	0.66	0.75	5.0
Approach		281	1.8	281	1.8	0.644	23.9	LOS B	6.2	44.1	0.63	0.74	5.2
West: Oxford Street													
12	L2	136	0.7	136	0.7	0.195	30.2	LOS C	5.2	36.5	0.70	0.73	10.2
11	T1	473	11.6	473	11.6	0.643	8.5	LOS A	9.9	76.1	0.39	0.34	23.3
Approach		609	9.2	609	9.2	0.643	13.4	LOS A	9.9	76.1	0.45	0.43	18.0
All Vehicles		1439	7.4	1439	7.4	0.644	20.5	LOS B	9.9	76.1	0.58	0.56	9.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %
Number of Iterations: 28 (maximum specified: 30)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue Pedestrian	Average Back of Queue Distance	Prop. Queued	Effective Stop Rate
		ped/h	sec		ped	m		per ped
P3	North Full Crossing	50	24.1	LOS C	0.1	0.1	0.63	0.63
P4	West Full Crossing	50	20.5	LOS C	0.1	0.1	0.58	0.58
All Pedestrians		100	22.3	LOS C			0.61	0.61

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 106 [Oxford Street / Ruthven Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	Demand Flows HV	Arrival Flows Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Ruthven Street													
9	L2	39	2.6	39	2.6	0.271	4.1	LOS A	0.7	5.2	0.55	0.70	9.4
7	R2	39	12.8	39	12.8	0.271	17.2	LOS B	0.7	5.2	0.55	0.70	9.4
Approach		78	7.7	78	7.7	0.271	10.6	LOS A	0.7	5.2	0.55	0.70	9.4
East: Oxford Street													
6	L2	37	0.0	37	0.0	0.152	4.3	LOS A	9.4	70.3	0.00	0.07	38.8
5	T1	510	8.8	510	8.8	0.152	0.0	LOS A	9.4	70.3	0.00	0.03	47.3
Approach		547	8.2	547	8.2	0.152	0.3	NA	9.4	70.3	0.00	0.04	46.4
West: Oxford Street													
11	T1	457	12.0	457	12.0	0.321	0.8	LOS A	0.0	0.0	0.17	0.06	29.3
10	R2	48	2.1	48	2.1	0.321	6.6	LOS A	0.0	0.0	0.17	0.06	27.3
Approach		505	11.1	505	11.1	0.321	1.4	NA	0.0	0.0	0.17	0.06	28.9
All Vehicles		1130	9.5	1130	9.5	0.321	1.5	NA	9.4	70.3	0.11	0.09	34.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %
Number of Iterations: 28 (maximum specified: 30)

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 107 [Oxford Street / Mill Hill Road / Leswell Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	Demand Flows HV	Arrival Flows Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Mill Hill Road													
9	L2	34	0.0	34	0.0	0.072	6.5	LOS A	0.2	1.4	0.52	0.69	34.1
8	T1	4	0.0	4	0.0	0.072	11.6	LOS A	0.2	1.4	0.52	0.69	34.3
7	R2	3	0.0	3	0.0	0.072	16.9	LOS B	0.2	1.4	0.52	0.69	34.1
Approach		41	0.0	41	0.0	0.072	7.7	LOS A	0.2	1.4	0.52	0.69	34.1
East: Oxford Street													
5	T1	476	9.5	476	9.5	0.316	0.6	LOS A	6.7	50.2	0.17	0.07	39.7
4	R2	53	0.0	53	0.0	0.316	7.8	LOS A	6.7	50.2	0.17	0.07	34.8
Approach		529	8.5	529	8.5	0.316	1.3	NA	6.7	50.2	0.17	0.07	38.9
North: Leswell Street													
3	L2	103	1.0	103	1.0	0.257	5.9	LOS A	0.9	6.2	0.59	0.78	16.1
1	R2	37	0.0	37	0.0	0.257	16.5	LOS B	0.9	6.2	0.59	0.78	16.1
Approach		140	0.7	140	0.7	0.257	8.7	LOS A	0.9	6.2	0.59	0.78	16.1
West: Oxford Street													
12	L2	34	2.9	34	2.9	0.283	4.3	LOS A	0.0	0.0	0.00	0.04	27.8
11	T1	462	12.8	462	12.8	0.283	0.0	LOS A	0.0	0.0	0.00	0.04	47.0
Approach		496	12.1	496	12.1	0.283	0.3	NA	0.0	0.0	0.00	0.04	43.8
All Vehicles		1206	8.8	1206	8.8	0.316	2.0	NA	6.7	50.2	0.16	0.16	35.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %

Number of Iterations: 28 (maximum specified: 30)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 108 [Oxford Street / Denison Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Denison Street													
9	L2	322	1.6	322	1.6	0.573	7.2	LOS A	2.7	19.0	0.36	0.63	22.8
7	R2	34	2.9	34	2.9	0.573	12.7	LOS A	2.7	19.0	0.36	0.63	22.8
Approach		356	1.7	356	1.7	0.573	7.7	LOS A	2.7	19.0	0.36	0.63	22.8
East: Oxford Street													
6	L2	63	0.0	63	0.0	0.151	4.6	LOS A	0.4	3.3	0.00	0.13	43.5
5	T1	207	19.3	207	19.3	0.151	0.0	LOS A	0.4	3.3	0.00	0.13	46.2
Approach		270	14.8	270	14.8	0.151	1.1	NA	0.4	3.3	0.00	0.13	45.3
West: Oxford Street													
11	T1	286	19.6	286	19.6	0.358	1.2	LOS A	2.6	19.7	0.44	0.31	28.2
10	R2	282	1.4	282	1.4	0.358	5.9	LOS A	2.6	19.7	0.44	0.31	33.3
Approach		568	10.6	568	10.6	0.358	3.5	NA	2.6	19.7	0.44	0.31	31.4
All Vehicles		1194	8.9	1194	8.9	0.573	4.2	NA	2.7	19.7	0.32	0.36	32.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %
Number of Iterations: 28 (maximum specified: 30)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 109 [Oxford Street / Newland Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	Demand Flows HV	Arrival Flows Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Newland Street													
9	L2	153	0.7	153	0.7	0.912	51.1	LOS D	17.3	122.2	1.00	1.06	3.5
8	T1	473	1.1	473	1.1	0.912	48.6	LOS D	17.5	123.7	1.00	1.04	3.6
Approach		626	1.0	626	1.0	0.912	49.2	LOS D	17.5	123.7	1.00	1.04	3.6
North: Newland Street													
2	T1	518	1.2	518	1.2	0.726	25.8	LOS B	17.5	124.1	0.82	0.74	14.0
1	R2	117	33.3	117	33.3	0.726	53.0	LOS D	9.1	75.6	0.97	1.01	6.4
Approach		635	7.1	635	7.1	0.726	30.8	LOS C	17.5	124.1	0.84	0.79	12.0
West: Oxford Street													
12	L2	165	33.3	165	33.3	0.199	13.6	LOS A	2.6	23.8	0.33	0.63	26.6
10	R2	155	1.3	155	1.3	0.215	25.3	LOS B	4.3	30.5	0.57	0.70	19.7
Approach		320	17.8	320	17.8	0.215	19.3	LOS B	4.3	30.5	0.45	0.66	22.5
All Vehicles		1581	6.8	1581	6.8	0.912	35.8	LOS C	17.5	124.1	0.82	0.86	9.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %
Number of Iterations: 28 (maximum specified: 30)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue Pedestrian	Average Back of Queue Distance	Prop. Queued	Effective Stop Rate
		ped/h	sec		ped	m		per ped
P1	South Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P3	North Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
All Pedestrians		150	47.8	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct+Dev]

Site: 110 [Newland Street / Grafton Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	Demand Flows HV	Arrival Flows Total	Arrival Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Newland Street													
9	L2	52	0.0	52	0.0	0.412	11.2	LOS A	5.5	38.6	0.29	0.31	40.9
8	T1	337	0.9	337	0.9	0.412	6.6	LOS A	5.5	38.6	0.29	0.31	33.7
7	R2	195	1.5	195	1.5	0.668	51.6	LOS D	9.2	65.6	0.96	0.96	13.3
Approach		584	1.0	584	1.0	0.668	22.0	LOS B	9.2	65.6	0.52	0.53	22.4
East: Grafton Street													
6	L2	221	13.6	221	13.6	0.544	15.4	LOS B	4.7	36.9	0.43	0.67	23.0
5	T1	178	2.8	178	2.8	0.952	70.4	LOS E	17.2	122.2	0.93	1.19	18.2
4	R2	90	0.0	90	0.0	0.952	74.9	LOS F	17.2	122.2	0.93	1.19	10.9
Approach		489	7.2	489	7.2	0.952	46.4	LOS D	17.2	122.2	0.71	0.96	17.3
North: Newland Street													
3	L2	77	0.0	77	0.0	0.076	5.4	LOS A	0.1	1.0	0.07	0.55	38.5
2	T1	388	1.0	388	1.0	0.939	43.8	LOS D	24.1	170.3	0.98	1.12	8.2
Approach		465	0.9	465	0.9	0.939	37.4	LOS C	24.1	170.3	0.83	1.03	11.0
West: Grafton Street													
12	L2	44	2.3	44	2.3	0.887	60.0	LOS E	8.1	57.8	1.00	0.95	19.6
11	T1	99	2.0	99	2.0	0.887	55.4	LOS D	8.1	57.8	1.00	0.95	21.1
10	R2	16	6.3	16	6.3	0.092	52.9	LOS D	0.8	5.8	0.94	0.69	17.9
Approach		159	2.5	159	2.5	0.887	56.4	LOS D	8.1	57.8	0.99	0.92	20.4
All Vehicles		1697	2.9	1697	2.9	0.952	36.5	LOS C	24.1	170.3	0.70	0.82	17.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 1.0 %
Number of Iterations: 28 (maximum specified: 30)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow	Average Delay	Level of Service	Average Back of Queue Pedestrian	Average Back of Queue Distance	Prop. Queued	Effective Stop Rate
		ped/h	sec		ped	m		per ped
P1	South Full Crossing	50	39.6	LOS D	0.1	0.1	0.86	0.86
P2	East Full Crossing	50	30.0	LOS C	0.1	0.1	0.75	0.75
P3	North Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	50	16.3	LOS B	0.1	0.1	0.55	0.55
All Pedestrians		200	33.4	LOS D			0.78	0.78

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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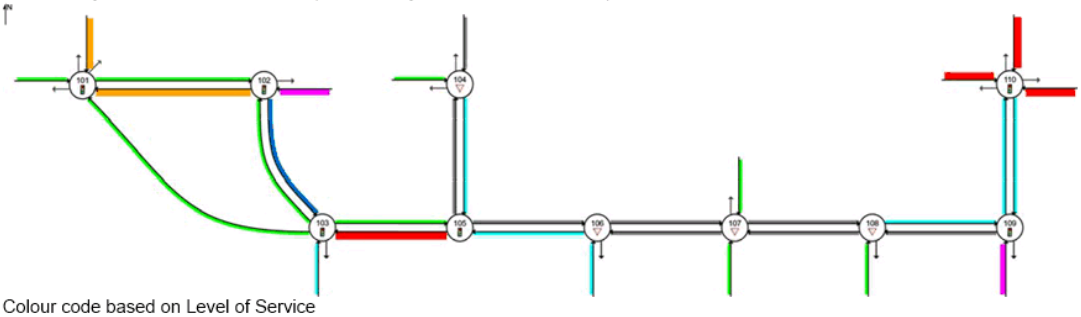
APPROACH LEVEL OF SERVICE

Approach Level of Service for Network Sites

Network: N101 [Oxford Street West Precinct]

PM Peak Future Base Network
Network Cycle Time = 120 seconds (Network Cycle Time - User-Given)



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F TWSC Major Rd (HCM LOS Rule)

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Delay model settings are specified for individual Sites forming the Network.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 101 [101-Syd Einfeld Drive / Oxford Street / Ocean Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Oxford Street													
18	L1	936	5.1	921	5.1	0.758	5.2	LOS A	4.1	30.1	0.08	0.51	53.0
Approach		936	5.1	921 N1	5.1	0.758	5.2	LOS A	4.1	30.1	0.08	0.51	53.0
East: Syd Einfeld Drive													
5	T1	1048	2.3	1047	2.3	0.287	3.7	LOS A	3.3	23.6	0.18	0.15	55.2
4	R2	828	2.6	827	2.6	1.069	144.7	LOS F	20.8	148.5	0.90	1.26	4.5
Approach		1876	2.4	1873 N1	2.4	1.069	66.0	LOS E	20.8	148.5	0.50	0.64	18.3
North: Ocean Street													
17	L3	12	0.0	12	0.0	0.940	69.8	LOS E	22.6	163.6	0.80	1.01	8.5
1	L2	695	4.3	695	4.3	0.940	68.7	LOS E	22.6	164.2	0.80	1.00	5.0
Approach		707	4.2	707	4.2	0.940	68.7	LOS E	22.6	164.2	0.80	1.00	5.0
West: Oxford Street													
12	L2	67	1.8	67	1.8	0.061	11.7	LOS A	0.9	6.2	0.24	0.59	46.6
19	L1	193	0.0	193	0.0	0.220	18.2	LOS B	5.4	38.1	0.52	0.68	41.3
11	T1	3476	1.7	3476	1.7	0.862	6.3	LOS A	20.1	142.4	0.38	0.37	51.4
Approach		3736	1.6	3736	1.6	0.862	7.0	LOS A	20.1	142.4	0.39	0.39	50.6
All Vehicles		7255	2.5	7237 N1	2.5	1.069	28.1	LOS B	22.6	164.2	0.42	0.53	32.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	40.1	LOS E	0.1	0.1	0.82	0.82
P41	West Stage 1	50	32.3	LOS D	0.1	0.1	0.73	0.73
P42	West Stage 2	50	40.9	LOS E	0.1	0.1	0.83	0.83
All Pedestrians		150	37.8	LOS D			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 102 [Syd Einfeld Drive / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	588	2.0	582	2.0	0.257	7.9	LOS A	3.3	23.7	0.21	0.60	14.4
Approach		588	2.0	582N1	2.0	0.257	7.9	LOS A	3.3	23.7	0.21	0.60	14.4
East: Syd Einfeld Drive													
6	L2	102	18.0	102	18.0	0.923	55.2	LOS D	28.9	213.2	1.00	1.06	33.8
5	T1	1288	2.6	1288	2.6	0.923	46.7	LOS D	29.8	213.4	1.00	1.03	34.9
Approach		1390	3.7	1390	3.7	0.923	47.3	LOS D	29.8	213.4	1.00	1.04	34.8
West: Syd Einfeld Drive													
11	T1	2635	0.7	2635	0.7	0.468	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
10	R2	1536	4.5	1536	4.5	0.929	14.8	LOS B	18.0	131.2	0.24	0.68	18.6
Approach		4171	2.1	4171	2.1	0.929	5.5	LOS A	18.0	131.2	0.09	0.25	53.6
All Vehicles		6149	2.5	6143N1	2.5	0.929	15.2	LOS B	29.8	213.4	0.31	0.46	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 103 [Oxford Street / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	286	1.3	286	1.3	0.394	21.0	LOS B	11.7	82.5	0.59	0.73	25.2
8	L1	396	1.2	396	1.2	0.394	17.0	LOS B	11.7	82.5	0.47	0.66	27.5
7	R2	9	100.0	9	100.0	0.394	17.7	LOS B	7.6	55.1	0.44	0.64	28.1
Approach		691	2.5	691	2.5	0.394	18.7	LOS B	11.7	82.5	0.52	0.69	26.5
East: Oxford Street													
6	L2	52	14.0	52	13.9	0.312	30.8	LOS C	7.3	55.0	0.63	0.58	24.7
5	T1	650	6.8	648	6.8	1.009	89.1	LOS F	20.3	149.3	0.91	1.21	3.8
4	R1	192	3.8	192	3.7	1.009	113.5	LOS F	20.3	149.3	1.00	1.42	3.2
Approach		894	6.6	892 N1	6.6	1.009	91.0	LOS F	20.3	149.3	0.91	1.22	4.3
NorthWest: York Road													
3	L1	643	9.1	643	9.1	0.406	2.3	LOS A	0.6	4.7	0.04	0.51	29.0
2	R1	995	2.4	995	2.4	1.013	54.8	LOS D	5.8	41.8	1.00	1.14	14.7
Approach		1638	5.1	1638	5.1	1.013	34.2	LOS C	5.8	41.8	0.62	0.89	15.2
All Vehicles		3223	4.9	3221 N1	4.9	1.013	46.6	LOS D	20.3	149.3	0.68	0.94	11.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	29.5	LOS C	0.1	0.1	0.70	0.70
All Pedestrians		50	29.5	LOS C			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 104 [Nelson Street / Osmund Lane]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Nelson Street													
9	L2	6	0.0	6	0.0	0.006	4.6	LOS A	0.0	0.1	0.35	0.53	25.3
8	T1	104	2.3	104	2.3	0.055	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		110	2.2	110	2.2	0.055	0.2	NA	0.0	0.1	0.02	0.03	45.8
North: Nelson Street													
2	T1	313	1.9	313	1.9	0.169	0.0	LOS A	5.6	39.9	0.00	0.00	49.7
1	R2	1	0.0	1	0.0	0.169	2.6	LOS A	5.6	39.9	0.00	0.00	28.4
Approach		314	1.9	314	1.9	0.169	0.0	NA	5.6	39.9	0.00	0.00	49.3
West: Osmund Lane													
12	L2	4	0.0	4	0.0	0.023	4.1	LOS A	0.1	0.4	0.28	0.55	22.4
10	R2	8	0.0	8	0.0	0.023	6.3	LOS A	0.1	0.4	0.28	0.55	22.0
Approach		12	0.0	12	0.0	0.023	5.5	LOS A	0.1	0.4	0.28	0.55	22.2
All Vehicles		436	1.9	436	1.9	0.169	0.2	NA	5.6	39.9	0.01	0.02	44.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %
Number of Iterations: 10 (maximum specified: 10)

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 105 [Oxford Street / Nelson Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
East: Oxford Street													
5	T1	608	8.9	604	8.9	0.613	27.5	LOS B	3.7	28.1	0.74	0.65	3.5
4	R2	26	4.5	26	4.5	0.613	35.2	LOS C	3.7	28.1	0.79	0.69	2.9
Approach		634	8.7	630 N1	8.7	0.613	27.8	LOS B	3.7	28.1	0.74	0.65	3.5
North: Nelson Street													
3	L2	36	3.3	36	3.3	0.043	16.5	LOS B	0.8	5.4	0.38	0.60	7.9
1	R2	286	1.7	286	1.7	0.741	28.8	LOS C	6.2	44.1	0.73	0.81	4.3
Approach		322	1.9	322	1.9	0.741	27.4	LOS B	6.2	44.1	0.69	0.78	4.6
West: Oxford Street													
12	L2	84	1.4	84	1.4	0.149	25.8	LOS B	3.4	24.2	0.59	0.65	11.7
11	T1	568	11.6	568	11.6	0.745	9.5	LOS A	14.0	108.0	0.48	0.43	21.8
Approach		652	10.3	652	10.3	0.745	11.6	LOS A	14.0	108.0	0.49	0.46	19.5
All Vehicles		1608	8.0	1604 N1	8.0	0.745	21.2	LOS B	14.0	108.0	0.63	0.60	8.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	24.1	LOS C	0.1	0.1	0.63	0.63
P4	West Full Crossing	50	20.5	LOS C	0.1	0.1	0.58	0.58
All Pedestrians		100	22.3	LOS C			0.61	0.61

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 106 [Oxford Street / Ruthven Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Ruthven Street													
9	L2	47	2.6	47	2.6	0.442	8.4	LOS A	1.3	9.7	0.64	0.83	5.9
7	R2	47	12.8	47	12.8	0.442	28.6	LOS C	1.3	9.7	0.64	0.83	5.9
Approach		94	7.7	94	7.7	0.442	18.5	LOS B	1.3	9.7	0.64	0.83	5.9
East: Oxford Street													
6	L2	44	0.0	44	0.0	0.175	4.3	LOS A	9.8	73.1	0.00	0.08	38.7
5	T1	588	9.2	584	9.2	0.175	0.0	LOS A	9.8	73.1	0.00	0.03	47.2
Approach		632	8.5	628 N1	8.5	0.175	0.3	NA	9.8	73.1	0.00	0.04	46.3
West: Oxford Street													
11	T1	546	12.1	546	12.1	0.392	1.3	LOS A	0.0	0.0	0.21	0.06	25.2
10	R2	58	2.1	58	2.1	0.392	8.1	LOS A	0.0	0.0	0.21	0.06	25.1
Approach		604	11.1	604	11.1	0.392	1.9	NA	0.0	0.0	0.21	0.06	25.1
All Vehicles		1330	9.7	1326 N1	9.7	0.442	2.3	NA	9.8	73.1	0.14	0.11	29.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 107 [Oxford Street / Mill Hill Road / Leswell Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Mill Hill Road													
9	L2	41	0.0	41	0.0	0.110	6.9	LOS A	0.3	2.0	0.58	0.75	32.4
8	T1	5	0.0	5	0.0	0.110	15.4	LOS B	0.3	2.0	0.58	0.75	32.8
7	R2	4	0.0	4	0.0	0.110	22.8	LOS B	0.3	2.0	0.58	0.75	32.4
Approach		50	0.0	50	0.0	0.110	9.0	LOS A	0.3	2.0	0.58	0.75	32.4
East: Oxford Street													
5	T1	547	9.9	543	9.9	0.373	1.0	LOS A	6.9	51.7	0.21	0.08	36.6
4	R2	64	0.0	64	0.0	0.373	9.2	LOS A	6.9	51.7	0.21	0.08	33.3
Approach		611	8.8	606 N1	8.8	0.373	1.8	NA	6.9	51.7	0.21	0.08	36.1
North: Leswell Street													
3	L2	124	1.0	124	1.0	0.391	8.0	LOS A	1.5	10.8	0.68	0.94	12.6
1	R2	44	0.0	44	0.0	0.391	24.0	LOS B	1.5	10.8	0.68	0.94	12.6
Approach		168	0.7	168	0.7	0.391	12.2	LOS A	1.5	10.8	0.68	0.94	12.6
West: Oxford Street													
12	L2	41	2.9	41	2.9	0.338	4.3	LOS A	0.0	0.0	0.00	0.04	27.8
11	T1	552	12.8	552	12.8	0.338	0.0	LOS A	0.0	0.0	0.00	0.04	46.9
Approach		593	12.1	593	12.1	0.338	0.3	NA	0.0	0.0	0.00	0.04	43.7
All Vehicles		1422	8.9	1417 N1	9.0	0.391	2.7	NA	6.9	51.7	0.19	0.19	32.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %

Number of Iterations: 10 (maximum specified: 10)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 108 [Oxford Street / Denison Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Denison Street													
9	L2	386	1.6	386	1.6	0.729	10.8	LOS A	5.5	38.9	0.40	0.75	17.9
7	R2	41	2.9	41	2.9	0.729	19.1	LOS B	5.5	38.9	0.40	0.75	17.9
Approach		427	1.7	427	1.7	0.729	11.6	LOS A	5.5	38.9	0.40	0.75	17.9
East: Oxford Street													
6	L2	76	0.0	74	0.0	0.166	4.6	LOS A	0.2	1.3	0.00	0.14	43.3
5	T1	224	21.4	219	21.6	0.166	0.0	LOS A	0.2	1.3	0.00	0.14	45.8
Approach		300	16.0	294 N1	16.2	0.166	1.2	NA	0.2	1.3	0.00	0.14	45.0
West: Oxford Street													
11	T1	341	19.7	341	19.7	0.434	1.5	LOS A	3.5	26.5	0.50	0.32	27.5
10	R2	338	1.4	338	1.4	0.434	6.2	LOS A	3.5	26.5	0.50	0.32	32.8
Approach		679	10.6	679	10.6	0.434	3.9	NA	3.5	26.5	0.50	0.32	30.9
All Vehicles		1406	9.0	1400 N1	9.1	0.729	5.7	NA	5.5	38.9	0.37	0.41	29.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 109 [Oxford Street / Newland Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Newland Street													
9	L2	168	0.7	168	0.7	0.937	55.7	LOS D	22.9	161.4	1.00	1.12	3.3
8	T1	568	1.1	568	1.1	0.937	51.3	LOS D	22.9	161.4	1.00	1.10	3.4
Approach		736	1.0	736	1.0	0.937	52.3	LOS D	22.9	161.4	1.00	1.11	3.4
North: Newland Street													
2	T1	622	1.2	566	1.3	0.740	22.0	LOS B	18.7	132.5	0.77	0.70	15.7
1	R2	132	35.5	124	37.4	0.740	54.7	LOS D	8.9	76.7	0.98	1.02	6.2
Approach		754	7.2	690 N1	7.7	0.740	27.8	LOS B	18.7	132.5	0.81	0.76	12.9
West: Oxford Street													
12	L2	197	33.5	197	33.5	0.256	16.4	LOS B	3.9	35.1	0.41	0.65	24.2
10	R2	185	1.3	185	1.3	0.283	29.5	LOS C	5.9	41.4	0.64	0.73	18.0
Approach		382	17.9	382	17.9	0.283	22.8	LOS B	5.9	41.4	0.52	0.69	20.5
All Vehicles		1872	6.9	1808 N1	7.2	0.937	36.7	LOS C	22.9	161.4	0.83	0.89	9.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P3	North Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
All Pedestrians		150	47.8	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 110 [Newland Street / Grafton Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	62	0.0	62	0.0	0.485	10.9	LOS A	6.6	46.6	0.30	0.31	41.2
8	T1	404	0.9	404	0.9	0.485	6.3	LOS A	6.6	46.6	0.30	0.31	34.2
7	R2	233	1.5	233	1.5	0.905	66.2	LOS E	12.9	91.7	1.00	1.17	11.1
Approach		699	1.0	699	1.0	0.905	26.7	LOS B	12.9	91.7	0.53	0.60	20.1
East: Grafton Street													
6	L2	257	14.0	257	14.0	0.713	18.0	LOS B	7.6	59.5	0.58	0.73	21.1
5	T1	214	2.8	214	2.8	1.156	342.0	LOS F	55.6	395.2	1.00	2.58	5.3
4	R2	108	0.0	108	0.0	1.156	346.5	LOS F	55.6	395.2	1.00	2.58	2.7
Approach		579	7.3	579	7.3	1.156	199.0	LOS F	55.6	395.2	0.81	1.76	5.5
North: Newland Street													
3	L2	92	0.0	92	0.0	0.088	5.0	LOS A	0.1	0.6	0.04	0.54	39.1
2	T1	466	1.0	466	1.0	1.185	371.1	LOS F	88.7	626.3	1.00	3.03	1.1
Approach		558	0.9	558	0.9	1.185	310.7	LOS F	88.7	626.3	0.84	2.62	1.6
West: Grafton Street													
12	L2	53	2.3	53	2.3	1.188	394.8	LOS F	32.3	230.4	1.00	2.27	4.2
11	T1	119	2.0	119	2.0	1.188	390.2	LOS F	32.3	230.4	1.00	2.27	4.7
10	R2	19	6.3	19	6.3	0.120	54.3	LOS D	0.9	7.0	0.95	0.70	17.6
Approach		191	2.5	191	2.5	1.188	358.1	LOS F	32.3	230.4	0.99	2.11	4.8
All Vehicles		2027	2.9	2027	2.9	1.188	185.3	LOS F	88.7	626.3	0.74	1.63	4.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 58.2 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	39.6	LOS D	0.1	0.1	0.86	0.86
P2	East Full Crossing	50	28.5	LOS C	0.1	0.1	0.73	0.73
P3	North Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	50	15.8	LOS B	0.1	0.1	0.54	0.54
All Pedestrians		200	32.9	LOS D			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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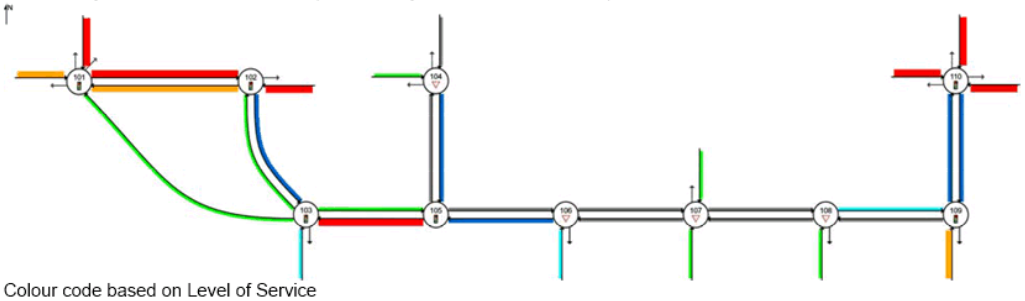
APPROACH LEVEL OF SERVICE

Approach Level of Service for Network Sites

Network: N101 [Oxford Street West Precinct]

PM Peak Future Base + Dev Network
Network Cycle Time = 120 seconds (Network Cycle Time - User-Given)



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F TWSC Major Rd (HCM LOS Rule)

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Delay model settings are specified for individual Sites forming the Network.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 101 [101-Syd Einfield Drive / Oxford Street / Ocean Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Oxford Street													
18	L1	941	5.1	925	5.1	0.761	5.2	LOS A	4.2	30.7	0.09	0.51	53.0
Approach		941	5.1	925 N1	5.1	0.761	5.2	LOS A	4.2	30.7	0.09	0.51	53.0
East: Syd Einfield Drive													
5	T1	1049	2.3	1047	2.3	0.287	3.7	LOS A	3.3	23.7	0.18	0.15	55.2
4	R2	829	2.6	828	2.6	1.070	146.3	LOS F	20.8	148.5	0.90	1.27	4.4
Approach		1878	2.4	1875 N1	2.4	1.070	66.7	LOS E	20.8	148.5	0.50	0.65	18.1
North: Ocean Street													
17	L3	12	0.0	12	0.0	0.963	82.8	LOS F	25.4	183.9	0.81	1.07	7.4
1	L2	706	4.3	706	4.3	0.963	81.6	LOS F	25.4	184.7	0.81	1.06	4.2
Approach		718	4.2	718	4.2	0.963	81.6	LOS F	25.4	184.7	0.81	1.06	4.3
West: Oxford Street													
12	L2	67	1.8	67	1.8	0.061	11.7	LOS A	0.9	6.2	0.24	0.59	46.6
19	L1	193	0.0	193	0.0	0.220	18.2	LOS B	5.4	38.1	0.52	0.68	41.3
11	T1	3531	1.7	3531	1.7	1.003	61.2	LOS E	93.3	662.6	0.92	1.23	23.0
Approach		3791	1.6	3791	1.6	1.003	58.1	LOS E	93.3	662.6	0.89	1.19	23.8
All Vehicles		7328	2.5	7310 N1	2.5	1.070	55.9	LOS D	93.3	662.6	0.68	0.95	22.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	40.1	LOS E	0.1	0.1	0.82	0.82
P41	West Stage 1	50	32.3	LOS D	0.1	0.1	0.73	0.73
P42	West Stage 2	50	40.9	LOS E	0.1	0.1	0.83	0.83
All Pedestrians		150	37.8	LOS D			0.79	0.79

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 102 [Syd Einfield Drive / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	590	2.0	584	2.0	0.251	7.0	LOS A	2.9	20.4	0.18	0.59	15.7
Approach		590	2.0	584N1	2.0	0.251	7.0	LOS A	2.9	20.4	0.18	0.59	15.7
East: Syd Einfield Drive													
6	L2	102	18.0	102	18.0	0.984	91.9	LOS F	36.7	270.1	1.00	1.31	25.7
5	T1	1288	2.6	1288	2.6	0.984	75.7	LOS F	37.2	266.0	1.00	1.25	27.7
Approach		1390	3.7	1390	3.7	0.984	76.9	LOS F	37.2	270.1	1.00	1.25	27.5
West: Syd Einfield Drive													
11	T1	2635	0.7	2635	0.7	0.468	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
10	R2	1602	4.5	1602	4.5	1.142	276.7	LOS F	20.4	148.5	0.47	1.60	1.4
Approach		4237	2.1	4237	2.1	1.142	104.6	LOS F	20.4	148.5	0.18	0.61	18.4
All Vehicles		6217	2.5	6211N1	2.5	1.142	89.2	LOS F	37.2	270.1	0.36	0.75	20.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 103 [Oxford Street / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York Road													
9	L2	286	1.3	286	1.3	0.389	21.0	LOS B	11.6	81.8	0.59	0.73	25.2
8	L1	396	1.2	396	1.2	0.389	16.9	LOS B	11.6	81.8	0.46	0.66	27.5
7	R2	9	100.0	9	100.0	0.389	17.7	LOS B	7.6	55.1	0.43	0.64	28.2
Approach		691	2.5	691	2.5	0.389	18.6	LOS B	11.6	81.8	0.51	0.69	26.5
East: Oxford Street													
6	L2	53	14.0	53	13.9	0.313	30.8	LOS C	7.3	55.1	0.63	0.58	24.7
5	T1	658	6.8	656	6.8	1.011	90.8	LOS F	20.3	149.3	0.91	1.22	3.8
4	R1	194	3.8	193	3.7	1.011	115.3	LOS F	20.3	149.3	1.00	1.43	3.1
Approach		905	6.6	902 N1	6.6	1.011	92.6	LOS F	20.3	149.3	0.91	1.23	4.3
NorthWest: York Road													
3	L1	709	9.1	709	9.1	0.448	2.3	LOS A	0.7	5.6	0.04	0.51	28.9
2	R1	995	2.4	995	2.4	1.013	54.8	LOS D	5.8	41.8	1.00	1.14	14.7
Approach		1704	5.2	1704	5.2	1.013	32.9	LOS C	5.8	41.8	0.60	0.88	15.2
All Vehicles		3300	5.0	3297 N1	5.0	1.013	46.2	LOS D	20.3	149.3	0.67	0.93	11.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	29.5	LOS C	0.1	0.1	0.70	0.70
All Pedestrians		50	29.5	LOS C			0.70	0.70

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 104 [Nelson Street / Osmund Lane]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Nelson Street													
9	L2	92	0.0	92	0.0	0.097	4.8	LOS A	0.3	2.3	0.36	0.60	24.9
8	T1	104	2.3	104	2.3	0.055	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		196	1.2	196	1.2	0.097	2.2	NA	0.3	2.3	0.17	0.28	30.8
North: Nelson Street													
2	T1	313	1.9	313	1.9	0.183	0.1	LOS A	6.4	45.2	0.04	0.03	44.0
1	R2	18	0.0	18	0.0	0.183	3.0	LOS A	6.4	45.2	0.04	0.03	27.8
Approach		331	1.8	331	1.8	0.183	0.2	NA	6.4	45.2	0.04	0.03	40.4
West: Osmund Lane													
12	L2	9	0.0	9	0.0	0.062	4.1	LOS A	0.1	1.0	0.30	0.58	21.6
10	R2	21	0.0	21	0.0	0.062	6.8	LOS A	0.1	1.0	0.30	0.58	21.0
Approach		30	0.0	30	0.0	0.062	6.0	LOS A	0.1	1.0	0.30	0.58	21.2
All Vehicles		557	1.5	557	1.5	0.183	1.2	NA	6.4	45.2	0.10	0.15	32.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %
Number of Iterations: 10 (maximum specified: 10)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 105 [Oxford Street / Nelson Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
East: Oxford Street													
5	T1	608	8.9	604	8.9	0.674	29.2	LOS C	3.8	28.1	0.78	0.70	3.3
4	R2	46	4.5	46	4.5	0.674	43.7	LOS D	3.8	28.1	0.87	0.79	2.3
Approach		654	8.6	650N1	8.6	0.674	30.2	LOS C	3.8	28.1	0.79	0.71	3.2
North: Nelson Street													
3	L2	38	3.3	38	3.3	0.045	16.5	LOS B	0.8	5.7	0.38	0.60	7.9
1	R2	297	1.7	297	1.7	0.771	30.9	LOS C	6.2	44.1	0.75	0.83	4.1
Approach		335	1.9	335	1.9	0.771	29.3	LOS C	6.2	44.1	0.71	0.80	4.3
West: Oxford Street													
12	L2	150	1.4	150	1.4	0.216	30.4	LOS C	5.8	40.9	0.70	0.74	10.1
11	T1	568	11.6	568	11.6	0.772	9.4	LOS A	15.6	119.7	0.50	0.45	22.1
Approach		718	9.5	718	9.5	0.772	13.8	LOS A	15.6	119.7	0.55	0.51	17.6
All Vehicles		1707	7.6	1703N1	7.7	0.772	23.1	LOS B	15.6	119.7	0.67	0.64	8.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	24.1	LOS C	0.1	0.1	0.63	0.63
P4	West Full Crossing	50	20.5	LOS C	0.1	0.1	0.58	0.58
All Pedestrians		100	22.3	LOS C			0.61	0.61

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 106 [Oxford Street / Ruthven Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Ruthven Street													
9	L2	47	2.6	47	2.6	0.456	9.0	LOS A	1.4	10.1	0.66	0.85	5.6
7	R2	47	12.8	47	12.8	0.456	29.9	LOS C	1.4	10.1	0.66	0.85	5.6
Approach		94	7.7	94	7.7	0.456	19.5	LOS B	1.4	10.1	0.66	0.85	5.6
East: Oxford Street													
6	L2	44	0.0	44	0.0	0.180	4.3	LOS A	11.7	87.4	0.00	0.07	38.8
5	T1	608	9.2	604	9.2	0.180	0.0	LOS A	11.7	87.4	0.00	0.03	47.3
Approach		652	8.6	647 N1	8.6	0.180	0.3	NA	11.7	87.4	0.00	0.04	46.4
West: Oxford Street													
11	T1	548	12.1	548	12.1	0.396	1.3	LOS A	0.0	0.0	0.22	0.06	24.5
10	R2	58	2.1	58	2.1	0.396	8.4	LOS A	0.0	0.0	0.22	0.06	24.7
Approach		606	11.1	606	11.1	0.396	2.0	NA	0.0	0.0	0.22	0.06	24.6
All Vehicles		1352	9.7	1347 N1	9.7	0.456	2.4	NA	11.7	87.4	0.14	0.11	29.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 107 [Oxford Street / Mill Hill Road / Leswell Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Mill Hill Road													
9	L2	41	0.0	41	0.0	0.132	7.1	LOS A	0.3	2.1	0.59	0.77	32.1
8	T1	5	0.0	5	0.0	0.132	16.1	LOS B	0.3	2.1	0.59	0.77	32.5
7	R2	4	0.0	4	0.0	0.132	23.8	LOS B	0.3	2.1	0.59	0.77	32.1
Approach		50	0.0	50	0.0	0.132	9.3	LOS A	0.3	2.1	0.59	0.77	32.1
East: Oxford Street													
5	T1	567	9.9	563	9.9	0.385	1.0	LOS A	8.5	64.4	0.21	0.08	36.7
4	R2	64	0.0	63	0.0	0.385	9.3	LOS A	8.5	64.4	0.21	0.08	33.3
Approach		631	8.9	626 N1	8.9	0.385	1.8	NA	8.5	64.4	0.21	0.08	36.2
North: Leswell Street													
3	L2	124	1.0	124	1.0	0.426	8.5	LOS A	1.6	11.4	0.69	0.96	12.0
1	R2	44	0.0	44	0.0	0.426	25.5	LOS B	1.6	11.4	0.69	0.96	12.0
Approach		168	0.7	168	0.7	0.426	13.0	LOS A	1.6	11.4	0.69	0.96	12.0
West: Oxford Street													
12	L2	41	2.9	41	2.9	0.339	4.3	LOS A	0.0	0.0	0.00	0.04	27.8
11	T1	554	12.8	554	12.8	0.339	0.0	LOS A	0.0	0.0	0.00	0.04	46.9
Approach		595	12.1	595	12.1	0.339	0.3	NA	0.0	0.0	0.00	0.04	43.7
All Vehicles		1444	9.0	1439 N1	9.0	0.426	2.7	NA	8.5	64.4	0.19	0.19	32.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %

Number of Iterations: 10 (maximum specified: 10)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 108 [Oxford Street / Denison Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Denison Street													
9	L2	386	1.6	386	1.6	0.743	11.6	LOS A	5.8	41.0	0.42	0.79	17.2
7	R2	41	2.9	41	2.9	0.743	20.1	LOS B	5.8	41.0	0.42	0.79	17.2
Approach		427	1.7	427	1.7	0.743	12.4	LOS A	5.8	41.0	0.42	0.79	17.2
East: Oxford Street													
6	L2	76	0.0	74	0.0	0.177	4.6	LOS A	1.4	11.5	0.00	0.13	43.4
5	T1	244	21.4	238	21.7	0.177	0.0	LOS A	1.4	11.5	0.00	0.13	46.0
Approach		320	16.3	312 N1	16.5	0.177	1.1	NA	1.4	11.5	0.00	0.13	45.2
West: Oxford Street													
11	T1	343	19.7	343	19.7	0.440	1.7	LOS A	3.8	29.2	0.52	0.34	27.2
10	R2	338	1.4	338	1.4	0.440	6.5	LOS A	3.8	29.2	0.52	0.34	32.6
Approach		681	10.6	681	10.6	0.440	4.1	NA	3.8	29.2	0.52	0.34	30.5
All Vehicles		1428	9.2	1420 N1	9.3	0.743	5.9	NA	5.8	41.0	0.38	0.43	29.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 109 [Oxford Street / Newland Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	181	0.7	181	0.7	0.956	61.9	LOS E	24.9	176.0	1.00	1.18	2.9
8	T1	568	1.1	568	1.1	0.956	57.1	LOS E	24.9	176.0	1.00	1.16	3.1
Approach		749	1.0	749	1.0	0.956	58.3	LOS E	24.9	176.0	1.00	1.17	3.0
North: Newland Street													
2	T1	622	1.2	570	1.3	0.766	22.0	LOS B	20.2	142.9	0.79	0.72	15.6
1	R2	139	35.5	131	37.3	0.766	57.3	LOS E	8.8	76.9	0.99	1.04	5.9
Approach		761	7.4	700 N1	8.0	0.766	28.6	LOS C	20.2	142.9	0.83	0.78	12.6
West: Oxford Street													
12	L2	198	33.5	198	33.5	0.257	16.4	LOS B	3.9	35.3	0.41	0.65	24.2
10	R2	186	1.3	186	1.3	0.285	29.5	LOS C	5.9	41.7	0.64	0.73	18.0
Approach		384	17.9	384	17.9	0.285	22.8	LOS B	5.9	41.7	0.52	0.69	20.5
All Vehicles		1894	7.0	1833 N1	7.2	0.956	39.5	LOS C	24.9	176.0	0.83	0.92	9.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P3	North Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
All Pedestrians		150	47.8	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 110 [Newland Street / Grafton Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	62	0.0	62	0.0	0.476	10.2	LOS A	6.0	42.3	0.27	0.29	41.9
8	T1	404	0.9	404	0.9	0.476	5.7	LOS A	6.0	42.3	0.27	0.29	35.2
7	R2	234	1.5	234	1.5	0.972	85.7	LOS F	15.4	109.4	1.00	1.32	9.0
Approach		700	1.0	700	1.0	0.972	32.8	LOS C	15.4	109.4	0.51	0.63	17.7
East: Grafton Street													
6	L2	264	14.0	264	14.0	0.998	66.0	LOS E	16.7	131.1	0.77	1.07	8.2
5	T1	214	2.8	214	2.8	1.208	431.5	LOS F	64.8	460.8	1.00	2.91	4.3
4	R2	108	0.0	108	0.0	1.208	436.1	LOS F	64.8	460.8	1.00	2.91	2.2
Approach		586	7.3	586	7.3	1.208	267.7	LOS F	64.8	460.8	0.90	2.08	4.2
North: Newland Street													
3	L2	92	0.0	92	0.0	0.087	4.8	LOS A	0.1	0.4	0.02	0.53	39.4
2	T1	466	1.0	466	1.0	1.227	444.7	LOS F	99.6	703.6	1.00	3.35	0.9
Approach		558	0.9	558	0.9	1.227	372.2	LOS F	99.6	703.6	0.84	2.89	1.4
West: Grafton Street													
12	L2	53	2.3	53	2.3	1.188	394.8	LOS F	32.3	230.4	1.00	2.27	4.2
11	T1	119	2.0	119	2.0	1.188	390.2	LOS F	32.3	230.4	1.00	2.27	4.7
10	R2	19	6.3	19	6.3	0.120	54.3	LOS D	0.9	7.0	0.95	0.70	17.6
Approach		191	2.5	191	2.5	1.188	358.1	LOS F	32.3	230.4	0.99	2.11	4.8
All Vehicles		2035	2.9	2035	2.9	1.227	224.0	LOS F	99.6	703.6	0.76	1.81	4.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 97.8 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	40.5	LOS E	0.1	0.1	0.87	0.87
P2	East Full Crossing	50	27.0	LOS C	0.1	0.1	0.71	0.71
P3	North Full Crossing	50	47.8	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	50	15.2	LOS B	0.1	0.1	0.53	0.53
All Pedestrians		200	32.6	LOS D			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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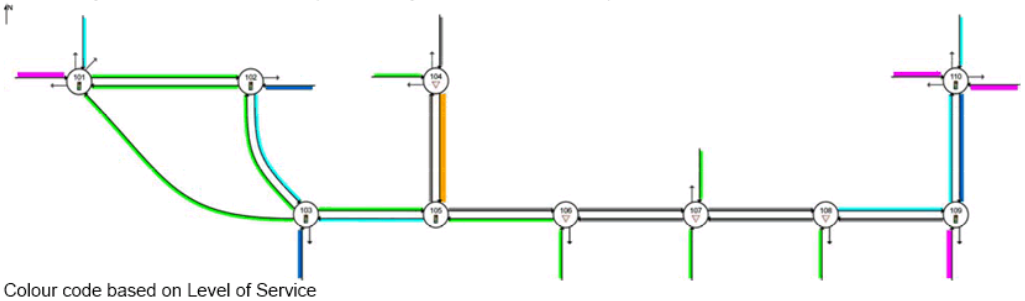
APPROACH LEVEL OF SERVICE

Approach Level of Service for Network Sites

Network: N101 [Oxford Street West Precinct]

Saturday Existing Base Network
Network Cycle Time = 100 seconds (Network Cycle Time - User-Given)



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F TWSC Major Rd (HCM LOS Rule)

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Delay model settings are specified for individual Sites forming the Network.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 101 [Syd Einfield Drive / Oxford Street / Ocean Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Oxford Street													
18	L1	816	4.7	816	4.7	0.621	10.1	LOS A	14.6	106.4	0.40	0.65	48.2
Approach		816	4.7	816	4.7	0.621	10.1	LOS A	14.6	106.4	0.40	0.65	48.2
East: Syd Einfield Drive													
5	T1	1243	2.4	1243	2.4	0.316	2.8	LOS A	6.2	44.2	0.18	0.16	56.4
4	R2	716	2.7	716	2.7	0.688	27.2	LOS B	20.7	148.5	0.80	0.82	17.5
Approach		1959	2.5	1959	2.5	0.688	11.7	LOS A	20.7	148.5	0.41	0.40	43.3
North: Ocean Street													
17	L3	5	0.0	5	0.0	0.408	24.2	LOS B	9.3	66.4	0.69	0.76	18.8
1	L2	587	2.9	587	2.9	0.408	23.4	LOS B	9.4	67.6	0.69	0.76	12.2
Approach		592	2.9	592	2.9	0.408	23.4	LOS B	9.4	67.6	0.69	0.76	12.3
West: Oxford Street													
12	L2	105	1.9	105	1.9	0.106	11.5	LOS A	1.8	12.8	0.42	0.66	46.6
19	L1	143	0.0	143	0.0	0.181	23.8	LOS B	4.3	30.4	0.66	0.71	38.0
11	T1	2333	3.0	2333	3.0	0.910	47.1	LOS D	41.4	297.7	0.93	1.07	26.8
Approach		2581	2.8	2581	2.8	0.910	44.4	LOS D	41.4	297.7	0.90	1.03	27.9
All Vehicles		5948	3.0	5948	3.0	0.910	26.8	LOS B	41.4	297.7	0.65	0.75	33.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	41.5	LOS E	0.1	0.1	0.91	0.91
P41	West Stage 1	50	19.9	LOS B	0.1	0.1	0.63	0.63
P42	West Stage 2	50	41.5	LOS E	0.1	0.1	0.91	0.91
All Pedestrians		150	34.3	LOS D			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 102 [Syd Einfield Drive / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	536	2.6	536	2.6	0.279	10.3	LOS A	5.8	41.8	0.34	0.64	11.6
Approach		536	2.6	536	2.6	0.279	10.3	LOS A	5.8	41.8	0.34	0.64	11.6
East: Syd Einfield Drive													
6	L2	55	7.3	55	7.3	0.765	38.9	LOS C	21.7	156.1	0.95	0.88	39.5
5	T1	1423	2.5	1423	2.5	0.765	33.3	LOS C	22.5	161.0	0.96	0.88	39.6
Approach		1478	2.6	1478	2.6	0.765	33.5	LOS C	22.5	161.0	0.96	0.88	39.6
West: Syd Einfield Drive													
11	T1	1855	2.2	1855	2.2	0.332	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
10	R2	1065	4.5	1065	4.5	0.756	7.1	LOS A	2.7	19.4	0.08	0.59	29.0
Approach		2920	3.0	2920	3.0	0.756	2.6	LOS A	2.7	19.4	0.03	0.22	56.8
All Vehicles		4934	2.9	4934	2.9	0.765	12.7	LOS A	22.5	161.0	0.34	0.46	47.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %
Number of Iterations: 10 (maximum specified: 10)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 103 [Oxford Street / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	287	1.0	287	1.0	0.454	31.0	LOS C	10.7	75.9	0.81	0.79	20.2
8	L1	393	0.8	393	0.8	0.604	31.8	LOS C	15.9	112.5	0.87	0.82	19.8
7	R2	3	100.0	3	100.0	0.604	33.3	LOS C	15.9	112.5	0.87	0.82	19.8
Approach		683	1.3	683	1.3	0.604	31.5	LOS C	15.9	112.5	0.85	0.81	20.0
East: Oxford Street													
6	L2	43	18.6	43	18.6	0.228	15.7	LOS B	4.2	31.8	0.43	0.42	34.0
5	T1	529	6.6	529	6.6	0.736	13.9	LOS A	15.5	115.0	0.59	0.58	16.8
4	R1	143	7.7	143	7.7	0.736	19.1	LOS B	15.5	115.0	0.68	0.66	15.7
Approach		715	7.6	715	7.6	0.736	15.0	LOS B	15.5	115.0	0.60	0.59	18.4
NorthWest: York Road													
3	L1	515	8.9	515	8.9	0.332	2.3	LOS A	0.4	2.8	0.03	0.50	28.9
2	R1	606	1.0	606	1.0	0.905	50.7	LOS D	5.9	41.8	1.00	1.03	15.5
Approach		1121	4.6	1121	4.6	0.905	28.4	LOS B	5.9	41.8	0.56	0.79	16.1
All Vehicles		2519	4.6	2519	4.6	0.905	25.5	LOS B	15.9	115.0	0.65	0.74	17.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	15.7	LOS B	0.1	0.1	0.56	0.56
All Pedestrians		50	15.7	LOS B			0.56	0.56

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 104 [Nelson Street / Osmund Lane]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Nelson Street													
9	L2	3	0.0	3	0.0	0.002	2.9	LOS A	0.0	0.0	0.00	0.50	29.2
8	T1	82	1.2	82	1.2	0.043	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		85	1.2	85	1.2	0.043	0.1	NA	0.0	0.0	0.00	0.02	47.9
North: Nelson Street													
2	T1	239	1.7	239	1.7	0.129	0.0	LOS A	6.7	47.5	0.00	0.00	49.2
1	R2	2	0.0	2	0.0	0.129	2.5	LOS A	6.7	47.5	0.00	0.00	28.4
Approach		241	1.7	241	1.7	0.129	0.0	NA	6.7	47.5	0.00	0.00	48.4
West: Osmund Lane													
12	L2	2	0.0	2	0.0	0.001	4.0	LOS A	0.0	0.0	0.16	0.47	25.5
Approach		2	0.0	2	0.0	0.001	4.0	LOS A	0.0	0.0	0.16	0.47	25.5
All Vehicles		328	1.5	328	1.5	0.129	0.1	NA	6.7	47.5	0.00	0.01	47.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %

Number of Iterations: 10 (maximum specified: 10)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 105 [Oxford Street / Nelson Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
East: Oxford Street													
5	T1	508	10.0	508	10.0	0.253	5.8	LOS A	3.7	28.1	0.39	0.35	13.0
4	R2	26	0.0	26	0.0	0.253	8.2	LOS A	3.7	28.1	0.39	0.37	12.6
Approach		534	9.6	534	9.6	0.253	5.9	LOS A	3.7	28.1	0.39	0.35	12.9
North: Nelson Street													
3	L2	32	3.1	32	3.1	0.102	40.2	LOS C	1.3	9.5	0.87	0.71	3.6
1	R2	207	1.4	207	1.4	0.911	66.1	LOS E	6.2	44.1	1.00	1.09	2.0
Approach		239	1.7	239	1.7	0.911	62.6	LOS E	6.2	44.1	0.98	1.04	2.1
West: Oxford Street													
12	L2	59	1.7	59	1.7	0.069	5.9	LOS A	0.3	2.1	0.08	0.40	31.4
11	T1	459	10.5	459	10.5	0.347	1.6	LOS A	2.1	15.7	0.10	0.11	40.3
Approach		518	9.5	518	9.5	0.347	2.1	LOS A	2.1	15.7	0.10	0.15	39.0
All Vehicles		1291	8.1	1291	8.1	0.911	14.9	LOS B	6.2	44.1	0.38	0.40	11.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	6.5	LOS A	0.1	0.1	0.36	0.36
P4	West Full Crossing	50	40.6	LOS E	0.1	0.1	0.90	0.90
All Pedestrians		100	23.5	LOS C			0.63	0.63

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 106 [Oxford Street / Ruthven Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Ruthven Street													
9	L2	42	2.4	42	2.4	0.194	3.3	LOS A	0.4	3.1	0.48	0.63	12.4
7	R2	25	4.0	25	4.0	0.194	14.7	LOS B	0.4	3.1	0.48	0.63	12.4
Approach		67	3.0	67	3.0	0.194	7.6	LOS A	0.4	3.1	0.48	0.63	12.4
East: Oxford Street													
6	L2	34	0.0	34	0.0	0.147	4.3	LOS A	1.2	9.3	0.00	0.07	38.9
5	T1	492	10.2	492	10.2	0.147	0.0	LOS A	1.2	9.3	0.00	0.03	47.3
Approach		526	9.5	526	9.5	0.147	0.3	NA	1.2	9.3	0.00	0.04	46.5
West: Oxford Street													
11	T1	454	10.8	454	10.8	0.301	0.6	LOS A	0.0	0.0	0.13	0.04	32.9
10	R2	37	0.0	37	0.0	0.301	6.2	LOS A	0.0	0.0	0.13	0.04	29.0
Approach		491	10.0	491	10.0	0.301	1.0	NA	0.0	0.0	0.13	0.04	32.4
All Vehicles		1084	9.3	1084	9.3	0.301	1.1	NA	1.2	9.3	0.09	0.08	37.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %
Number of Iterations: 10 (maximum specified: 10)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 107 [Oxford Street / Mill Hill Road / Leswell Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Mill Hill Road													
9	L2	35	5.7	35	5.7	0.073	6.6	LOS A	0.3	1.8	0.54	0.70	33.5
8	T1	7	0.0	7	0.0	0.073	10.8	LOS A	0.3	1.8	0.54	0.70	33.7
7	R2	6	0.0	6	0.0	0.073	15.0	LOS B	0.3	1.8	0.54	0.70	33.5
Approach		48	4.2	48	4.2	0.073	8.2	LOS A	0.3	1.8	0.54	0.70	33.5
East: Oxford Street													
5	T1	457	10.3	457	10.3	0.294	0.4	LOS A	0.0	0.0	0.13	0.05	41.9
4	R2	39	2.6	39	2.6	0.294	7.6	LOS A	0.0	0.0	0.13	0.05	35.7
Approach		496	9.7	496	9.7	0.294	1.0	NA	0.0	0.0	0.13	0.05	41.0
North: Leswell Street													
3	L2	50	2.0	50	2.0	0.158	5.5	LOS A	0.5	3.8	0.58	0.76	15.5
1	R2	33	0.0	33	0.0	0.158	14.5	LOS A	0.5	3.8	0.58	0.76	15.5
Approach		83	1.2	83	1.2	0.158	9.0	LOS A	0.5	3.8	0.58	0.76	15.5
West: Oxford Street													
12	L2	30	0.0	30	0.0	0.270	4.3	LOS A	0.0	0.0	0.00	0.03	27.9
11	T1	449	11.1	449	11.1	0.270	0.0	LOS A	0.0	0.0	0.00	0.03	47.2
Approach		479	10.4	479	10.4	0.270	0.3	NA	0.0	0.0	0.00	0.03	44.2
All Vehicles		1106	9.1	1106	9.1	0.294	1.6	NA	0.5	3.8	0.12	0.13	37.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %
Number of Iterations: 10 (maximum specified: 10)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 108 [Oxford Street / Denison Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Denison Street													
9	L2	296	2.4	296	2.4	0.264	5.5	LOS A	1.4	9.9	0.35	0.56	26.0
7	R2	28	0.0	28	0.0	0.264	9.6	LOS A	1.4	9.9	0.35	0.56	26.0
Approach		324	2.2	324	2.2	0.264	5.8	LOS A	1.4	9.9	0.35	0.56	26.0
East: Oxford Street													
6	L2	33	0.0	33	0.0	0.132	4.6	LOS A	0.0	0.0	0.00	0.08	44.4
5	T1	200	20.5	200	20.5	0.132	0.0	LOS A	0.0	0.0	0.00	0.08	47.5
Approach		233	17.6	233	17.6	0.132	0.7	NA	0.0	0.0	0.00	0.08	46.9
West: Oxford Street													
11	T1	274	17.2	274	17.2	0.309	0.9	LOS A	2.0	14.9	0.37	0.27	29.7
10	R2	230	1.3	230	1.3	0.309	5.6	LOS A	2.0	14.9	0.37	0.27	34.3
Approach		504	9.9	504	9.9	0.309	3.0	NA	2.0	14.9	0.37	0.27	32.4
All Vehicles		1061	9.2	1061	9.2	0.309	3.4	NA	2.0	14.9	0.29	0.32	34.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %
Number of Iterations: 10 (maximum specified: 10)

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 109 [Oxford Street / Newland Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 95 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	109	0.9	109	0.9	0.926	46.7	LOS D	15.1	107.0	1.00	1.08	3.9
8	T1	487	1.2	487	1.2	0.926	45.5	LOS D	15.5	109.8	1.00	1.07	3.8
Approach		596	1.2	596	1.2	0.926	45.7	LOS D	15.5	109.8	1.00	1.07	3.8
North: Newland Street													
2	T1	479	8.4	479	8.4	0.684	33.0	LOS C	14.5	109.1	0.89	0.80	11.6
1	R2	87	3.4	87	3.4	0.684	49.0	LOS D	8.2	60.2	0.97	0.97	6.9
Approach		566	7.6	566	7.6	0.684	35.5	LOS C	14.5	109.1	0.90	0.82	10.8
West: Oxford Street													
12	L2	158	27.8	158	27.8	0.190	16.9	LOS B	3.7	32.5	0.55	0.69	23.8
10	R2	144	2.1	144	2.1	0.202	25.2	LOS B	4.4	31.4	0.70	0.73	19.8
Approach		302	15.6	302	15.6	0.202	20.9	LOS B	4.4	32.5	0.62	0.71	21.5
All Vehicles		1464	6.6	1464	6.6	0.926	36.6	LOS C	15.5	109.8	0.88	0.90	9.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		150	41.8	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 110 [Newland Street / Grafton Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 95 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	33	0.0	33	0.0	0.365	12.0	LOS A	5.9	42.1	0.36	0.34	40.4
8	T1	353	2.3	353	2.3	0.365	7.4	LOS A	5.9	42.1	0.36	0.34	32.8
7	R2	218	0.5	218	0.5	0.413	26.6	LOS B	6.7	47.2	0.73	0.76	20.4
Approach		604	1.5	604	1.5	0.413	14.6	LOS B	6.7	47.2	0.49	0.49	27.0
East: Grafton Street													
6	L2	210	12.9	210	12.9	0.416	24.7	LOS B	5.9	46.0	0.64	0.73	17.3
5	T1	175	2.3	175	2.3	0.913	58.9	LOS E	13.4	95.5	1.00	1.18	20.4
4	R2	62	1.6	62	1.6	0.913	63.5	LOS E	13.4	95.5	1.00	1.18	12.4
Approach		447	7.2	447	7.2	0.913	43.5	LOS D	13.4	95.5	0.83	0.97	18.3
North: Newland Street													
3	L2	61	0.0	61	0.0	0.069	11.7	LOS A	0.9	6.4	0.55	0.66	31.1
2	T1	318	0.6	318	0.6	0.662	28.2	LOS B	11.8	82.9	0.84	0.72	11.6
Approach		379	0.5	379	0.5	0.662	25.5	LOS B	11.8	82.9	0.79	0.71	14.5
West: Grafton Street													
12	L2	10	10.0	10	10.0	0.691	55.4	LOS D	4.5	32.7	1.00	0.85	20.7
11	T1	82	2.4	82	2.4	0.691	50.7	LOS D	4.5	32.7	1.00	0.85	22.3
10	R2	24	0.0	24	0.0	0.184	51.7	LOS D	1.1	7.7	0.97	0.71	18.1
Approach		116	2.6	116	2.6	0.691	51.3	LOS D	4.5	32.7	0.99	0.82	21.4
All Vehicles		1546	3.0	1546	3.0	0.913	28.4	LOS B	13.4	95.5	0.70	0.71	20.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 24.4 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	40.8	LOS E	0.1	0.1	0.93	0.93
P2	East Full Crossing	50	28.1	LOS C	0.1	0.1	0.77	0.77
P3	North Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	11.7	LOS B	0.1	0.1	0.50	0.50
All Pedestrians		200	30.6	LOS D			0.78	0.78

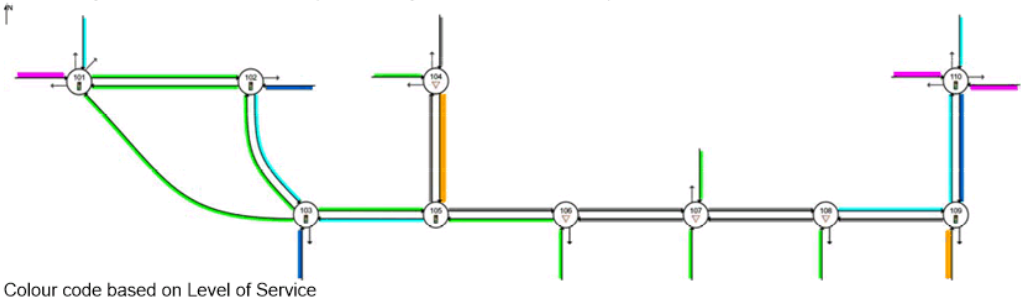
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

APPROACH LEVEL OF SERVICE

Approach Level of Service for Network Sites

Network: N101 [Oxford Street West Precinct]

Saturday Existing Base + Dev Network
Network Cycle Time = 100 seconds (Network Cycle Time - User-Given)



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F TWSC Major Rd (HCM LOS Rule)

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Delay model settings are specified for individual Sites forming the Network.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 101 [Syd Einfield Drive / Oxford Street / Ocean Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Oxford Street													
18	L1	835	4.6	835	4.6	0.635	11.6	LOS A	18.0	130.6	0.49	0.69	46.9
Approach		835	4.6	835	4.6	0.635	11.6	LOS A	18.0	130.6	0.49	0.69	46.9
East: Syd Einfield Drive													
5	T1	1246	2.4	1246	2.4	0.317	3.0	LOS A	6.6	47.3	0.19	0.17	56.1
4	R2	718	2.6	718	2.6	0.705	28.0	LOS B	20.7	148.5	0.82	0.82	17.1
Approach		1964	2.5	1964	2.5	0.705	12.2	LOS A	20.7	148.5	0.42	0.41	42.9
North: Ocean Street													
17	L3	5	0.0	5	0.0	0.432	25.0	LOS B	9.6	68.5	0.71	0.76	18.4
1	L2	592	2.9	592	2.9	0.432	24.1	LOS B	9.7	69.4	0.71	0.76	11.9
Approach		597	2.8	597	2.8	0.432	24.1	LOS B	9.7	69.4	0.71	0.76	12.0
West: Oxford Street													
12	L2	105	1.9	105	1.9	0.106	11.9	LOS A	1.9	13.2	0.43	0.66	46.3
19	L1	143	0.0	143	0.0	0.177	23.2	LOS B	4.3	29.8	0.65	0.71	38.3
11	T1	2376	3.0	2376	3.0	0.906	45.3	LOS D	41.6	298.6	0.93	1.06	27.4
Approach		2624	2.8	2624	2.8	0.906	42.8	LOS D	41.6	298.6	0.89	1.02	28.4
All Vehicles		6020	2.9	6020	2.9	0.906	26.6	LOS B	41.6	298.6	0.66	0.75	33.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	40.6	LOS E	0.1	0.1	0.90	0.90
P41	West Stage 1	50	20.5	LOS C	0.1	0.1	0.64	0.64
P42	West Stage 2	50	41.5	LOS E	0.1	0.1	0.91	0.91
All Pedestrians		150	34.2	LOS D			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 102 [Syd Einfield Drive / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	541	2.6	541	2.6	0.281	10.4	LOS A	5.8	41.8	0.35	0.64	11.6
Approach		541	2.6	541	2.6	0.281	10.4	LOS A	5.8	41.8	0.35	0.64	11.6
East: Syd Einfield Drive													
6	L2	56	7.1	56	7.1	0.765	39.1	LOS C	21.8	156.4	0.95	0.89	39.4
5	T1	1423	2.5	1423	2.5	0.765	33.4	LOS C	22.5	161.2	0.96	0.88	39.6
Approach		1479	2.6	1479	2.6	0.765	33.6	LOS C	22.5	161.2	0.96	0.88	39.6
West: Syd Einfield Drive													
11	T1	1879	2.1	1879	2.1	0.337	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
10	R2	1089	4.4	1089	4.4	0.772	7.4	LOS A	3.0	21.5	0.09	0.60	28.4
Approach		2968	3.0	2968	3.0	0.772	2.7	LOS A	3.0	21.5	0.03	0.22	56.7
All Vehicles		4988	2.8	4988	2.8	0.772	12.7	LOS A	22.5	161.2	0.34	0.46	47.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 103 [Oxford Street / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	287	1.0	287	1.0	0.454	31.0	LOS C	10.7	75.9	0.81	0.79	20.2
8	L1	393	0.8	393	0.8	0.604	31.8	LOS C	15.9	112.5	0.87	0.82	19.8
7	R2	3	100.0	3	100.0	0.604	33.3	LOS C	15.9	112.5	0.87	0.82	19.8
Approach		683	1.3	683	1.3	0.604	31.5	LOS C	15.9	112.5	0.85	0.81	20.0
East: Oxford Street													
6	L2	44	18.2	44	18.2	0.256	15.8	LOS B	4.8	36.2	0.43	0.42	34.0
5	T1	548	6.4	548	6.4	0.828	18.2	LOS B	20.2	149.3	0.65	0.67	14.1
4	R1	154	7.1	154	7.1	0.828	26.1	LOS B	20.2	149.3	0.78	0.81	12.1
Approach		746	7.2	746	7.2	0.828	19.7	LOS B	20.2	149.3	0.66	0.68	15.3
NorthWest: York Road													
3	L1	540	8.5	540	8.5	0.347	2.3	LOS A	0.4	3.0	0.03	0.50	28.9
2	R1	606	1.0	606	1.0	0.905	50.7	LOS D	5.9	41.8	1.00	1.03	15.5
Approach		1146	4.5	1146	4.5	0.905	27.9	LOS B	5.9	41.8	0.54	0.78	16.2
All Vehicles		2575	4.5	2575	4.5	0.905	26.5	LOS B	20.2	149.3	0.66	0.76	17.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	15.7	LOS B	0.1	0.1	0.56	0.56
All Pedestrians		50	15.7	LOS B			0.56	0.56

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 104 [Nelson Street / Osmund Lane]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Nelson Street													
9	L2	39	0.0	39	0.0	0.022	2.9	LOS A	0.0	0.0	0.00	0.50	29.2
8	T1	82	1.2	82	1.2	0.043	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		121	0.8	121	0.8	0.043	0.9	NA	0.0	0.0	0.00	0.16	37.6
North: Nelson Street													
2	T1	245	1.6	245	1.6	0.160	0.1	LOS A	7.5	52.8	0.07	0.07	39.6
1	R2	37	0.0	37	0.0	0.160	2.7	LOS A	7.5	52.8	0.07	0.07	27.2
Approach		282	1.4	282	1.4	0.160	0.4	NA	7.5	52.8	0.07	0.07	34.6
West: Osmund Lane													
12	L2	32	0.0	32	0.0	0.092	4.0	LOS A	0.2	1.7	0.21	0.54	23.5
10	R2	31	0.0	31	0.0	0.092	6.2	LOS A	0.2	1.7	0.21	0.54	23.2
Approach		63	0.0	63	0.0	0.092	5.1	LOS A	0.2	1.7	0.21	0.54	23.4
All Vehicles		466	1.1	466	1.1	0.160	1.2	NA	7.5	52.8	0.07	0.15	32.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 105 [Oxford Street / Nelson Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
East: Oxford Street													
5	T1	508	10.0	508	10.0	0.336	10.5	LOS A	3.8	28.1	0.53	0.48	8.1
4	R2	36	0.0	36	0.0	0.336	13.7	LOS A	3.8	28.1	0.55	0.52	7.5
Approach		544	9.4	544	9.4	0.336	10.7	LOS A	3.8	28.1	0.53	0.48	8.1
North: Nelson Street													
3	L2	38	2.6	38	2.6	0.081	32.1	LOS C	1.4	9.9	0.78	0.70	4.4
1	R2	238	1.3	238	1.3	0.910	66.4	LOS E	6.2	44.1	1.00	1.11	2.0
Approach		276	1.4	276	1.4	0.910	61.7	LOS E	6.2	44.1	0.97	1.05	2.2
West: Oxford Street													
12	L2	85	1.2	85	1.2	0.084	9.2	LOS A	0.9	6.2	0.21	0.56	23.1
11	T1	459	10.5	459	10.5	0.418	6.0	LOS A	6.2	47.2	0.30	0.27	27.6
Approach		544	9.0	544	9.0	0.418	6.5	LOS A	6.2	47.2	0.29	0.32	26.8
All Vehicles		1364	7.6	1364	7.6	0.910	19.3	LOS B	6.2	47.2	0.52	0.53	9.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	10.1	LOS B	0.1	0.1	0.45	0.45
P4	West Full Crossing	50	32.9	LOS D	0.1	0.1	0.81	0.81
All Pedestrians		100	21.5	LOS C			0.63	0.63

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 106 [Oxford Street / Ruthven Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Ruthven Street													
9	L2	42	2.4	42	2.4	0.195	3.4	LOS A	0.4	3.1	0.49	0.63	12.3
7	R2	25	4.0	25	4.0	0.195	14.7	LOS B	0.4	3.1	0.49	0.63	12.3
Approach		67	3.0	67	3.0	0.195	7.6	LOS A	0.4	3.1	0.49	0.63	12.3
East: Oxford Street													
6	L2	34	0.0	34	0.0	0.150	4.3	LOS A	2.9	21.5	0.00	0.07	38.9
5	T1	503	9.9	503	9.9	0.150	0.0	LOS A	2.9	21.5	0.00	0.03	47.4
Approach		537	9.3	537	9.3	0.150	0.3	NA	2.9	21.5	0.00	0.03	46.6
West: Oxford Street													
11	T1	458	10.7	458	10.7	0.306	0.6	LOS A	0.0	0.0	0.13	0.05	32.1
10	R2	39	0.0	39	0.0	0.306	6.3	LOS A	0.0	0.0	0.13	0.05	28.6
Approach		497	9.9	497	9.9	0.306	1.1	NA	0.0	0.0	0.13	0.05	31.6
All Vehicles		1101	9.2	1101	9.2	0.306	1.1	NA	2.9	21.5	0.09	0.08	37.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 107 [Oxford Street / Mill Hill Road / Leswell Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Mill Hill Road													
9	L2	35	5.7	35	5.7	0.074	6.6	LOS A	0.3	1.9	0.54	0.71	33.3
8	T1	7	0.0	7	0.0	0.074	11.1	LOS A	0.3	1.9	0.54	0.71	33.6
7	R2	6	0.0	6	0.0	0.074	15.3	LOS B	0.3	1.9	0.54	0.71	33.3
Approach		48	4.2	48	4.2	0.074	8.4	LOS A	0.3	1.9	0.54	0.71	33.4
East: Oxford Street													
5	T1	468	10.0	468	10.0	0.300	0.4	LOS A	0.7	5.6	0.13	0.05	41.9
4	R2	39	2.6	39	2.6	0.300	7.7	LOS A	0.7	5.6	0.13	0.05	35.8
Approach		507	9.5	507	9.5	0.300	1.0	NA	0.7	5.6	0.13	0.05	41.1
North: Leswell Street													
3	L2	50	2.0	50	2.0	0.161	5.5	LOS A	0.5	3.8	0.59	0.76	15.3
1	R2	33	0.0	33	0.0	0.161	14.8	LOS B	0.5	3.8	0.59	0.76	15.3
Approach		83	1.2	83	1.2	0.161	9.2	LOS A	0.5	3.8	0.59	0.76	15.3
West: Oxford Street													
12	L2	30	0.0	30	0.0	0.272	4.3	LOS A	0.0	0.0	0.00	0.03	27.9
11	T1	453	11.0	453	11.0	0.272	0.0	LOS A	0.0	0.0	0.00	0.03	47.2
Approach		483	10.4	483	10.4	0.272	0.3	NA	0.0	0.0	0.00	0.03	44.3
All Vehicles		1121	9.0	1121	9.0	0.300	1.6	NA	0.7	5.6	0.12	0.12	37.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 108 [Oxford Street / Denison Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Denison Street													
9	L2	296	2.4	296	2.4	0.266	5.6	LOS A	1.4	10.3	0.36	0.56	25.9
7	R2	28	0.0	28	0.0	0.266	9.7	LOS A	1.4	10.3	0.36	0.56	25.9
Approach		324	2.2	324	2.2	0.266	5.9	LOS A	1.4	10.3	0.36	0.56	25.9
East: Oxford Street													
6	L2	33	0.0	33	0.0	0.137	4.6	LOS A	0.0	0.0	0.00	0.07	44.5
5	T1	211	19.4	211	19.4	0.137	0.0	LOS A	0.0	0.0	0.00	0.07	47.6
Approach		244	16.8	244	16.8	0.137	0.6	NA	0.0	0.0	0.00	0.07	47.0
West: Oxford Street													
11	T1	276	17.0	276	17.0	0.312	0.9	LOS A	2.1	15.9	0.39	0.27	29.5
10	R2	232	1.3	232	1.3	0.312	5.6	LOS A	2.1	15.9	0.39	0.27	34.2
Approach		508	9.8	508	9.8	0.312	3.1	NA	2.1	15.9	0.39	0.27	32.3
All Vehicles		1076	9.1	1076	9.1	0.312	3.4	NA	2.1	15.9	0.29	0.31	34.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 109 [Oxford Street / Newland Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 95 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	152	0.7	152	0.7	0.977	61.4	LOS E	19.2	135.9	1.00	1.24	3.0
8	T1	487	1.2	487	1.2	0.977	61.3	LOS E	19.3	136.5	1.00	1.24	2.9
Approach		639	1.1	639	1.1	0.977	61.3	LOS E	19.3	136.5	1.00	1.24	2.9
North: Newland Street													
2	T1	479	8.4	479	8.4	0.681	32.7	LOS C	14.5	108.4	0.89	0.79	11.7
1	R2	92	3.3	92	3.3	0.681	47.6	LOS D	8.4	61.5	0.97	0.95	7.1
Approach		571	7.5	571	7.5	0.681	35.1	LOS C	14.5	108.4	0.90	0.82	10.8
West: Oxford Street													
12	L2	159	27.7	159	27.7	0.191	16.9	LOS B	3.8	32.7	0.55	0.69	23.8
10	R2	145	2.1	145	2.1	0.203	25.2	LOS B	4.4	31.6	0.70	0.74	19.8
Approach		304	15.5	304	15.5	0.203	20.9	LOS B	4.4	32.7	0.62	0.71	21.5
All Vehicles		1514	6.4	1514	6.4	0.977	43.3	LOS D	19.3	136.5	0.89	0.98	8.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		150	41.8	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 110 [Newland Street / Grafton Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 95 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	33	0.0	33	0.0	0.365	12.0	LOS A	5.9	42.1	0.36	0.34	40.4
8	T1	353	2.3	353	2.3	0.365	7.4	LOS A	5.9	42.1	0.36	0.34	32.8
7	R2	219	0.5	219	0.5	0.413	26.5	LOS B	6.7	47.4	0.73	0.76	20.4
Approach		605	1.5	605	1.5	0.413	14.6	LOS B	6.7	47.4	0.49	0.49	26.9
East: Grafton Street													
6	L2	215	12.6	215	12.6	0.422	24.8	LOS B	6.1	47.2	0.64	0.73	17.3
5	T1	175	2.3	175	2.3	0.918	60.1	LOS E	13.6	96.6	1.00	1.20	20.1
4	R2	62	1.6	62	1.6	0.918	64.6	LOS E	13.6	96.6	1.00	1.20	12.3
Approach		452	7.1	452	7.1	0.918	43.9	LOS D	13.6	96.6	0.83	0.98	18.1
North: Newland Street													
3	L2	61	0.0	61	0.0	0.069	11.7	LOS A	0.9	6.4	0.55	0.66	31.1
2	T1	318	0.6	318	0.6	0.657	28.1	LOS B	11.7	82.6	0.83	0.72	11.7
Approach		379	0.5	379	0.5	0.657	25.5	LOS B	11.7	82.6	0.79	0.71	14.5
West: Grafton Street													
12	L2	10	10.0	10	10.0	0.691	55.4	LOS D	4.5	32.7	1.00	0.85	20.7
11	T1	82	2.4	82	2.4	0.691	50.7	LOS D	4.5	32.7	1.00	0.85	22.3
10	R2	24	0.0	24	0.0	0.184	51.7	LOS D	1.1	7.7	0.97	0.71	18.1
Approach		116	2.6	116	2.6	0.691	51.3	LOS D	4.5	32.7	0.99	0.82	21.4
All Vehicles		1552	3.0	1552	3.0	0.918	28.5	LOS C	13.6	96.6	0.70	0.71	20.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 102.1 %
Number of Iterations: 10 (maximum specified: 10)

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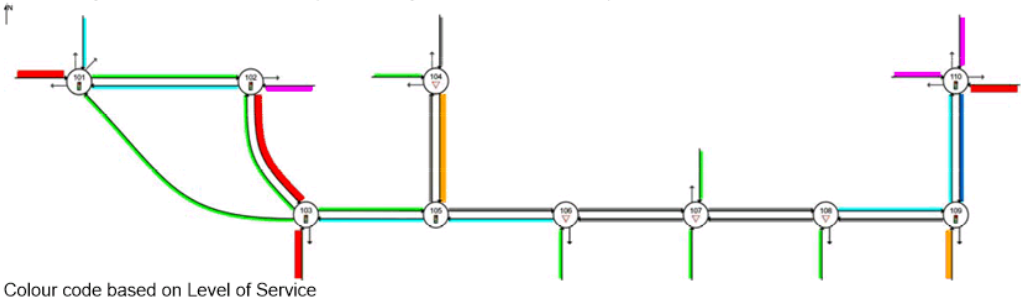
APPROACH LEVEL OF SERVICE

Approach Level of Service for Network Sites

Network: N101 [Oxford Street West Precinct]

Saturday Future Base Network
Network Cycle Time = 100 seconds (Network Cycle Time - User-Given)



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F TWSC Major Rd (HCM LOS Rule)

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Delay model settings are specified for individual Sites forming the Network.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 101 [Syd Einfield Drive / Oxford Street / Ocean Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Oxford Street													
18	L1	979	4.7	979	4.7	0.766	14.4	LOS A	23.1	167.9	0.69	0.79	44.8
Approach		979	4.7	979	4.7	0.766	14.4	LOS A	23.1	167.9	0.69	0.79	44.8
East: Syd Einfield Drive													
5	T1	1492	2.4	1481	2.4	0.388	6.6	LOS A	11.9	85.0	0.42	0.37	52.1
4	R2	859	2.7	853	2.7	0.897	44.0	LOS D	20.7	148.5	0.93	0.95	12.4
Approach		2351	2.5	2334 N1	2.5	0.897	20.3	LOS B	20.7	148.5	0.60	0.58	36.3
North: Ocean Street													
17	L3	6	0.0	6	0.0	0.671	28.1	LOS B	12.6	90.1	0.78	0.79	17.0
1	L2	704	2.9	704	2.9	0.671	27.3	LOS B	12.6	90.7	0.78	0.79	10.8
Approach		710	2.9	710	2.9	0.671	27.3	LOS B	12.6	90.7	0.78	0.79	10.9
West: Oxford Street													
12	L2	126	1.9	126	1.9	0.132	16.5	LOS B	3.0	21.2	0.53	0.68	42.8
19	L1	172	0.0	172	0.0	0.293	21.5	LOS B	4.9	34.5	0.63	0.71	39.3
11	T1	2800	3.0	2800	3.0	1.019	127.6	LOS F	86.1	618.4	1.00	1.72	13.7
Approach		3098	2.8	3098	2.8	1.019	117.2	LOS F	86.1	618.4	0.96	1.62	14.8
All Vehicles		7138	3.0	7121 N1	3.0	1.019	62.3	LOS E	86.1	618.4	0.79	1.08	21.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 102 [Syd Einfield Drive / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	645	2.6	609	2.7	0.323	12.3	LOS A	5.8	41.8	0.40	0.66	10.1
Approach		645	2.6	609N1	2.7	0.323	12.3	LOS A	5.8	41.8	0.40	0.66	10.1
East: Syd Einfield Drive													
6	L2	66	7.3	66	7.3	0.892	53.0	LOS D	32.8	235.3	1.00	1.09	34.6
5	T1	1708	2.5	1708	2.5	0.892	46.2	LOS D	33.5	239.4	1.00	1.08	35.0
Approach		1774	2.6	1774	2.6	0.892	46.5	LOS D	33.5	239.4	1.00	1.08	35.0
West: Syd Einfield Drive													
11	T1	2226	2.2	2189	2.2	0.392	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
10	R2	1278	4.5	1257	4.5	0.909	18.0	LOS B	13.3	96.4	0.20	0.70	16.2
Approach		3504	3.0	3447N1	3.0	0.909	6.6	LOS A	13.3	96.4	0.07	0.25	52.6
All Vehicles		5923	2.9	5829N1	2.9	0.909	19.3	LOS B	33.5	239.4	0.39	0.55	42.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 103 [Oxford Street / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	344	1.0	344	1.0	0.851	52.9	LOS D	18.5	130.4	1.00	0.97	14.2
8	L1	473	0.8	473	0.8	1.218	452.1	LOS F	98.8	700.8	1.00	2.86	2.2
7	R2	4	100.0	4	100.0	1.218	453.6	LOS F	98.8	700.8	1.00	2.86	2.2
Approach		821	1.4	821	1.4	1.218	284.9	LOS F	98.8	700.8	1.00	2.07	3.4
East: Oxford Street													
6	L2	52	18.6	52	18.6	0.277	8.9	LOS A	3.4	25.9	0.23	0.26	41.1
5	T1	635	6.6	635	6.6	0.895	17.0	LOS B	20.1	149.3	0.46	0.58	14.8
4	R1	172	7.7	172	7.7	0.895	30.9	LOS C	20.1	149.3	0.64	0.83	10.5
Approach		859	7.6	859	7.6	0.895	19.3	LOS B	20.1	149.3	0.48	0.61	15.6
NorthWest: York Road													
3	L1	617	8.9	607	9.0	0.392	2.3	LOS A	0.5	3.7	0.03	0.51	28.9
2	R1	727	1.0	715	1.0	1.673	1255.7	LOS F	5.9	41.8	1.00	4.45	0.9
Approach		1344	4.6	1323 N1	4.6	1.673	680.3	LOS F	5.9	41.8	0.56	2.64	1.0
All Vehicles		3024	4.6	3003 N1	4.6	1.673	383.1	LOS F	98.8	700.8	0.66	1.90	1.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	9.3	LOS A	0.1	0.1	0.43	0.43
All Pedestrians		50	9.3	LOS A			0.43	0.43

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 104 [Nelson Street / Osmund Lane]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Nelson Street													
9	L2	4	0.0	4	0.0	0.002	2.9	LOS A	0.0	0.0	0.00	0.50	29.2
8	T1	98	1.2	97	1.2	0.051	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		102	1.2	101 N1	1.2	0.051	0.1	NA	0.0	0.0	0.00	0.02	47.7
North: Nelson Street													
2	T1	285	1.7	285	1.7	0.154	0.0	LOS A	9.3	65.9	0.00	0.00	49.3
1	R2	2	0.0	2	0.0	0.154	2.6	LOS A	9.3	65.9	0.00	0.00	28.4
Approach		287	1.7	287	1.7	0.154	0.0	NA	9.3	65.9	0.00	0.00	48.6
West: Osmund Lane													
12	L2	2	0.0	2	0.0	0.004	4.0	LOS A	0.0	0.1	0.20	0.50	24.5
10	R2	1	0.0	1	0.0	0.004	5.9	LOS A	0.0	0.1	0.20	0.50	24.5
Approach		3	0.0	3	0.0	0.004	4.7	LOS A	0.0	0.1	0.20	0.50	24.5
All Vehicles		392	1.5	391 N1	1.5	0.154	0.1	NA	9.3	65.9	0.00	0.01	47.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 105 [Oxford Street / Nelson Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
East: Oxford Street													
5	T1	610	10.0	610	10.0	0.467	15.4	LOS B	3.7	28.1	0.66	0.59	5.9
4	R2	31	0.0	31	0.0	0.467	20.3	LOS B	3.7	28.1	0.70	0.63	5.1
Approach		641	9.6	641	9.6	0.467	15.7	LOS B	3.7	28.1	0.66	0.59	5.8
North: Nelson Street													
3	L2	38	3.1	38	3.1	0.066	27.4	LOS B	1.3	9.1	0.71	0.68	5.1
1	R2	248	1.4	248	1.4	0.901	63.9	LOS E	6.2	44.1	0.99	1.10	2.1
Approach		286	1.7	286	1.7	0.901	59.0	LOS E	6.2	44.1	0.95	1.04	2.3
West: Oxford Street													
12	L2	71	1.7	70	1.7	0.104	12.3	LOS A	1.4	10.2	0.30	0.50	20.5
11	T1	551	10.5	542	10.4	0.522	10.2	LOS A	10.7	81.4	0.46	0.42	20.9
Approach		622	9.5	612 N1	9.4	0.522	10.4	LOS A	10.7	81.4	0.44	0.43	20.8
All Vehicles		1549	8.1	1539 N1	8.1	0.901	21.6	LOS B	10.7	81.4	0.63	0.61	8.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	13.0	LOS B	0.1	0.1	0.51	0.51
P4	West Full Crossing	50	28.2	LOS C	0.1	0.1	0.75	0.75
All Pedestrians		100	20.6	LOS C			0.63	0.63

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 106 [Oxford Street / Ruthven Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Ruthven Street													
9	L2	50	2.4	50	2.4	0.288	4.4	LOS A	0.7	4.9	0.56	0.71	9.7
7	R2	30	4.0	30	4.0	0.288	20.4	LOS B	0.7	4.9	0.56	0.71	9.7
Approach		80	3.0	80	3.0	0.288	10.4	LOS A	0.7	4.9	0.56	0.71	9.7
East: Oxford Street													
6	L2	41	0.0	41	0.0	0.177	4.3	LOS A	6.8	51.5	0.00	0.07	38.9
5	T1	590	10.2	590	10.2	0.177	0.0	LOS A	6.8	51.5	0.00	0.03	47.3
Approach		631	9.5	631	9.5	0.177	0.3	NA	6.8	51.5	0.00	0.04	46.5
West: Oxford Street													
11	T1	545	10.8	536	10.8	0.363	0.9	LOS A	0.0	0.0	0.16	0.05	28.7
10	R2	44	0.0	43	0.0	0.363	7.9	LOS A	0.0	0.0	0.16	0.05	27.0
Approach		589	10.0	580 N1	10.0	0.363	1.4	NA	0.0	0.0	0.16	0.05	28.5
All Vehicles		1300	9.3	1291 N1	9.4	0.363	1.4	NA	6.8	51.5	0.11	0.08	35.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 107 [Oxford Street / Mill Hill Road / Leswell Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Mill Hill Road													
9	L2	27	5.7	27	5.7	0.096	7.4	LOS A	0.3	2.2	0.66	0.80	29.9
8	T1	8	0.0	8	0.0	0.096	15.3	LOS B	0.3	2.2	0.66	0.80	30.6
7	R2	7	0.0	7	0.0	0.096	21.0	LOS B	0.3	2.2	0.66	0.80	29.9
Approach		42	3.7	42	3.7	0.096	11.2	LOS A	0.3	2.2	0.66	0.80	30.0
East: Oxford Street													
5	T1	578	10.3	578	10.3	0.375	0.7	LOS A	4.3	32.9	0.15	0.05	39.8
4	R2	47	2.6	47	2.6	0.375	9.0	LOS A	4.3	32.9	0.15	0.05	34.8
Approach		625	9.7	625	9.7	0.375	1.3	NA	4.3	32.9	0.15	0.05	39.2
North: Leswell Street													
3	L2	60	2.0	60	2.0	0.192	6.0	LOS A	0.6	4.5	0.65	0.81	14.1
1	R2	26	0.0	26	0.0	0.192	20.7	LOS B	0.6	4.5	0.65	0.81	14.1
Approach		86	1.4	86	1.4	0.192	10.4	LOS A	0.6	4.5	0.65	0.81	14.1
West: Oxford Street													
12	L2	36	0.0	35	0.0	0.319	4.3	LOS A	0.0	0.0	0.00	0.03	27.9
11	T1	539	11.1	531	11.1	0.319	0.0	LOS A	0.0	0.0	0.00	0.03	47.2
Approach		575	10.4	566 N1	10.4	0.319	0.3	NA	0.0	0.0	0.00	0.03	44.2
All Vehicles		1328	9.3	1319 N1	9.4	0.375	1.8	NA	4.3	32.9	0.13	0.12	36.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

BITZIOS consulting

MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 108 [Oxford Street / Denison Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Denison Street													
9	L2	385	2.4	385	2.4	0.455	6.3	LOS A	2.6	18.2	0.42	0.62	24.4
7	R2	34	0.0	34	0.0	0.455	12.4	LOS A	2.6	18.2	0.42	0.62	24.4
Approach		419	2.2	419	2.2	0.455	6.8	LOS A	2.6	18.2	0.42	0.62	24.4
East: Oxford Street													
6	L2	40	0.0	40	0.0	0.159	4.6	LOS A	0.0	0.0	0.00	0.08	44.4
5	T1	240	20.5	240	20.5	0.159	0.0	LOS A	0.0	0.0	0.00	0.08	47.5
Approach		280	17.6	280	17.6	0.159	0.7	NA	0.0	0.0	0.00	0.08	46.9
West: Oxford Street													
11	T1	329	17.2	324	17.1	0.373	1.2	LOS A	2.7	20.3	0.45	0.29	28.8
10	R2	276	1.3	272	1.3	0.373	6.0	LOS A	2.7	20.3	0.45	0.29	33.7
Approach		605	9.9	596 N1	9.9	0.373	3.4	NA	2.7	20.3	0.45	0.29	31.7
All Vehicles		1304	9.1	1295 N1	9.1	0.455	3.9	NA	2.7	20.3	0.34	0.35	33.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 109 [Oxford Street / Newland Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 95 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	176	0.9	176	0.9	0.988	68.5	LOS E	24.7	174.4	1.00	1.30	2.7
8	T1	584	1.2	584	1.2	0.988	67.4	LOS E	24.8	175.1	1.00	1.32	2.6
Approach		760	1.2	760	1.2	0.988	67.6	LOS E	24.8	175.1	1.00	1.31	2.6
North: Newland Street													
2	T1	575	8.4	575	8.4	0.763	32.3	LOS C	18.8	140.8	0.90	0.84	11.8
1	R2	104	3.4	104	3.4	0.763	48.2	LOS D	9.4	68.8	0.97	0.97	7.0
Approach		679	7.6	679	7.6	0.763	34.8	LOS C	18.8	140.8	0.91	0.86	10.9
West: Oxford Street													
12	L2	190	27.8	187	27.8	0.239	19.0	LOS B	4.9	42.1	0.60	0.71	22.3
10	R2	173	2.1	171	2.1	0.260	27.8	LOS B	5.6	39.9	0.75	0.75	18.7
Approach		363	15.6	358N1	15.5	0.260	23.2	LOS B	5.6	42.1	0.67	0.73	20.3
All Vehicles		1802	6.5	1797N1	6.5	0.988	46.4	LOS D	24.8	175.1	0.90	1.03	7.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		150	41.8	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 110 [Newland Street / Grafton Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 95 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	40	0.0	40	0.0	0.394	8.9	LOS A	5.0	35.9	0.26	0.26	43.4
8	T1	424	2.3	423	2.2	0.394	4.4	LOS A	5.0	35.9	0.26	0.26	37.9
7	R2	262	0.5	261	0.5	0.657	41.4	LOS C	10.1	70.7	0.92	0.96	15.5
Approach		726	1.5	724 N1	1.5	0.657	18.0	LOS B	10.1	70.7	0.50	0.51	24.4
East: Grafton Street													
6	L2	252	12.9	252	12.9	1.007	123.4	LOS F	22.8	177.0	1.00	1.44	4.8
5	T1	210	2.3	210	2.3	1.596	1112.5	LOS F	101.5	723.2	1.00	4.60	1.8
4	R2	74	1.6	74	1.6	1.596	1117.0	LOS F	101.5	723.2	1.00	4.60	0.9
Approach		536	7.2	536	7.2	1.596	648.1	LOS F	101.5	723.2	1.00	3.12	1.8
North: Newland Street													
3	L2	73	0.0	73	0.0	0.079	11.2	LOS A	1.1	7.4	0.53	0.66	31.6
2	T1	382	0.6	382	0.6	0.925	51.4	LOS D	23.3	163.9	0.98	1.20	7.1
Approach		455	0.5	455	0.5	0.925	45.0	LOS D	23.3	163.9	0.91	1.11	9.4
West: Grafton Street													
12	L2	12	10.0	12	10.0	0.862	61.0	LOS E	5.8	42.0	1.00	1.02	19.4
11	T1	98	2.4	98	2.4	0.862	56.4	LOS D	5.8	42.0	1.00	1.02	21.1
10	R2	29	0.0	29	0.0	0.222	51.9	LOS D	1.3	9.4	0.97	0.72	18.1
Approach		139	2.6	139	2.6	0.862	55.9	LOS D	5.8	42.0	0.99	0.96	20.4
All Vehicles		1856	3.0	1854 N1	3.0	1.596	209.6	LOS F	101.5	723.2	0.78	1.45	4.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 42.4 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	50	22.3	LOS C	0.1	0.1	0.69	0.69
P3	North Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	8.9	LOS A	0.1	0.1	0.43	0.43
All Pedestrians		200	28.7	LOS C			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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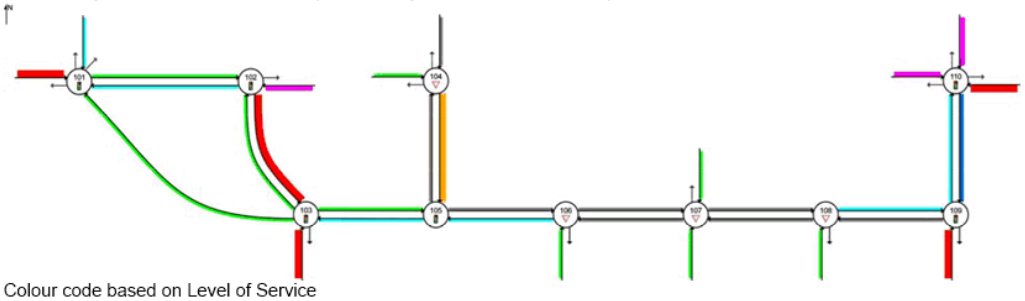
APPROACH LEVEL OF SERVICE

Approach Level of Service for Network Sites

Network: N101 [Oxford Street West Precinct]

Saturday Future + Dev Network
Network Cycle Time = 100 seconds (Network Cycle Time - User-Given)



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | TWSC Major Rd (HCM LOS Rule)

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Delay model settings are specified for individual Sites forming the Network.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 101 [Syd Einfield Drive / Oxford Street / Ocean Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Oxford Street													
18	L1	998	4.6	998	4.6	0.780	14.4	LOS A	23.1	167.9	0.70	0.79	44.7
Approach		998	4.6	998	4.6	0.780	14.4	LOS A	23.1	167.9	0.70	0.79	44.7
East: Syd Einfield Drive													
5	T1	1495	2.4	1472	2.4	0.385	6.6	LOS A	11.8	84.2	0.41	0.37	52.1
4	R2	861	2.6	848	2.7	0.892	43.0	LOS D	20.7	148.5	0.93	0.94	12.6
Approach		2356	2.5	2319 N1	2.5	0.892	19.9	LOS B	20.7	148.5	0.60	0.58	36.5
North: Ocean Street													
17	L3	6	0.0	6	0.0	0.678	28.2	LOS B	12.7	90.8	0.78	0.79	17.0
1	L2	708	2.9	708	2.9	0.678	27.3	LOS B	12.7	91.3	0.78	0.79	10.8
Approach		714	2.9	714	2.9	0.678	27.3	LOS B	12.7	91.3	0.78	0.79	10.9
West: Oxford Street													
12	L2	126	1.9	126	1.9	0.132	16.1	LOS B	2.9	20.9	0.53	0.68	43.1
19	L1	172	0.0	172	0.0	0.291	21.5	LOS B	4.9	34.5	0.63	0.71	39.3
11	T1	2819	3.0	2819	3.0	1.026	136.2	LOS F	89.9	645.2	1.00	1.78	13.0
Approach		3117	2.8	3117	2.8	1.026	125.1	LOS F	89.9	645.2	0.96	1.68	14.1
All Vehicles		7185	3.0	7149 N1	3.0	1.026	65.7	LOS E	89.9	645.2	0.79	1.11	20.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	39.7	LOS D	0.1	0.1	0.89	0.89
P41	West Stage 1	50	22.5	LOS C	0.1	0.1	0.67	0.67
P42	West Stage 2	50	39.7	LOS D	0.1	0.1	0.89	0.89
All Pedestrians		150	34.0	LOS D			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 102 [Syd Einfield Drive / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	648	2.6	602	2.7	0.313	11.6	LOS A	5.8	41.8	0.40	0.66	10.5
Approach		648	2.6	602N1	2.7	0.313	11.6	LOS A	5.8	41.8	0.40	0.66	10.5
East: Syd Einfield Drive													
6	L2	67	7.2	67	7.2	0.918	60.5	LOS E	35.6	255.8	1.00	1.17	32.4
5	T1	1708	2.5	1708	2.5	0.918	53.5	LOS D	36.3	259.4	1.00	1.16	32.9
Approach		1775	2.6	1775	2.6	0.918	53.8	LOS D	36.3	259.4	1.00	1.16	32.9
West: Syd Einfield Drive													
11	T1	2226	2.2	2178	2.2	0.390	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
10	R2	1302	4.4	1273	4.4	0.903	17.0	LOS B	12.5	91.1	0.19	0.69	16.9
Approach		3528	3.0	3451N1	3.0	0.903	6.3	LOS A	12.5	91.1	0.07	0.25	52.8
All Vehicles		5950	2.8	5828N1	2.9	0.918	21.3	LOS B	36.3	259.4	0.39	0.57	41.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 103 [Oxford Street / York Road]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: York Road													
9	L2	344	1.0	344	1.0	0.890	58.9	LOS E	19.8	139.5	1.00	1.03	13.2
8	L1	472	0.8	472	0.8	1.249	505.6	LOS F	105.9	751.8	1.00	3.05	2.0
7	R2	4	100.0	4	100.0	1.249	507.1	LOS F	105.9	751.8	1.00	3.05	2.0
Approach		820	1.4	820	1.4	1.249	318.2	LOS F	105.9	751.8	1.00	2.20	3.0
East: Oxford Street													
6	L2	53	18.4	53	18.4	0.280	8.5	LOS A	3.3	24.6	0.21	0.25	41.6
5	T1	653	6.4	653	6.4	0.904	17.8	LOS B	20.2	149.3	0.45	0.58	14.4
4	R1	176	7.5	176	7.5	0.904	32.8	LOS C	20.2	149.3	0.64	0.84	9.9
Approach		882	7.4	882	7.4	0.904	20.2	LOS B	20.2	149.3	0.47	0.61	15.1
NorthWest: York Road													
3	L1	640	8.6	627	8.6	0.403	2.3	LOS A	0.5	3.9	0.04	0.51	28.9
2	R1	727	1.0	712	1.0	1.740	1375.7	LOS F	5.9	41.8	1.00	4.65	0.8
Approach		1367	4.6	1339N1	4.6	1.740	732.6	LOS F	5.9	41.8	0.55	2.71	0.9
All Vehicles		3069	4.5	3040N1	4.6	1.740	414.2	LOS F	105.9	751.8	0.65	1.96	1.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	8.8	LOS A	0.1	0.1	0.42	0.42
All Pedestrians		50	8.8	LOS A			0.42	0.42

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 104 [Nelson Street / Osmund Lane]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Nelson Street													
9	L2	40	0.0	39	0.0	0.022	2.9	LOS A	0.0	0.0	0.00	0.50	29.2
8	T1	98	1.2	97	1.2	0.051	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		138	0.9	136N1	0.9	0.051	0.8	NA	0.0	0.0	0.00	0.14	38.4
North: Nelson Street													
2	T1	284	1.7	284	1.7	0.181	0.1	LOS A	9.9	70.4	0.07	0.06	40.2
1	R2	37	0.0	37	0.0	0.181	2.8	LOS A	9.9	70.4	0.07	0.06	27.3
Approach		321	1.5	321	1.5	0.181	0.4	NA	9.9	70.4	0.07	0.06	35.4
West: Osmund Lane													
12	L2	32	0.0	32	0.0	0.099	4.1	LOS A	0.3	1.8	0.24	0.55	23.0
10	R2	32	0.0	32	0.0	0.099	6.6	LOS A	0.3	1.8	0.24	0.55	22.6
Approach		64	0.0	64	0.0	0.099	5.3	LOS A	0.3	1.8	0.24	0.55	22.8
All Vehicles		523	1.1	521N1	1.2	0.181	1.1	NA	9.9	70.4	0.07	0.14	32.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 105 [Oxford Street / Nelson Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
East: Oxford Street													
5	T1	610	10.0	610	10.0	0.521	18.3	LOS B	3.8	28.1	0.72	0.64	5.1
4	R2	42	0.0	42	0.0	0.521	25.6	LOS B	3.8	28.1	0.78	0.70	4.0
Approach		652	9.4	652	9.4	0.521	18.8	LOS B	3.8	28.1	0.73	0.65	5.0
North: Nelson Street													
3	L2	42	2.8	42	2.8	0.067	25.2	LOS B	1.3	9.6	0.68	0.68	5.4
1	R2	274	1.3	274	1.3	0.912	66.2	LOS E	6.2	44.1	0.99	1.11	2.0
Approach		316	1.5	316	1.5	0.912	60.8	LOS E	6.2	44.1	0.95	1.06	2.2
West: Oxford Street													
12	L2	95	1.3	93	1.3	0.114	14.1	LOS A	1.7	12.0	0.35	0.59	18.0
11	T1	551	10.5	539	10.4	0.570	12.8	LOS A	13.0	98.9	0.54	0.49	18.3
Approach		646	9.1	632 N1	9.1	0.570	13.0	LOS A	13.0	98.9	0.51	0.50	18.2
All Vehicles		1614	7.7	1600 N1	7.8	0.912	24.8	LOS B	13.0	98.9	0.69	0.67	7.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	50	14.6	LOS B	0.1	0.1	0.54	0.54
P4	West Full Crossing	50	26.0	LOS C	0.1	0.1	0.72	0.72
All Pedestrians		100	20.3	LOS C			0.63	0.63

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 106 [Oxford Street / Ruthven Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Ruthven Street													
9	L2	50	2.4	50	2.4	0.288	4.4	LOS A	0.7	4.9	0.57	0.71	9.6
7	R2	30	4.0	30	4.0	0.288	20.4	LOS B	0.7	4.9	0.57	0.71	9.6
Approach		80	3.0	80	3.0	0.288	10.4	LOS A	0.7	4.9	0.57	0.71	9.6
East: Oxford Street													
6	L2	41	0.0	41	0.0	0.180	4.3	LOS A	8.4	62.9	0.00	0.07	38.9
5	T1	601	10.0	601	10.0	0.180	0.0	LOS A	8.4	62.9	0.00	0.03	47.4
Approach		642	9.3	642	9.3	0.180	0.3	NA	8.4	62.9	0.00	0.03	46.5
West: Oxford Street													
11	T1	549	10.7	537	10.7	0.365	1.0	LOS A	0.0	0.0	0.17	0.05	28.2
10	R2	45	0.0	44	0.0	0.365	8.0	LOS A	0.0	0.0	0.17	0.05	26.8
Approach		594	9.9	582 N1	9.9	0.365	1.5	NA	0.0	0.0	0.17	0.05	28.0
All Vehicles		1316	9.2	1303 N1	9.3	0.365	1.4	NA	8.4	62.9	0.11	0.08	35.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 107 [Oxford Street / Mill Hill Road / Leswell Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Mill Hill Road													
9	L2	28	8.5	28	8.5	0.115	7.6	LOS A	0.3	2.4	0.66	0.81	29.7
8	T1	8	0.0	8	0.0	0.115	15.7	LOS B	0.3	2.4	0.66	0.81	30.5
7	R2	7	0.0	7	0.0	0.115	21.5	LOS B	0.3	2.4	0.66	0.81	29.7
Approach		43	5.5	43	5.5	0.115	11.3	LOS A	0.3	2.4	0.66	0.81	29.9
East: Oxford Street													
5	T1	588	10.1	588	10.1	0.381	0.7	LOS A	5.7	42.9	0.15	0.05	39.9
4	R2	47	2.6	47	2.6	0.381	9.0	LOS A	5.7	42.9	0.15	0.05	34.8
Approach		635	9.5	635	9.5	0.381	1.3	NA	5.7	42.9	0.15	0.05	39.2
North: Leswell Street													
3	L2	60	2.0	60	2.0	0.208	6.1	LOS A	0.6	4.6	0.65	0.81	13.9
1	R2	26	0.0	26	0.0	0.208	21.2	LOS B	0.6	4.6	0.65	0.81	13.9
Approach		86	1.4	86	1.4	0.208	10.6	LOS A	0.6	4.6	0.65	0.81	13.9
West: Oxford Street													
12	L2	36	0.0	35	0.0	0.319	4.3	LOS A	0.0	0.0	0.00	0.03	27.9
11	T1	542	11.1	531	11.0	0.319	0.0	LOS A	0.0	0.0	0.00	0.03	47.2
Approach		578	10.4	566 N1	10.4	0.319	0.3	NA	0.0	0.0	0.00	0.03	44.2
All Vehicles		1343	9.3	1331 N1	9.3	0.381	1.8	NA	5.7	42.9	0.13	0.12	36.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 108 [Oxford Street / Denison Street]

New Site
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Denison Street													
9	L2	385	2.2	385	2.2	0.572	7.6	LOS A	3.4	24.5	0.43	0.67	22.3
7	R2	34	0.0	34	0.0	0.572	13.8	LOS A	3.4	24.5	0.43	0.67	22.3
Approach		419	2.0	419	2.0	0.572	8.1	LOS A	3.4	24.5	0.43	0.67	22.3
East: Oxford Street													
6	L2	40	0.0	40	0.0	0.164	4.6	LOS A	0.0	0.0	0.00	0.08	44.4
5	T1	250	19.7	250	19.7	0.164	0.0	LOS A	0.0	0.0	0.00	0.08	47.6
Approach		290	17.0	290	17.0	0.164	0.6	NA	0.0	0.0	0.00	0.08	47.0
West: Oxford Street													
11	T1	330	17.1	324	17.0	0.375	1.2	LOS A	2.7	20.5	0.45	0.29	28.7
10	R2	278	1.3	273	1.3	0.375	6.1	LOS A	2.7	20.5	0.45	0.29	33.7
Approach		608	9.9	597N1	9.8	0.375	3.4	NA	2.7	20.5	0.45	0.29	31.6
All Vehicles		1318	8.9	1306N1	9.0	0.572	4.3	NA	3.4	24.5	0.35	0.36	32.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
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.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 109 [Oxford Street / Newland Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 95 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	181	0.7	181	0.7	0.993	72.4	LOS F	25.6	180.8	1.00	1.33	2.5
8	T1	584	1.2	584	1.2	0.993	71.4	LOS F	25.6	180.8	1.00	1.35	2.5
Approach		765	1.1	765	1.1	0.993	71.6	LOS F	25.6	181.2	1.00	1.34	2.5
North: Newland Street													
2	T1	575	8.4	575	8.4	0.773	33.0	LOS C	19.2	144.1	0.91	0.86	11.6
1	R2	109	3.3	109	3.3	0.773	50.8	LOS D	9.5	70.0	0.99	1.03	6.6
Approach		684	7.5	684	7.5	0.773	35.8	LOS C	19.2	144.1	0.93	0.89	10.6
West: Oxford Street													
12	L2	191	27.7	187	27.6	0.239	19.0	LOS B	4.9	42.1	0.60	0.71	22.3
10	R2	174	2.1	171	2.1	0.261	27.8	LOS B	5.6	39.9	0.75	0.75	18.7
Approach		365	15.5	358 N1	15.4	0.261	23.2	LOS B	5.6	42.1	0.67	0.73	20.3
All Vehicles		1813	6.4	1807 N1	6.4	0.993	48.5	LOS D	25.6	181.2	0.91	1.05	7.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		150	41.8	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Network: N101 [Oxford Street West Precinct]

Site: 110 [Newland Street / Grafton Street]

New Site
Signals - Fixed Time Coordinated Cycle Time = 95 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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: Newland Street													
9	L2	40	0.0	40	0.0	0.394	8.9	LOS A	5.0	35.8	0.26	0.26	43.4
8	T1	424	2.3	422	2.2	0.394	4.4	LOS A	5.0	35.8	0.26	0.26	37.9
7	R2	263	0.5	262	0.5	0.709	44.3	LOS D	10.6	74.2	0.95	1.00	14.8
Approach		727	1.5	724 N1	1.5	0.709	19.1	LOS B	10.6	74.2	0.51	0.53	23.7
East: Grafton Street													
6	L2	257	12.9	257	12.9	1.081	223.7	LOS F	33.4	259.6	1.00	1.85	2.7
5	T1	210	2.3	210	2.3	1.596	1112.5	LOS F	101.5	723.2	1.00	4.60	1.8
4	R2	74	1.6	74	1.6	1.596	1117.0	LOS F	101.5	723.2	1.00	4.60	0.9
Approach		541	7.2	541	7.2	1.596	690.9	LOS F	101.5	723.2	1.00	3.30	1.7
North: Newland Street													
3	L2	73	0.0	73	0.0	0.077	10.9	LOS A	1.0	7.1	0.52	0.66	31.9
2	T1	382	0.6	382	0.6	0.941	58.4	LOS E	25.1	176.9	0.99	1.28	6.4
Approach		455	0.5	455	0.5	0.941	50.7	LOS D	25.1	176.9	0.92	1.18	8.5
West: Grafton Street													
12	L2	12	10.0	12	10.0	0.862	61.0	LOS E	5.8	42.0	1.00	1.02	19.4
11	T1	98	2.4	98	2.4	0.862	56.4	LOS D	5.8	42.0	1.00	1.02	21.1
10	R2	29	0.0	29	0.0	0.222	51.9	LOS D	1.3	9.4	0.97	0.72	18.1
Approach		139	2.6	139	2.6	0.862	55.9	LOS D	5.8	42.0	0.99	0.96	20.4
All Vehicles		1862	3.0	1859 N1	3.0	1.596	225.1	LOS F	101.5	723.2	0.79	1.53	3.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 35.3 %
Number of Iterations: 10 (maximum specified: 10)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	50	21.6	LOS C	0.1	0.1	0.68	0.68
P3	North Full Crossing	50	41.8	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	8.9	LOS A	0.1	0.1	0.43	0.43
All Pedestrians		200	28.5	LOS C			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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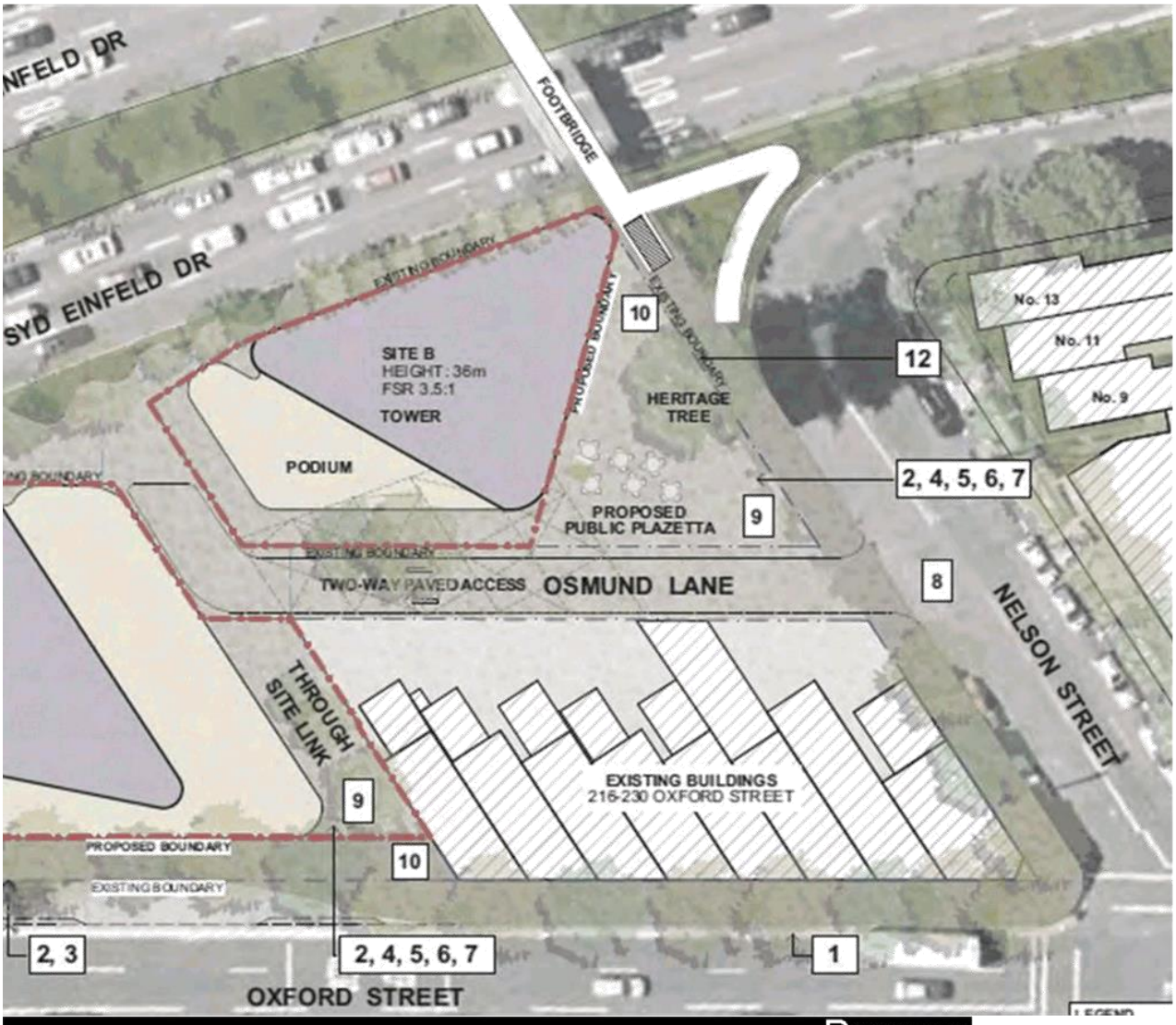
APPENDIX C

ROAD SAFETY AUDIT REPORT

PROPOSED SHARED ZONE AT OSMUND LANE
PRELIMINARY DESIGN ROAD SAFETY AUDIT

FOR

WAVERLEY COUNCIL



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P3313 001R Preliminary Design Stage RSA.doc	F Lau	A Ahmed	A Giyahi	19/06/2017	Angela Hynes angela.hynes@waverley.nsw.gov.au

CONTENTS

Tables

Figures

1. INTRODUCTION

1.1 BACKGROUND

Bitzios Consulting has been commissioned by Waverley Council to undertake a Preliminary Design Road Safety Audit of the proposed shared zone at Osmund Lane. The shared zone is proposed as part of a proposed development application including 194-214 Oxford Street and 2 Nelson Street.

The Road Safety Audit was requested to identify road safety aspects of the proposed shared zone and also to provide recommendations for improvements including possible road treatments and signage. The locality of the study area is shown in Figure 1.1. This report summarises the findings of the road safety audit.

Source: Google Map

Figure 1.1: Locality Map

1.2 SCOPE OF ASSESSMENT

The road safety audit was undertaken in accordance with the procedures set out in the Austroads – Road Safety Audit (2009) manual and the RMS Guide to Road Safety Practices. The audit involved undertaking a Preliminary Design Road Safety Audit for the area highlighted in Figure 1.1.

The audit considered the preliminary design of the proposed shared zone at Osmund Lane (see Figure 1.2) and provides possible recommendations on addressing any safety issues. A layout of the preliminary design is shown in **Appendix A**.

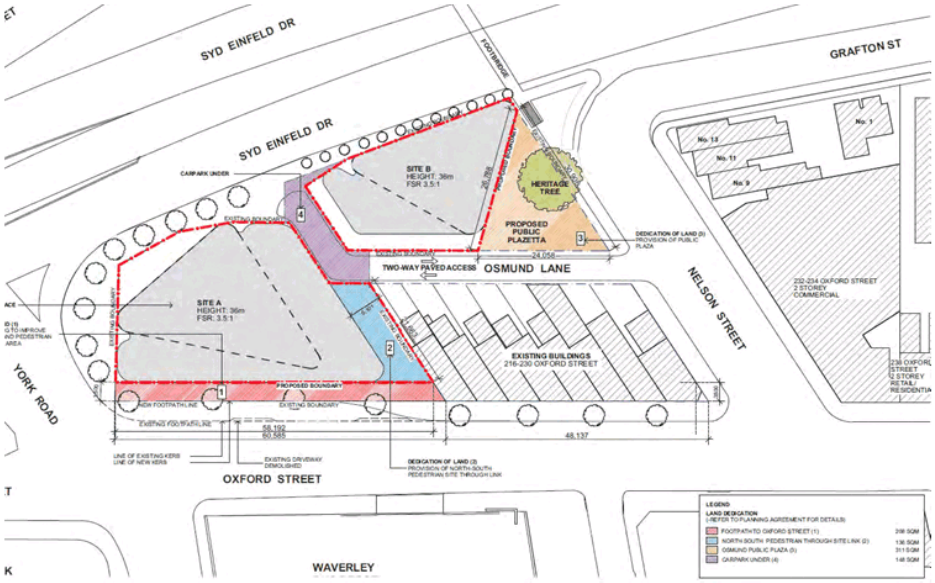


Figure 1.2: Preliminary Design – Shared Zone at Osmund Lane

2. ROAD SAFETY AUDIT PROCESS

2.1 DEFINITIONS

The Austroads Road Safety Manual (2009) guide defines a road safety audit as:

"a formal examination of a future road or traffic project or an existing road, in which an independent, qualified team reports on the project's crash potential and safety performance."

The essential elements of this definition are that it is:

- A formal process and not an informal check;
- An independent process;
- Carried out by someone with appropriate experience and training; and
- Restricted to road safety issues.

The objectives of a road safety audit are:

- To identify potential safety problems for road users and others affected by a road project; and
- To ensure that measures to eliminate or reduce the problems are considered fully.

The benefits of conducting a road safety audit is:

- The likelihood of crashes on the road network can be reduced; and
- The severity of crashes can be reduced.

The aim of a road safety audit is:

"To identify any existing safety deficiencies of design, layout and road furniture which are not consistent with the road's function and use. There should be a consistency of standards such that the road users' perception of local conditions assists safe behaviour."

2.2 METHODOLOGY

The road safety audit was undertaken in accordance with the requirements of the Austroads Road Safety Audit Manual. Items audited as part of the road safety audit included but were not limited to:

- Design issues;
- Alignment details;
- Intersections;
- Special road users;
- Signs and lighting; and
- Traffic management.

2.3 AUDIT TEAM

The road safety audit was carried out by a team comprising:

- Felicia Lau – Level 3 auditor; and
- Arif Ahmed – Level 2 auditor.

2.4 COMMENCEMENT MEETING

Project information and background were provided via email and telephone conversation, without a commencement meeting being held.

2.5 INFORMATION SOURCES

Information for the road safety audit included:

- Indicative Architecture Plans
- RMS Guidelines for Road Safety Audit Practices;
- Austroads Guide to Road Safety; and
- Transport for NSW Safer Speeds (Shared Zones).

2.6 SITE INSPECTION

Site inspection was undertaken on Tuesday, 6 June 2017 at 3:30pm. The weather on the day was fine and visibility was good.

2.7 AUDIT HISTORY

The audit team has not been made aware of any previous audits undertaken for this project.

2.8 RISK ASSESSMENT

The issues identified have been prioritised based on Austroads' standard risk assessment. The risk level is based on a combination of the frequency that a crash type will happen by the severity of the resulting crash. Table 2.1 below is from the Austroads Guide to Road Safety, Part 6.

Table 2.1: Risk Matrix

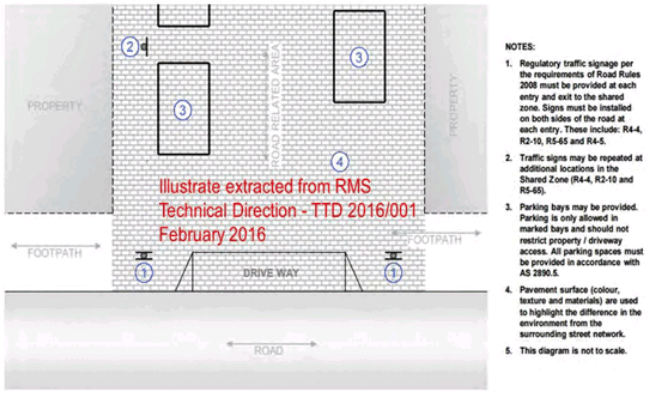
Severity	Frequent	Probably	Occasional	Improbable
Catastrophic	Intolerable	Intolerable	Intolerable	High
Serious	Intolerable	Intolerable	High	Medium
Minor	Intolerable	High	Medium	Low
Limited	High	Medium	Low	Low

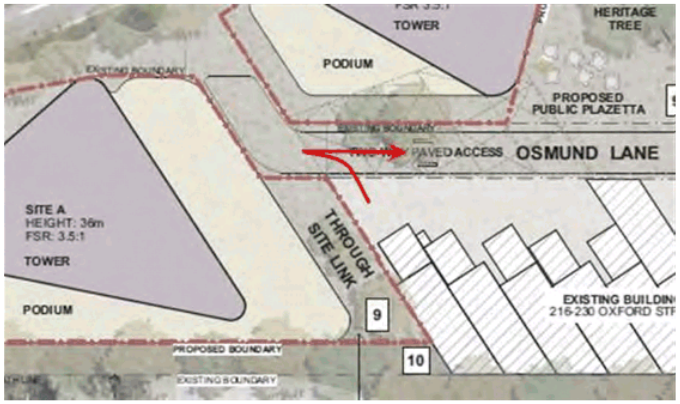
Source: Austroads Guide to Road Safety Part 6 Road Safety Audits

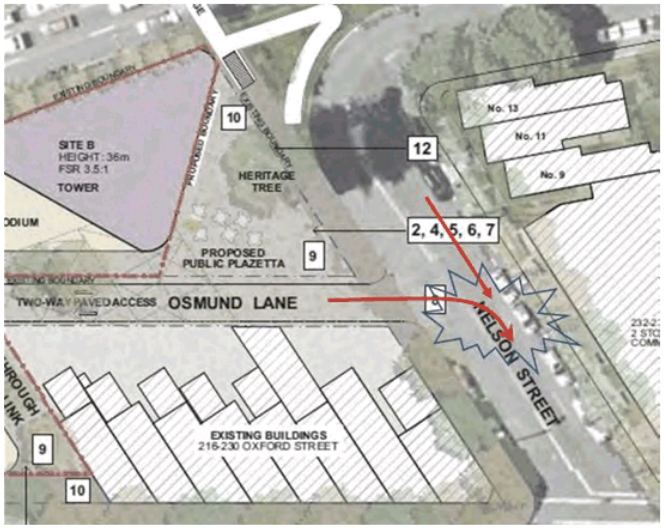
3. PRELIMINARY DESIGN ROAD SAFETY AUDIT

This section summarises the safety issues identified during the audit. The audit findings are outlined in Table 3.1 below.

Table 3.1: Road Safety Audit Findings

Item	Issue	Risk	Site Illustration	Recommendation	Response
1	Shared zone is proposed to be implemented at locations with high pedestrian activity and low traffic volumes (as stipulated in the Transport for NSW Safer Speeds (Shared Zones)). The preliminary calculation of the traffic generated by the proposed residential apartment (94 units) and retail (831m^2) would be approximately 130 vehicles per hour during the critical Thursday PM peak period. The increase in traffic volumes may increase the risk of pedestrian-vehicle crashes.	Medium	 Category 1 shared zone Indicative layout and treatments	The anticipated traffic generated by the proposed development may be managed by limited the visitor parking and/or customer parking for the retail component. The shared zone to be designed in accordance with the RMS design guidelines (including pavement types and signage) to ensure that drivers adhere to the reduced speed limit and also give way to pedestrian.	

Item	Issue	Risk	Site Illustration	Recommendation	Response
2	During the site visit it was observed that vehicles from the existing buildings located on the southern side of Osmund Lane generally reverse out of their garage. When the proposed shared zone is implemented, vehicles will reverse out into the shared zone thereby increasing the risk of collision with pedestrians and cyclists.	Low		It is noted that the number of occurrences vehicles reversing out into the shared zone is predicted to be very low. Therefore crash risk is generally low. Consider providing sound and visual warning when vehicles are exiting the garage. This will improve safety of pedestrian and cyclists at the shared zone.	

Item	Issue	Risk	Site Illustration	Recommendation	Response
3	During the site visit long queues were observed along the Nelson Street approach of the Nelson Street/Oxford Street intersection. The queues often pass the Osmund Lane and reach beyond the existing sharp turn into Grafton Street. During the peak hours, Vehicles turning right out of Osmund Lane would find it difficult to find a suitable gap in traffic on Nelson Street due to the congestion. This may lead to the drivers accepting smaller gaps. This would increases the risk of crashes.	Low		Consider introducing a Keep Clear zone at the intersection. This would allow vehicle to safely join Nelson Street during peak hours.	
4	Adequate sight distance is required for vehicles accessing Osmund Lane. This is to ensure that the inter-visibility between vehicles and pedestrians/cyclists is maintained especially at the Nelson Street intersection.	Medium	- No Illustration -	During the design stage ensure that the pedestrian sight lines are in accordance with the standards/guidelines and consider providing continuous footpath treatment at the Nelson Street / Osmund Lane intersection.	

Item	Issue	Risk	Site Illustration	Recommendation	Response
5	There is an existing cycle right turning facility near the sharp turn. Cyclists approaching along Grafton Street wait at the refuge on Grafton Street to turn right into the shared facility. With the increase in background traffic and additional traffic from the proposed development, traffic volumes on Nelson Street will increase in the future. The increase in traffic volumes would reduce the available safe gaps for cyclists. This may lead to cyclists accepting smaller gaps. This is likely to increase the crash risk between vehicles and cyclists.	Medium		Re-paint the existing pavement marking and also provide additional traffic signs to warn driver on Nelson Street to be aware of cyclist crossing at this point.	

Item	Issue	Risk	Site Illustration	Recommendation	Response
6	The preliminary design does not show any turnaround area at the end of the Osmund Lane. Service vehicle entering Osmund Lane would be required to reverse within the shared zone and this may increase the risk of pedestrian-vehicle type crashes.	Low		Consider providing a turnaround bay with the minimum design vehicle type of a waste collection vehicle	
7	Provision of proper lighting is critical to ensure that pedestrians and cyclists are visible to vehicle drivers during the hours of darkness or inclement weather conditions. Lack of proper lighting at the intersections as well as at the shared path could lead to crashes between vehicles and pedestrians/cyclists.	Low	- No Illustration -	During the design stage provide proper lighting at the intersections and at the shared path.	

3.1 CONCLUDING STATEMENT

We have examined the preliminary design plans and the existing site. The audit has been carried out to identify any features of the project which could be altered or removed to improve safety.

Felicia Lau, Level 3 Road Safety Auditor (Lead Auditor)

Arif Ahmed, Level 2 Road Safety Auditor (Team member)

APPENDIX A

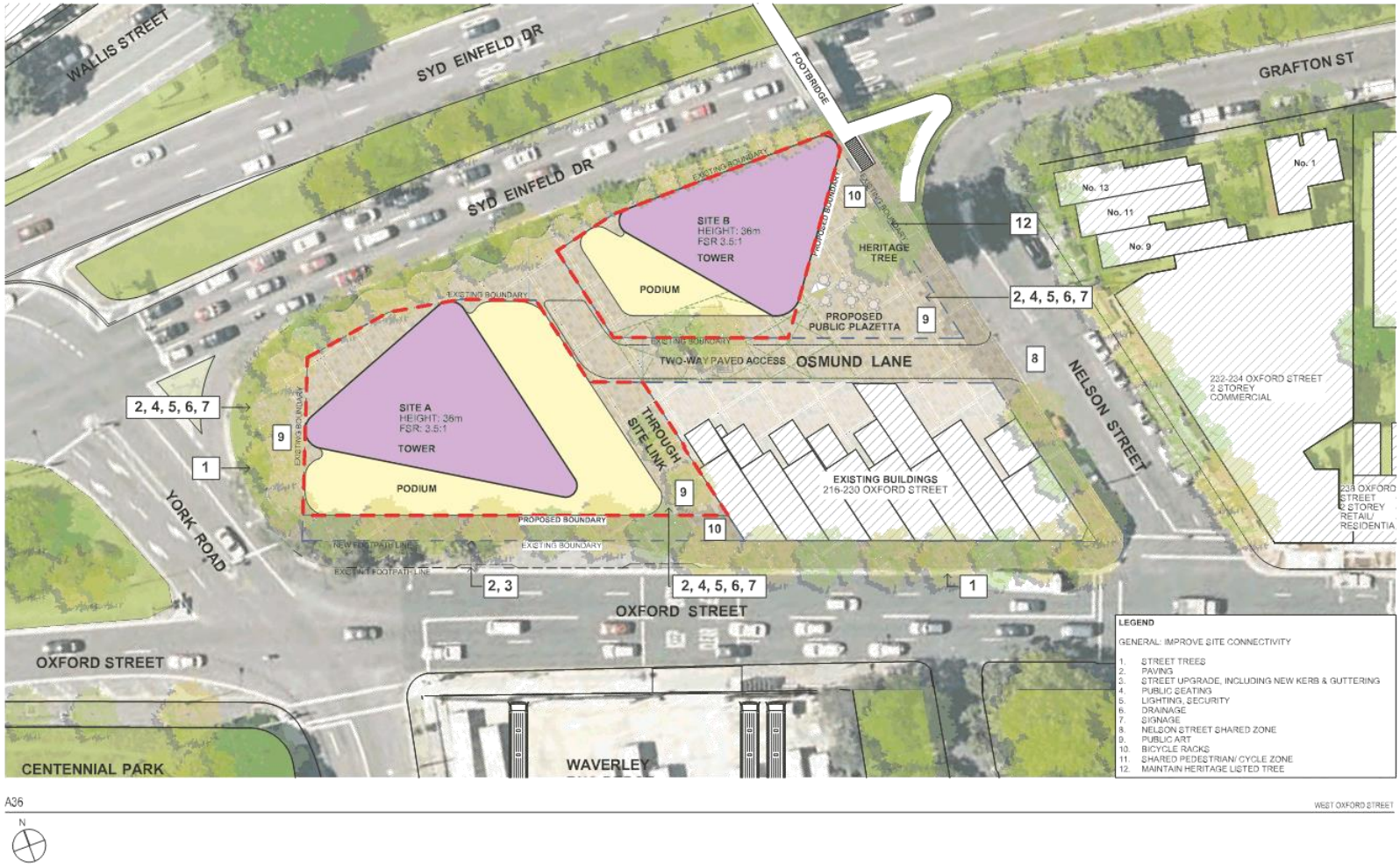
PRELIMINARY PLANS

SCALE 1:500

INDICATIVE PUBLIC WORKS PLAN

The public domain improvements that can be offered for each of the development sites are as follows:

SITE A: Through site link, Road widening, Public domain works for Site A generally.
SITE B: Plazette, Osmond Lane Shared Zone, Public domain works for Site B generally.



PLANNING BUILDING HERITAGE URBAN DESIGN CITY PLAN SERVICES

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	Key Issue	Summary	Frequency	Response
Support/ No Objection				
1.	Utility provisions	Ausgrid and Sydney Water: There is sufficient capacity within the existing network to service the development		Noted.
2.	Neighbouring Council – Randwick City Council	Objectives of achieving sustainable transport such as encouraging pedestrian and cycling are supported. The PP provides an opportunity to improve the road layout of Bond Junction. The site is reasonably well separated from Centennial Park and it therefore will not significantly impact the streetscape setting or views to and from the Park.		Noted.
Objection				
3.	Traffic	The proposed development will lead to increased congestion on the local road network (along York Street, as well as the intersection at Oxford Street) and contribute to a high demand for on-street parking due to the number of car parking spaces proposed.	72%	As demonstrated in the Traffic Report prepared by GTA Consultants, the surrounding road network is capable of accommodating the traffic movements associated with the PP. One of the benefits associated with the proposal is the potential dedication of land along Oxford Street. This will facilitate improvements to the Oxford Street / York Road intersection including the potential introduction of a dedicated right turn lane travelling west which would alleviate queuing along Oxford Street at peak times. The PP demonstrates that the site is capable of providing adequate parking to comply with Council's guidelines. It is generally considered best practice to minimise parking in close proximity to major public transport nodes. However, additional parking could be provided at DA stage.

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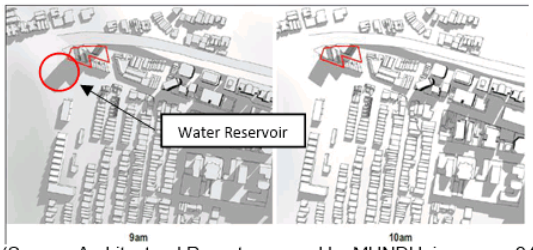
4.	Density	The proposed development standards are considered to be an overdevelopment of the site with an excessive height and FSR, resulting in overshadowing, wind tunnels, decreased natural sunlight	48%	Bondi Junction, given it highly accessible location and concentration of existing high density land uses, has been classified as a District Centre in the Draft Central District Plan. Bondi Junction is therefore expected to accommodate additional high density development to support this classification. The PP proposes a height of 36 metres which is well below other existing buildings in the vicinity which have heights of up to 75 metres. The proposal will therefore not create a precedent for the area. As demonstrated in the PP documentation, the proposal is anticipated to have minimal adverse impacts such as shadowing. Further detailed design will be undertaken at Development Application stage.
5.	Precedent	The proposal would create a precedent for high rise development in the locality, and will result in a high-rise dominant skyline extending from the eastern side of Bondi Junction to the western side.		
6.	Impacts on Centennial park	The proposed development will significantly impact on Centennial Park, by virtue of: • Overshadowing; • Visual impacts; The proposed development would also be a detriment to the "old Bondi Junction"	39%	Any shadowing impacts to Centennial Park are anticipated to be limited to a small part of the north-eastern corner which is generally not utilised by the public given the location of the water reservoir. Shadowing is expected mainly occurring in the morning from 9 -10 am. Reference to the page 24 of the Architectural Report lodged with the PP should be made for specific details.  (Source: Architectural Report prepared by MHNDUnion, page 24) A Photomontage Certification Report has been prepared by Richard Lamb & Associates and provided at Appendix 1. There is no doubt that when viewed from Centennial Park's Oxford Street frontage the indicative building envelopes would be visible. The purpose of

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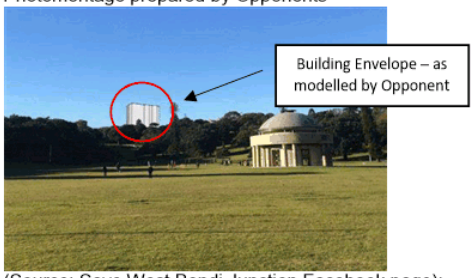
				this report however is to illustrate that the proposed development, when viewed from heavily utilised areas of the Park, such as the Federation Pavilion, will have minimal to no visual impacts. The report has assessed key views from within the park and compared the photomontages prepared by the opponents of the redevelopment received by Council during public exhibition. The report demonstrates that "the photomontages prepared by opponents of the proposal are not accurate and they do not appear to show the likely form, orientation, scale, height, width or location of the buildings correctly." A comparison of the key views has been provided to illustrate the proposed redevelopment is no taller than the surrounding tree canopy when viewed from within Centennial Park. Minimal to no visual impact is therefore expected. Photomontage prepared by Opponents  (Source: Save West Bondi Junction Facebook page):

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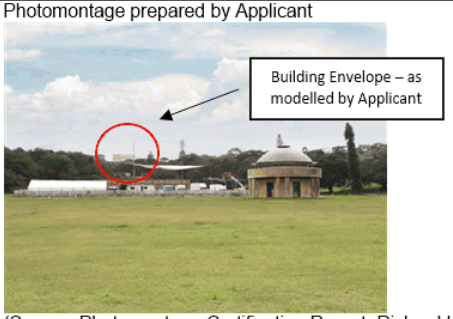
				Photomontage prepared by Applicant  (Source: Photomontage Certification Report, Richard Lamb & Associates)
7.	Heritage	The proposal would have significant impact on the heritage significance of the locality, including: • The demolition of any heritage terrace • The Mill Hill Conservation Area Suggested Council incorporate terraces into broader design option that would extent the heritage character of Oxford Street to subject sites when viewed from the east.	34%	The Heritage Impact Assessment prepared by Urbis and lodged with the PP demonstrates, the amenity of the existing terraces in terms of access, pollution and noise is very poor and the structures are showing the physical effects of significant subsidence. It is therefore recognised that redevelopment would be necessary in substantially improving the amenity of those residing on the site, and improving the amenity for the community in general by providing extending retail uses, public land and community facilities. If the terraces were retained the proposal could not include the dedication of land for road widening which is essential to improve traffic within the town centre.
8.	Neighbourhood	The proposed development would negatively impact on the "village feel" of West Oxford Street and would not be an appropriate addition to the area.	22%	The site is located in the Bondi Junction District Centre, which comprises of existing buildings of up to 75 metres. The proposed height of 36 metres is therefore substantially lower. The growth of Bondi Junction is envisaged by the State Government in the draft Central District Plan in order to meet the housing and employment needs of our community. Therefore, the village feel will change over time. A site-specific Development Control Plan (DCP) is proposed for the site's redevelopment. This DCP, which was concurrently exhibited with the PP, outlines a series of controls to inform the site's redevelopment including a

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				requirement that the podium level is to reflect a terrace-like subdivision pattern. This control will ensure the proposal retains a human scale and improved public domain.
9.	School pressure	The proposal would place pressure on primary schools such as Woollahra Public School and local childcare centres due to the increase of primary school students and no proposed expansion to the school. The proposal may also exclude people form the Woollahra Public School catchment area	11%	The Department of Education (DoE) is anticipating significant growth within this school catchment and is making the appropriate arrangements to increase its capacity. No response or objection was received from DoE during the proposal's exhibition period. In 2015, the Sydney East Joint Regional Planning Panel approved a development to increase the capacity of the Bellevue Hill Public School (2km from the subject site) from 550 students to approximately 1,000 students.
10.	Public infrastructure	The proposal would increase people using Bondi Junction Railway Station, which is already congested along the single-file escalator to the platform.	4%	The State Government is investing record amounts into public infrastructure in Sydney to increase efficiency and customer experience. No objection was received from Transport for New South.
11.	Pedestrian safety	The proposed development might have safety impacts with regard to children and parents crossing Oxford Street and an apparent lack of pedestrian crossings.	2%	The existing traffic network along Oxford Street provides a poor urban form and conflicts with pedestrian and cyclist use. The proposal has the potential to improve vehicular, cycling and pedestrian safety by proving land dedication which could be used to increase the capacity of the surrounding road network. This directly responds and assists Council in providing and improving cycle links within Bondi Junction, which is a specific priority of the 'Draft Waverley's People, Movement and Place: where we go and how we get there" Strategy which is currently on public exhibition. No submission/objection was received from the Roads and Maritime Services regarding pedestrian safety.
12.	Retail tenancies	The proposal would impact on the existing retail strip by removing on-street parking outside existing retail businesses and impacts from the proposed new retail spaces on existing businesses. The representation of the existing retail tenancies as "struggling" and	1%	The redevelopment of the site will not impact the ongoing operation of existing businesses. Rather the increase in population has the potential to support the ongoing businesses within the centre. Non-residential floorspace (retail and commercial) is currently permissible on the subject site.

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		"underperforming" is perceived to be incorrect, as the retail strip is thriving and active.		Any non-residential floorspace is expected to include convenience retail and commercial land uses. This will provide services and jobs for the future occupants of the development.
13.	Proposed plaza	The proposed plaza does not create an adequate or useable through-site link	1%	Approximately 19% of the site has been dedicated to the proposed public plaza and through site link. The location has been determined based on a detailed urban design analysis and in consultation with Council. Its inclusion in the redevelopment is necessary in order to promote pedestrian activity and a good urban design outcome.
14.	Amenity	The siting of the proposed development (specifically, the northern boundary facing Syd Enfield Drive), would result in amenity impacts such as noise and air pollution to the proposed dwellings.	< 1%	Appropriate design techniques and features will be incorporated at DA stage to ensure all dwellings comply with the relevant amenity, noise and air quality standards.

rla
richard lamb & associates

Bondi Junction Planning Proposal
194 to 214 Oxford Street and 2 Nelson Street

Photomontage Certification Report

Prepared for City Plan Strategy and Development

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April 2017

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1.0 Purpose of Report

Richard Lamb and Associates (RLA) have been engaged by City Plan Strategy and Development (City Plan) to provide certification of the adequacy and accuracy of block model photomontages prepared by the project architects for the proponents, Westgate BJ Pty Ltd, of a Planning Proposal for two sites at 194-214 Oxford Street and 2 Nelson Street, Bondi Junction. The photomontages were prepared in response to graphic representations purporting to demonstrate the likely visual impacts of the Planning Proposal on views from Centennial Park, which were posted on FaceBook and published in the the local press by community opponents of the planning proposal.

RLA were consulted by City Plan on behalf of the proponents to comment on whether the graphic material published by opponents of the proposal were likely to be reasonable representations of the appearance of the proposal.

RLA has extensive experience in visual impacts assessment in which we specialise. The principal and author of this report, Dr Richard Lamb, has over 30 years' experience in the field of visual analysis and assessment of visual impacts, view loss and view sharing.

RLA have been involved in the preparation of visual analysis and heritage view studies in relation to many Major Project Applications, Urban Design studies and Planning Proposals and are familiar with this area. Dr Lamb's CV can be found on our website www.richardlamb.com.au. RLA have been involved in a number of planning proposals in Brookvale, Dee Why, Menangle, Harbord, Somersby, Gosford, Putney Hill, North Ryde, Homebush, Terrigal, Wentworth Point, Shepherds Bay, Gladesville, Yarrawarra and other locations. We have also been involved in a number of projects and planning proposals in which the Department of Planning and Environment or other government authorities have requested view analysis work and photomontage certification, the visualisation work for which we have supervised and certified for accuracy.

Three photomontages have been prepared by MHNDUnion architects on the direction of RLA to provide accurately prepared visualisations of the proposed development from the two locations that were chosen by opponents of the proposal, referred to above, and a further representative viewing place in the northern part of Centennial Park.

MHDNUnion have prepared photomontages to assist in analysis of the urban design and visual impacts of the proposed building envelopes, being;

a) View north-east from close to the south-east corner of the Paddington Reservoir adjacent to York Road on the margins of Centennial Park, in a location similar to that represented in one of the photomontages prepared by opponents of the proposal.

b) View east from the western edge of the Centennial Park Reservoir off Oxford Street at the north-east end of the park, which is between approximately 300 and 450m from the subject sites.

c) View north-north-east from a point south-west of the Federation Pavilion in Centennial Park, which is inside the park by about approximately 160m on the axis of the terminus of Birrell Street with York Road and about 600m from the closest of the subject sites. The location provides a view composition that is similar to that represented in one of the photomontages prepared by opponents of the proposal.

This report concerns the process and methodology of preparation of the photomontages and certification that they are a reasonable representation of the likely bulk and scale of future development, if the proposal, having passed through a gateway determination, proceeds to the design of buildings in accordance with the envelopes.

This report does not assess the merits of the visual impacts of the proposal, as this is for the consent authority to determine.

2.0 Proposed Development

City Plan on behalf of their client Westgate BJ Pty Ltd submitted a Planning Proposal to Waverley Council in the first instance and the Department of Planning & Environment (DP&E) as the consent authority, to vary the controls on the sites to permit construction of a mixed-use development up to 36 metres in height on each of two sites in Bondi Junction. The Proposal is to go back to the DP&E for finalisation when Council completes assessment of public submissions.

3.0 Surrounding Visual Context and External Visibility

The sites are included in the 'Western Precinct' of Bondi Junction and are located on the northern side of Oxford Street. Site 1 is the western site and has road frontages to Oxford Street and Syd Einfeld Drive with Site 2 to its east which has road frontages to Osmand Lane, Nelson Street and Oxford Street. The sites are generally north-east of the three viewing locations nominated for assessment.

The existing built form on the site is characterised by retail, commercial shop top housing and residential terraces that is predominantly two to three residential storeys in height. Sydney Buses occupy a large commercial site south of the development site and Centennial Park is located to the south-west.

It is obvious that any proposal for buildings in the range of 12-storeys in height, such as would be constructed in an envelope of up to 36m in height, would be visible from the closer parts of Centennial Park, toward the north-east end of the park. The park's topography in relation to Bondi Junction is such that the northern section of the park, which is at its highest elevation and of a similar ground level to part of western Bondi Junction, is exposed to views including taller buildings in Bondi Junction, to varying extents.

The degree of exposure depending on viewer location, intervening topography and vegetation. The higher, northern section of the park which is a local high point was the logical location for the two partly subterranean reservoirs, the Centennial Park and Paddington Reservoirs. From the general vicinity of these, there are varying degrees of visual exposure of urban development in Bondi Junction. The adjacent Reservoir Fields to the west of the Centennial Park Reservoir provide expansive views in all directions, including those that include tall built form in Bondi Junction to the east, much of its significantly taller than the envelopes proposed in the planning proposal.

The topography of the park then falls away toward the south and south-west into the Botany Basin land system where Queens Park, Centennial and Moore Park Parklands are contiguous with the park. Taller buildings in east Bondi Junction are visible from extensive areas of the parklands and the proposed building envelopes would be likely to be visible from some locations.

4.0 Selection of View Locations

The approximate locations of the view places used for the preparation of the three photomontages are shown on Map 1. As described above, two viewing locations (View A and View C) have been used for the preparation of photomontages because they are from similar locations and photographs taken from those locations have similar view compositions to the images used in preparing the photomontages by the opponents of the proposal. Of the two, we consider View C to be representative of views in the central, eastern part of the park, whereas View A, while from a publicly accessible location, is an isolated place adjacent to the edge of the park with relatively low amenity as a result of proximity to roads on two sides and absence of public domain facilities such as roads, paths, lawns, etc. The third location (View B) was chosen as a typical location in the northern part of the park that has a more representative access to views and is more likely to be used by the public for recreation and viewing the park and the locality generally, than the location of View A. The view is partly screened by vegetation, which is typical of views in the northern part of the park. More extensive views of the built form on Bondi Junction are available from further west in the Reservoir Fields.

5.0 Verification of Photomontages

RLA were requested by MHDNUnion to provide guidance as to the preparation of verifiable block-model photomontages which could guide assessment of the merits of the proposed building envelopes. The following advice was provided.

5.1 Principles of verification of photomontages

For the certification of photomontages, the fundamental requirement is that there is a 3D computer model of the proposed development that can be accurately located and merged with representative photographs taken from key viewing places, to produce a photomontage.

RLA have been provided with a 3D model of the proposed buildings in Sketchup. The location and height of the 3D model of the building must be verified with respect to surveyed features of the existing development site and the location of features of the surrounding environment, interpolated from aerial imagery.

A further aid required to assist in verifying the location and height of the proposed building is a 3D wire frame model of visible features of some of the existing buildings on the site based on the site survey. The 3D models of the survey information and of the proposed building envelopes are then merged with digital photographic images of the existing environment.

The key to being able to certify the accuracy of the photomontage resulting from merging the 3D model and photographs is being able to demonstrate that the 3D model of the proposed building envelope has a good fit to known surveyed features of the existing development on the site and of other fixed features either shown on the survey plan or interpretable from aerial imagery, which are visible in the photographs.

A single image photograph is the best base onto which to fit the computer model of the building envelopes. This is because the conventions of perspective which are used by the computer software to generate a 3D image of the proposed development area are relatively consistent with the geometry of a single photographic image because both have a flat ground plane and one centre of view.

5.2 Focal length of lens for photographs

The camera images for the photomontages need to be of sufficient resolution taken with a lens of low distortion. The focal length of the lens used needs to be appropriate for the purpose and the focal length of the lens used to take the single frame photographs has to be known and standardised as far as is possible. The focal length of the lens has no effect on the accuracy of alignment of the 3D model of the buildings with the photographic images.

The reasons for using a specific focal length is determined by the vertical and horizontal scale of the subject of the view. The subject commonly contains elements of vastly different horizontal and vertical scale. In photographing streetscapes and individual buildings, the focal length must be capable of encompassing the buildings and the context so the composition of the view can be perceived an understood.

In the current context, one of the views prepared in objection to the proposal is from close range inside Centennial Park, necessitating use of a lens with a wide field of view to take in the setting and the visible proposed building. The composition of that view in regard to field of view when analysed was found to be similar to the field of view of a 24mm lens, which is a focal length commonly used in architectural photography. The other two views were therefore taken with the same lens, to standardise that aspect of the photomontages.

RLA took the photographs used under standardised conditions, with a professional quality DSLR, the camera levelled horizontally and vertically, set on a tripod mount with the lens 1.6m above ground level, or standard standing eye height. A 24mm fixed focal length lens was used for all photographs used in preparation of the photomontages. The location and RL of the camera lens was surveyed by registered surveyors, who accompanied RLA when the photographs were taken.

5.3 View location documentation

Photographic images were taken from all locations using a Canon EOS 5D Mark 3 camera in JPG and RAW image format.

The location of the camera and level of the lens were surveyed by registered surveyors who accompanied RLA when the base photographs were taken and the XYZ coordinates were added to the 3D model that includes the proposed building envelopes. Additional 3D reference points were also surveyed and added to the existing survey model to increase the accuracy of location of the 3D model of the buildings in relation to the photograph locations. Additional survey points included items such as the Waverley Bus Depot and other buildings and structures in Bondi Junction that are visible in the photographs or can be interpreted from aerial imagery.

5.4 Checking the montage accuracy

The accuracy of the fit of the computer model to the photographs for the block model montages is checked in more than one way. The model is checked for alignment and height with respect to the surveyed fixed features which are visible in the images and with the wireframe model of the existing buildings. MHNDUnion provided a preliminary set of montages for our review that included the 3D model shown over the original RLA photographic image. The alignment of the model was checked with fixed features in the view, including many other buildings in Bondi Junction seen in 3D, to ensure

an accurate 'fit'. RLA found the preliminary set of block model 'wire frame' images to be sufficiently accurate and recommended that a final set of rendered photomontages be prepared. The final set of photomontages can be viewed in Appendix B.

It is not possible for a perfect fit to occur, because of minor distortions that occur with the camera lens and because of significant differences that occur in the visibility of reference objects caused by the distance between the view place and the item used as a reference point.

However, as the photomontages have been prepared to conform with the Land and Environment Court of New South Wales practice note for the preparation of photomontages to be used in evidence in the Court, they can be certified as being as accurate as in reasonably possible in the circumstances.

It is clear when the accurately prepared photomontages are compared to the representations prepared by opponents of the planning proposal (see Section 6.0, below), that the latter have over-stated the likely visibility and bulk of the proposed buildings, which are also incorrectly scaled, detailed and located.

6.0 Comparison of visual impacts of the photomontages

We are not aware of the method used in the preparation of the photomontages prepared by the opponents of the proposal, however in our opinion, based on a comparison of these with the MHNDUnion photomontages, which were prepared to comply with the Land and Environment Court of New South Wales practice direction for preparation of photomontages for use in evidence in the Court, they do not appear to reflect the likely appearance, scale or accurate location of the proposed buildings.

For example, in View A the height and width of the proposed development envelope of the nearest proposed building is over-stated so that is appears in the image to be a similar height to the closest tree shown to its right. There is no doubt that from such a close viewing place to the edge of the park that the building envelopes would be visible. However, analysis of the photomontages prepared by MHNDUnion show that the proposed development envelope would appear to be substantially lower and narrower in width in this view than as depicted by the opponents of the proposal.

In support of this observation, the MHNDUnion photomontage shows the second building envelope behind and to the east of the closer building envelope, whereas on the photomontage prepared by the opponents of the proposal, the closest building is clearly over-scaled in width and is therefore shown to be closer to the viewer than in reality. It appears to fill the space beginning at the western-most of two palm trees in the left of the image and a branch on the left side the large fig tree in the foreground on the right. Part of the branch also appears to have been truncated somehow, possibly as a result of the image of the building being superimposed on the image of that part of the tree, rather than appearing to be behind it. In the MHNDUnion photomontage, the building is lower and significantly narrower, revealing both palm trees on the left and finishing before the branch of the fig tree, which has not been truncated and which has none of the closest building visible behind it. Further, in the accurate photomontages, the façade of buildings to be retained in front of the proposed buildings is visible, whereas in the photomontage prepared for the opponents of the proposal, these appear to be absent.

Finally, it is clear that the envelope of the building shown in View A by the opponents of the proposal is not correctly orientated relative to the view. The building appears to be seen in elevation (perpendicular to the viewer) with the top parapet horizontal, whereas the building in the MHDNUnion photomontage is clearly angled away from the viewer correctly, relative to the angle of Oxrford Street and as a consequence and with the effect of perspective, the top parapet appears, correctly, to increase in distance from the viewer, from left to right.

In View B, which we consider more representative of the view from an extensively used part of Centennial Park that View A, the building proposed can be seen partly screened by vegetation and not significant taller than the predominant canopy height, while a significant skyline comprising built form in Bondi Junction is also part of the scene, as is the case for many other viewing places in the vicinity. In views from further west in the Reservoir Fields the buildings would be expected to be slightly more visible, however the same principle would apply to the built form or taller buildings elsewhere in the view, which would become more visible.

In View C, the height of the building depicted in the photomontages prepared for the opponents of the proposal is similar to that of an isolated, tall Cook pine that is to the right of the building. In the accurately prepared photomontage by MHNDUnion, the height of the building would appear approximately equivalent in height to the canopy of a tree on the horizon that is two to the left of the Cook pine and significantly lower. However, this is not the only discrepancy. In the view prepared by the opponents in the article quoting Matthew Taylor, the building would largely not be visible at all, as it has been shown in the wrong location, as well as being much higher than would be the case in reality. In the photomontage prepared by MHNDUnion, it can be seen that only the eastern edge of the building would be visible in the photomontages prepared for the opponents of the proposal. The MHNDUnion photomontage presents a more accurate and realistic composition to the view, in which the building would appear widely separated from the Federation Pavilion and to be no taller than the adjacent tree canopies that dominate the horizon of the view.

RLA have verified and certified the process of the preparation of photomontages so that these visual aids can be used as accurate objective aids for the analysis of visual effects and impacts of the proposed development.

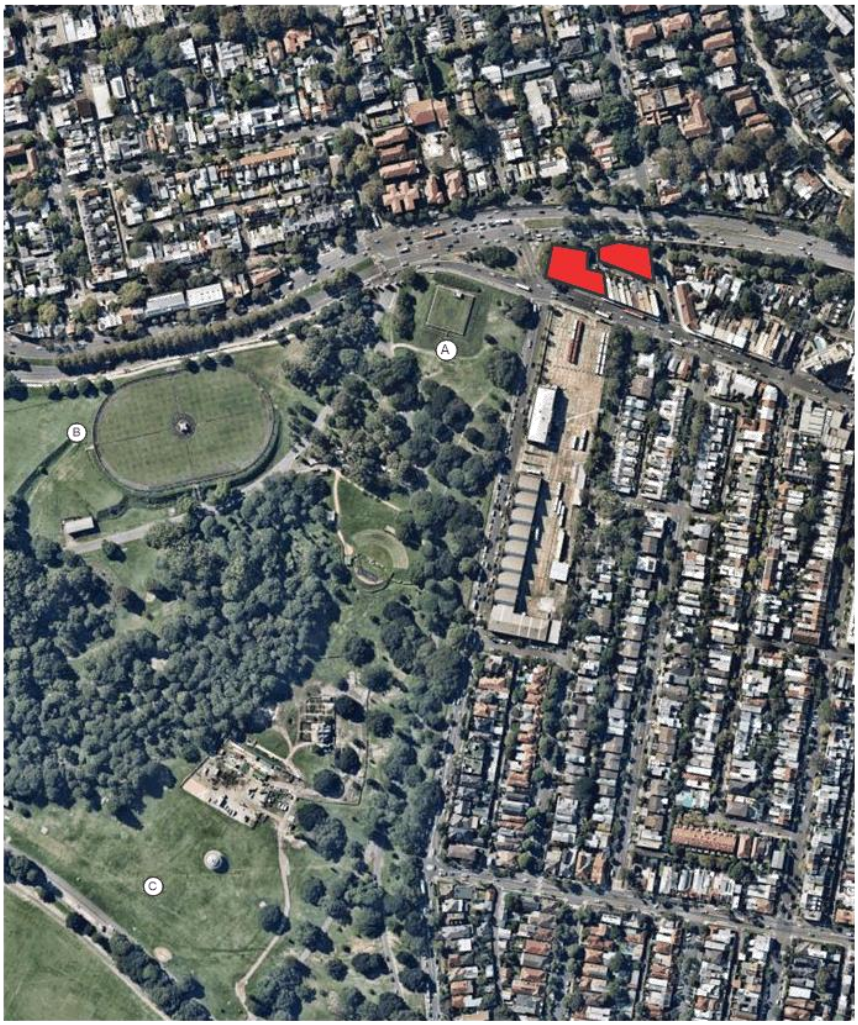
7.0 Conclusion

Based on the information provided to us by City Plan Services and MHNDUunion, a review of their methodology, photography by RLA, supervision of surveyors and the process undertaken for the preparation of rendered photomontages, RLA can certify that the proposed development envelopes as shown are as accurate as is reasonable in the circumstances. The photomontages therefore can be relied upon as objective visual aids for the purposes of the assessment of potential visual effects and impacts of the Planning Proposal.

By comparison, the photomontages prepared by opponents of the proposal are not accurate and they do not appear to show the likely form, orientation, scale, height, width or location of the buildings correctly.

Yours sincerely

Dr Richard Lamb



Map 1: Photomontage view locations

Approximate location of subject sites

(A) Viewing Location (refer to Photographic Figures)

NORTH

Not to Scale

Appendix A: Photographic Plates

Location A: View north-east from near the Paddington Reservoir in Centennial Park

Location B: View north-east across the Centennial Park Reservoir

Location C: View north from close to the Federation Pavillion

Appendix B: Photomontages prepared by MHDNUnion

VIEW ANALYSIS VIEW A

EXISTING

VIEW ANALYSIS

WEST OXFORD STREET

rla
richard lamb & associates

VIEW ANALYSIS VIEW A

PROPOSED

VIEW ANALYSIS

WEST OXFORD STREET

rla
richard lamb & associates

VIEW ANALYSIS VIEW B

EXISTING

WEST OXFORD STREET

VIEW ANALYSIS

rla
richard lamb & associates

VIEW ANALYSIS VIEW B

PROPOSED

WEST OXFORD STREET

VIEW ANALYSIS

rla
richard lamb & associates

VIEW ANALYSIS VIEW C

EXISTING

VIEW ANALYSIS

WEST OXFORD STREET

rla
richard lamb & associates

VIEW ANALYSIS VIEW C

PROPOSED

VIEW ANALYSIS

WEST OXFORD STREET

Appendix C: Curriculum Vitae

Summary Curriculum Vitae: Dr Richard Lamb

Summary

- Professional consultant specialising in visual and heritage impacts assessment and the principal of Richard Lamb and Associates (RLA).
- Senior lecturer in Architecture, Landscape Architecture and Heritage Conservation in the Faculty of Architecture, Design and Planning at the University of Sydney 1980-2009.
- Director of Master of Heritage Conservation Program, University of Sydney, 1998-2006.
- 30 years' experinence in teaching and research in environmental impact, heritage and visual impact assessment.
- Teaching and research expertise in assessment and interpretation of heritage items and places, cultural transformations of environments, conservation methods and practices, visual perception and cognition, landscape studies, aesthetic assessment and landscape assessment.
- Supervision of Master and PhD students postgraduate students in heritage conservation and environment/behaviour studies.

- Richard Lamb provides:
  - professional services, expert advice and landscape and visual assessments
  - Strategic planning studies to protect and enhance scenic quality and landscape heritage values
  - Scenic and aesthetic assessments in all development scenario contexts, from rural to urban
  - Advice and assessment of view loss, view sharing and landscape heritage impacts
  - Expert advice, evidence and testimony to the Land and Environment Court of NSW and Planning and Environment Court of Queensland in various classes of litigation
  - Specialisation in matters of visual impacts, view loss and landscape heritage in projects including:
    - Urban developments, rezoning and planning proposals, urban renewal and urban release areas
    - Project and proposal visualisation and certification of photomontage preparation
    - Extractive industry, infrastructure, signage and maritime developments
    - Development assessment, strategic planning, landscape conservation
  - Appearances in over 250 Land and Environment Court of New South Wales cases, submissions to several Commissions of Inquiry and the principal consultant for over 1000 consultancies.

- Qualifications
  - Bachelor of Science - First Class Honours double major, University of New England
  - Doctor of Philosophy, University of New England in 1975
- International Journals for which publications have been refereed
  - Journal of Architectural & Planning Research
  - Architectural Science Review
  - People and Physical Environment Research
  - Journal of the Australian and New Zealand Association for Person Environment Studies
  - Journal of Environmental Psychology
  - Australasian Journal of Environmental Management
  - Ecological Management & Restoration
  - Urban Design Review International
- Full CV available on Home page tab of RLA website at www.richardlamb.com.au

REPORT
CM/7.2/17.07

Subject: **Draft Waverley Creative Lighting Strategy**

TRIM No.: A16/0292

Author: Julia Hardiman, Manager, Urban Design and Heritage

Director: Peter Monks, Director, Waverley Futures

RECOMMENDATION:

That Council:

1. Authorises the public exhibition of the Draft Waverley Creative Lighting Strategy attached to this report for a period of 28 days.

2. Notes that a report will be presented to Council following the public exhibition period summarising the outcomes of the feedback and next steps.

1. Executive Summary

Council has engaged lighting designers Steensen Varming, in collaboration with place-makers *Brickfields*, to prepare a Creative Lighting Strategy. Outcomes aim to improve the quality, consistency and efficiency of lighting in Waverley's streets and open spaces. The strategy will provide a coherent approach to ensure public spaces are vibrant by day and remain safe, comfortable and engaging after dark.

The strategy will provide direction for the management and implementation of lighting improvements. It helps create a memorable application of light that integrates social gathering, public health and safety, sustainability and economic vitality into the urban environment. The document makes a range of high level conceptual recommendations, identifying lighting principles to guide designs for all applications of light including capital works upgrades, art installations and private development.

The draft strategy provides general principles and specifications for lighting throughout the entire Waverley local Government Area and provides site-specific recommendations for the following three locations:

1. Bondi Junction
2. Bondi Beach
3. The Costal Walk: Bondi Beach to Clovelly

It is proposed to exhibit the Draft Waverley Creative Lighting Strategy (Attachment 1) for public comment for 28 days. During this time, Council will consult with the community to achieve a high level of communication and feedback. This will include gaining an understanding of the community's priorities for future lighting projects. It is intended to align the exhibition period with the installation of creative lighting pilot projects in the latter half of 2017. An overview of the proposed community engagement and the pilot projects is outlined within this report.

Following public exhibition, the outcomes of the engagement process and recommendations will be presented to Council for final determination.

2. Introduction/Background

Waverley Council does not currently have a strategic document guiding the appropriate application of lighting in public spaces. The current capital works program delivers a disconnected site by site approach to lighting design. In some areas of Waverley lighting has been identified as insufficient, over-lit, unsafe and/or not respectful of surrounding context.

This draft strategy forms part of the Bondi Junction Complete Streets program of works and has been developed alongside the Bondi Junction Evening, Culture and Entertainment Strategy to achieve major enhancements for community safety.

Additionally, the multi-function pole (MFP) network was prepared for Council in 2015. The network was prepared to achieve lighting levels for vehicles (V3 standard) and by default a V2 standard for pedestrian usage. As such the suitability of the proposed pedestrian lighting needed to be reviewed. A more thoughtful approach to lighting is required for pedestrian dominated spaces where vehicles are less frequent or restricted, such as the pedestrian malls, laneways, parks and open spaces and the coastal walk area.

With the various capital works projects underway, the need for an overarching lighting strategy for all public domain projects in Waverley is essential to ensure a coherent and appropriate use of light is established.

3. Relevant Council Resolutions

Council or Committee Meeting and Date	Minute No.	Decision
Operations Committee Meeting 4 February 2014	OCRD.3/14	That Council: A. Endorse the Bondi Junction Complete Streets Project Report (as amended per Council minutes of September 2013 FESP committee) with the following amendments: See meeting minutes. B. Note that the Bondi Junction Complete Streets Project: - is a high level strategic document to guide detailed designs of the public domain - forms part of Council's vision for Bondi Junction as expressed in Waverley Together 3 C. Note that funding for construction of public domain improvements will be sourced from a combination of the capital works budget, Voluntary Planning Agreement monies and the draft Long Term Financial Plan 4.1 (due to be presented to Council in March 2014).

4. Discussion

Project objectives

The Draft Waverley Creative Lighting Strategy aims to achieve the following:

1. Increased access and the usability of Waverley's public places.
2. A lighting hierarchy on a street by street basis complementary to the MFP network.

3. Improved night time visibility and safety for all, particularly older persons and persons with low vision.
4. Improved economic development by extending the usable hours of the public domain into the night time.
5. Creation of a memorable experience for the local, visiting and working communities that connects people with place.
6. Opportunities to tell a cultural story through interpretive lighting.
7. Generation of ideas for engaging and unique creative lighting initiatives to suit big and small budgets that are original, practical and long lasting.
8. Direction for future Capital Works upgrades and private development works.
9. Technical information for inclusion in Council's Public Domain Technical Manual.

Framework

The draft strategy outlines the following framework for the appropriate application of lighting in Waverley:

1. A tiered lighting solution is established for a coherent approach to layering light. This includes:

    1) Base Lighting – functional lighting for streets e.g. multi-function pole network
    2) Amenity Lighting – lighting to enhance the pedestrian experience e.g. pedestrian scale lighting, coastal walk lighting, bus stops, tree lighting and under awning lighting.
    3) Lighting Interventions – site specific creative installations that enhance a space, providing a sense of place and interest at human scale e.g. artistic projections.

2. Application and Technical Guidance

The draft strategy provides a guide to select appropriate lighting levels, timing, colours, luminaire selection, as well as advice on maintenance and vandalism. The draft strategy specifies general principles to appropriately light public spaces including how to light pedestrian crossings, bike lanes, bus stops and public seating. These principles can be applied in projects throughout the entire Waverley Local Government Area.

3. High Level Conceptual Strategy

The draft strategy provides site specific recommendations for the delivery of well-designed lighting for Bondi Junction, Bondi Beach and the Coastal Walk.

4. Summary of Ideas

The draft strategy concludes with a costed summary of ideas to aid Council in the delivery of public domain projects over the next ten years. It identifies Steensen Varming's recommendations for both capital works projects and operational projects. Following feedback from the community, these ideas will be prioritised and refined into a deliverable action plan of future projects for Council's approval prior to endorsement.

Sustainability

Council has already taken steps to reduce energy consumption of street lighting, park lighting and other creative lighting solutions in existing projects, including the accelerated LED Replacements Program currently underway. The replacement of old inefficient lighting with LED technology and expansion of lighting networks with both efficient LED lights and control systems will ensure that Council can balance safety, amenity and environmental impact keeping electricity consumption as low as possible.

As Council progresses the Multi-Function Pole network in key pedestrian routes and main roads, there will be a progressive replacement of old lights reducing consumption between 55-70%. This reduction will offset the addition of creative lighting solutions including the Coastal Walk solutions (where there is currently no lighting), with low energy consumption lighting. This is due to the use of LED technology, control systems that will turn off lights during times when they are not required. Where feasible these lighting systems will be connected to electrical systems where solar/renewable/battery energy is utilised.

Lighting design principles and the three-tier approach ensure that projects with lighting solutions guided by the Draft Strategy will not over-light unnecessarily and generate GHG emissions, by applying the correct standards, defining expected outcomes and facilitating efficient design parameters.

Lighting the Coastal Walk

A key focus of this draft strategy is the application of light along the Coastal Walk. This highly pedestrianised area is not lit and Council currently has no long term funding in place for the installation of lighting. A decision by Council to provide pedestrian scale lighting along the coastal walk must take into account safety, risk, pedestrian amenity, as well as impacts on natural habitat and local residents. During the Councillor Workshop on 9 May 2017, questions were raised regarding the impacts of lighting the coastal walk, including the following:

a) Safety for pedestrians already using the Coastal Walk

Coastal Walk (Bondi to Bronte) pedestrian counts demonstrate the importance of improving this popular pedestrian path in the early morning and early evening. This draft strategy recommends making the popular walk safe for people who are already using it and facilitating an extension of use in the early evening and morning. Lighting on the Coastal Walk should aid wayfinding, safety and pedestrian amenity. According to Waverley Council's coastal walk pedestrian counters, people begin using the Coastal Walk from 4am. The pedestrian counts drop off at 11pm.

Peak time (Final Day of Sculptures by the Sea 2016)

- Saturday 5 November 22,216 people were counted on the Coastal Walk
- Sunrise 6am - 760 people were counted before 6am
- Sunset 7.30pm – 1324 people were counted between 7pm-11pm

Summer Solstice (Average summer day 2016)

- Wednesday 21 December 4,916 people were counted on the Coastal Walk
- Sunrise 5.45am - 392 people were counted between 5am and 6am
- Sunset 8pm - 253 people were counted between 7pm and 11pm

Winter Solstice (Average winter day 2016)

- Wednesday 21 June 1741 people were counted on the Coastal Walk
- Sunrise 7am - 326 people were counted between 5am and 7am
- Sunset 5pm - 40 people between 5pm and 11pm

b) Natural Habitat

Any lighting installed on the coastal walk must be considerate of impacts on native flora and fauna. Steensen Varming have demonstrated extensive experience working on lighting projects in natural habitats and have identified the following mechanisms to mitigate these impacts:

1. Placing the luminaires should avoid damaging tree roots, choosing the locations accordingly;

2. Avoid the use of heavy machinery, use hand digging and water jet trenching in sensitive areas in the process of placement of the luminaires;
3. Minimise upwards light and contribution to sky glow, in order to preserve the night time environment and reduce impact on flight paths of birds and bats;
4. Lights should be reduced or switched off outside peak uses to respond to animal vision under low light conditions;
5. Consider warm white light with reduced blue and UV wavelength, because animals have different spectral sensitivity;
6. Use of shields, louvres and low light brightness fixtures where appropriate;
7. Shield flashing or intermittent lights to minimise their impact.

c) Local Residents

To maintain vistas and provide suitable lighting solutions that have minimal impacts on local residents, the draft strategy identifies the following:

1. Lighting design and direction – A vertical lighting approach is not suitable for this environment as it would adversely impact residents. The draft strategy recommends human scale tier 2 lighting approach involving handrail lighting and subtle lighting of the edge of pathways. The lighting should not be continuous but instead encourage safe passage through highlighted beacons along the path.

2. Timing - To reduce the impact of lighting on local residents, while maintaining a safe environment for existing pedestrians, it is recommended that subtle and appropriate lighting approach is implemented and operational in the morning from 5am to sunrise and in the evening from sundown to 11pm. Rather than a static approach to lighting, which can result in over lighting spaces, the draft strategy recommends a dynamic lighting control to support pedestrian traffic during the early morning and early evening and turn off completely during the late hours of the night.

d) Infrastructure Costs

Steensen Varming have estimated the costs of lighting the coastal walk (excluding the beach parks) at approximately $4 million.

Project	*Investment*
Mckenzie Point intervention	$240,000
Bronte Cutting	$730,000
Entry to walk from Notts Avenue	$150,000
Entry path below Notts Avenue	$220,000
Pathway connecting entry to walk from Notts Avenue to McKenzie Point	$680,000
Pathway connecting Mackenzie Point to Tamarama SLSC	$730,00
Bronte Pool and stair	$200,000
Pathway from Calga Place Bronte Cutting to the end of Waverley Cemetery	$750,000
Waverley Cemetery Lookout and Signage	$65,000
Path between Tamarama and Bronte	$900,000
Total	**$3,935,000**

The following mechanisms should also be implemented to reduce costs:

1. The integration of lighting into existing infrastructure of the coastal walk including handrails and footpaths.

2. Future-proofing sites will limit future costs of retrofitting infrastructure and running power to sites. Capital works projects for parks along the coastal walk will use the strategy to consider future works in their project scopes.

3. Use of low level LED lighting and solar power to reduce energy costs.

e) Sustainable Energy

1. Selection of appropriate luminaire types and light sources to minimise energy consumption.
2. Use of appropriate and flexible lighting controls.
3. Use of time switches, motion sensors and photo sensors.
4. Photovoltaic cells should be considered where appropriate to maximise energy efficiency and minimise environmental impacts.

5. Relationship to Waverley Together 3 & Delivery Program 2013-17

The relationship to *Waverley Together 3* and *Delivery Program 2013-17* is as follows:

Direction: L6 Streets are safe and vibrant places which facilitate movement and interaction.
Strategy: L6d Create place based centres which prioritise the pedestrian experience.
Deliverable: Improved public domain infrastructure

6. Financial impact statement/Timeframe/Consultation

Financial Impacts

The concept designs presented in the draft strategy reflects a best practice approach to lighting design for the Waverley LGA. Due to financial constraints, not all of these projects will be delivered through capital works funding. The Summary of Ideas list in the document provides information for Council and the community to help prioritise future projects for funding over the next ten years. This list will be refined into a deliverable set of actions prior to Council's endorsement of the draft strategy.

The draft strategy is a guiding document for both private and public lighting works in Waverley to provide the technical parameters of a tiered lighting approach. Ideas from the strategy will be implemented through a variety of funding mechanisms including the following:

- Future Capital Works Projects
  Project recommendations that do not fit within existing capital works schedule or private development will be prioritised using feedback from the public exhibition period. A refined list of future projects will be provided to Council prior to adoption of the strategy.

- Capital Works Program
  Capital works upgrades will be guided by the draft strategy with appropriate lighting design for works containing lighting components within their project scope. The concepts will be used to inform consultants on Council's layered approach to lighting for the design process. These projects include Campbell Parade Streetscape Upgrades, the Multifunction Pole network, Bondi Junction Complete Streets, Public Art installations and park upgrades. In cases where the component for lighting requires an increased budget allocation, the project manager will use their discretion to seek an increase in budget or amend the concept plans to suitably fit the project scope.
  Maintenance of lighting installations will be considered within the lifecycle of a project during the project planning stage. The strategy will also act as a catalyst to future-proof infrastructure in ongoing construction projects.

- Private Development (Development Applications)
  The strategy will inform the lighting section of the Public Domain Technical Manual and controls in the Waverley Development Control Plan. This coherent application of light between the public and private domain will be delivered through development applications.

- Private Development (Voluntary Planning Agreements)
  The strategy will provide a framework to guide future projects for public benefit works in VPA negotiations. These projects may include a lighting installation in Grey Street, gateway lighting installations and tier two streetscape upgrades.

- Private Development and/or Partnerships
  The strategy will provide information for private developments or partnerships including recommendations for tier 3 interventions. This information can be provided to key community stakeholders and may be implemented through private or grant funding projects e.g. Tamarama SLSC installation.

Internal Consultation

To date the following internal consultation has taken place:

- June 2016 – Council staff workshop
- June 2016 – July 2017 – Project control group meetings involving Council staff from urban design, open space planning, safety, engineering and construction, public art, sustainability, community and communications.
- 9 May 2017 – Councillor workshop
- 19 June 2017 – Waverley Public Art Committee

Community Consultation

This report seeks approval for public exhibition for a period of 28 days. Community engagement will be supported by the Bondi Junction and Bondi Beach pilot projects, expected to launch between September-November 2017. Modes of consultation will include online submissions through haveyoursaywaverley.com.au, information sessions and feedback collated from social media. Information sessions will be provided for key stakeholder groups including Surf Clubs, Sculptures by the Sea, Precinct Committees and the police.

Council will seek feedback on future project opportunities to gauge levels of support from the community on each project. At the conclusion of the exhibition period all feedback received will be compiled into an outcomes report, together with responses to the submissions. This information will be used to inform the finalisation the Waverley Creative Lighting Strategy and provide information for Council regarding funding of any future projects in the Long Term Financial Plan.

Pilot Projects

Two lighting pilot projects will form a key part of the public exhibition process for Council's Draft Waverley Creative Lighting Strategy, and will provide an opportunity for the community to engage with and provide feedback on ideas and recommendations from the draft strategy. These projects are funded through the 2017/18 capital works budget and additional information is outlined in Attachment 2 – Pilot Projects.

The Bondi Junction pilot project ($40,000 from the 2017/18 Capital Works budget) has had funding matched by the NSW Government through the Tourism Grant (Tourism Demand Driver Infrastructure Program). To align with the objectives of the NSW grant funding process, the project must enhance the quality of the visitor experience in Bondi Junction and link to the Hello Bondi App and Bondi Junction public Wi-Fi. To align with these constraints, Oxford Street Mall has been selected as the site for the temporary

pilot. This site is also identified as the next site on the Waverley Public Art Masterplan. The installation must be completed by the end of 2017 to secure the grant funding. Due to the strict deadlines associated with the grant funding, a RFQ process was followed and a digital lighting designer Amigo & Amigo was contracted for the project. If project timing permits, the temporary installation will also align with the Bondi Junction Evening, Culture and Entertainment Strategy public exhibition period which is scheduled for late September 2017.

The second Creative Lighting Pilot Project will be installed to showcase examples of the tier 2 lighting typologies (handrail, seat and edge lighting) on sections of the Bondi Beach promenade and the coastal walk. This strategy will enable local residents and members of the community to view the small scale trial and evaluate any impacts and provide feedback prior to the draft strategy going to Council for endorsement. Signage will be placed next to the pilot to encourage pedestrians to comments on the installation via haveyoursaywaverley.com. Sites will be selected that do not encourage people to enter the coastal walk at night.

Timeframe

The Draft Waverley Creative Lighting Strategy is a strategy document with staged implementation from 2017 to 2027. Pending Council approval, public exhibition period is estimated for late 2017.

7. Conclusion

The Waverley Creative Lighting Strategy will provide a guiding framework for the management and implementation of lighting in Waverley over the next 10 years. It will provide a coherent approach to the application of light which will improve safety, pedestrian amenity, economic vitality and a memorable sense of place.

8. Attachments

1. Draft Waverley Creative Lighting Strategy (under separate cover)
2. Pilot Projects

Creative Lighting Pilot Projects

Council Report July 2017
Attachment B

Pilot 1 - Bondi Junction Temporary Lighting Installation

Project Aim: The Creative Lighting Pilot Project aims to demonstrate how creative lighting can enhance the night time pedestrian experience by creating a sense of place, encouraging activity and public safety. The project will:

- Encourage the community to provide feedback on the ideas in the Draft Creative Lighting Strategy;
- Introduce movement and colour to the urban fabric that is beautiful and engaging;
- Capture the attention of a variety of age groups including visitors and the local community; and
- Create a fun and social experience for people digitally interacting with the work and spectators.

Location: The pilot will be located in Oxford Street Mall, Bondi Junction and will support the draft strategy during the public exhibition period. This site was selected due to the high number of pedestrians in the area, access to public wi-fi and as a preferred site in the Waverley Public Art Masterplan.

Funding: The Capital Works budget allocated to the Pilot Project has been matched with funding from NSW Department of Industry ($40.000 grant).

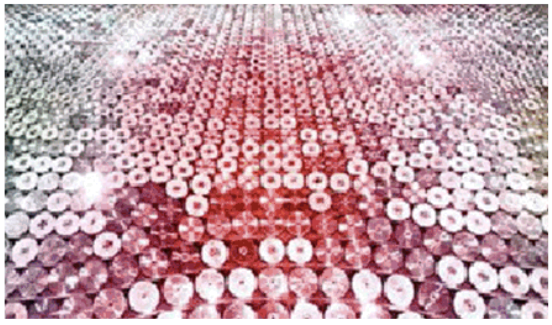
Process: Due to tight timeframes of the Government Grant, a Request for Quotation process was undertaken. A number of high calibre submissions were received and the Sydney-based interactive lighting and design studio Amigo & Amigo was selected. Their installation, 'Heart of Bondi', aims to celebrate people and the heart of Waverley Council.

'Heart of Bondi' celebrates human connection and Waverley Councils unique culturally diverse community. Heart of Bondi invites visitors to connect to the sculpture via heart sensors, incorporating a little piece of themselves into the art. The sculpture will read their heart rate and respond in a beautiful array of light representing their heart print. By collecting different heartbeat prints, Heart of Bondi seeks to unite all the individual living, visiting and commuting through Bondi Junction.

The spheres containing the LED lights will be made from recycled or reused plastic, such as plastic bottles, straws or CD's to promote sustainability.

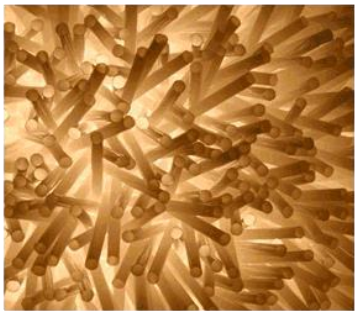
Artist's previous works (Vivid)

Project precedents images



Project precedents





Pilot 2: Coastal Walk Demonstration Project

Project Aim: The project aims to demonstrate the recommendations of the Draft Creative Lighting Strategy to allow the community to visualise and test lighting in a small area and provide feedback to Council. This will also allow Council to realise the costs and challenges associated with the project prior to committing funding for a larger project.

The lighting aims to create a human scale experience, providing a subtle light atmosphere that respects the natural environment and allows for a safe passage.

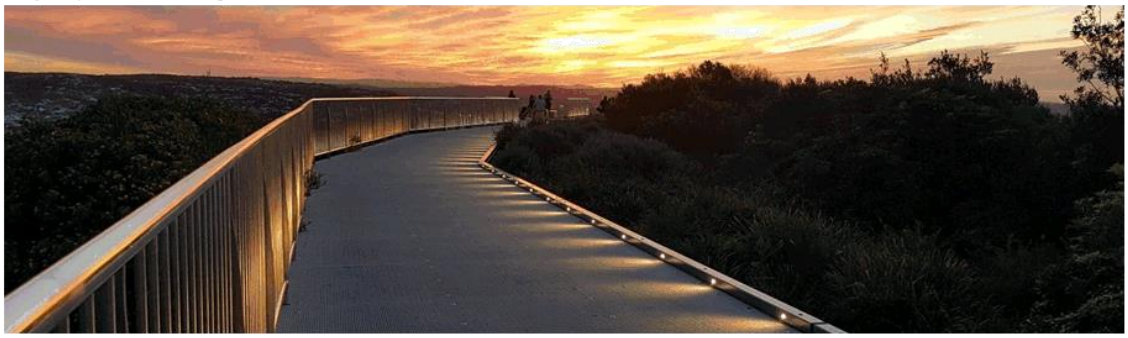
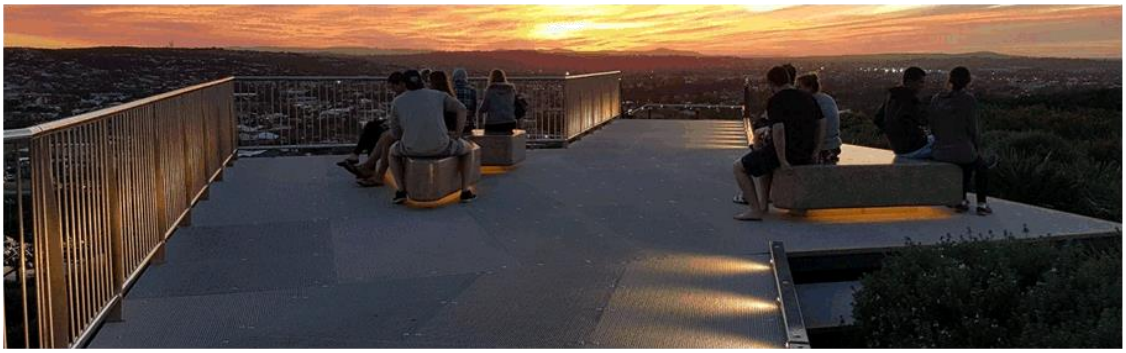
Locations: A small section of the coastal walk and/or part of the Bondi Promenade will be chosen for the pilot project. It will be an area often visited by night and one that would best reflect the aims of the draft Creative Lighting Strategy.

Process: This pilot project will function as a test, to engage with the community, gain their feedback and to explore lighting solutions and physical infrastructure, serving as a model for future developments. Signage will be placed next to the pilot to encourage pedestrians to comment on the installation via haveyoursaywaverley.com. Sites will be selected that do not encourage people to enter the coastal walk at night.

The pilot will use Tier 2 amenity lighting and focus on lighting the path through handrail lighting or integrated into low level walls. Concealed bench lighting may be used to define a key seating area.

Funding: The Coastal Walk pilot project has an allocated cost of $60,000, funded by 2017/18 Capital Works budget. The project will be implemented by the public exhibition period in the latter half of the year.

Project precedent images

REPORT
CM/7.3/17.07

Subject: **Evaluation of Tender - Gardiner Early Education Centre (EEC) Landscape Upgrade**

TRIM No.: A17/0074

Author: Jack Farag, Project Officer
Sharon Cassidy, Acting Executive Manager, Project Waverley

Director: Rachel Jenkin, Acting Director, Waverley Life

RECOMMENDATION:

That Council:

1. Treats the Tender Evaluation Matrix attached to this report as confidential in accordance with section 10A(2)(c) of the *Local Government Act 1993*. The attachment contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

2. Enters into a contract under clause 178 of the *Local Government (General) Regulation 2005* with The Gardenmakers Pty Ltd for the Gardiner Early Education Centre Landscape Upgrade.

1. Executive Summary

The purpose of this report is to seek Council's approval for the appointment of The Gardenmakers for the landscape upgrade works to the Gardiner Early Education Centre as recommended by the Tender Evaluation Committee (TEC).

The Gardiner Early Education Centre Landscape Upgrade project includes, further development of concept design and landscape construction works to improve the backyard of the centre.

2. Introduction/Background

The Early Education Centre which is managed by Waverley Council is located at the corner of Gardiner Street and Gardiner Lane, Bondi Junction.

The Early Education Centre is an ageing facility, which recently had a bathroom upgrade. Council has a longer term plan to undertake further renovations and upgrades to the Centre.

This project involves a landscape upgrade to the backyard of the centre.

This landscape upgrade will ensure:

a) The longevity of the facility's life expectancy.
b) A safe facility for users, reducing exposure to risk.
c) Manageable annual budget expectations and costs for maintenance, upkeep and repair.
d) Smooth ongoing operation of the facility.

3. Relevant Council Resolutions

Nil.

4. Discussion

Tenders were called and evaluated in accordance with Council's Purchasing Policy, Procedures and the Tender Evaluation Plan. Compliance with the provisions of the *Local Government Act 1993* and *Local Government (General) Regulation 2005* were also strictly adhered to.

The tender evaluation criteria were developed and approved by the TEC prior to the tender being issued. The roles and responsibilities of the TEC members and Council are outlined in the signed conflict of interest and deed of non-disclosure declarations.

Tenderers Received

There were no tenders received by the advertised closing date of 12.00 pm Monday, 22 May 2017.
A late tender was received from The Gardenmakers Pty Ltd on 5 June 2017. No further late tenders were received.

Conforming Tenders

The tender submitted by The Gardenmakers Pty Ltd met the compliance requirements and the tender panel decided to accept the late tender under cl 177(4) of the Regulation.

Evaluation Criteria and Process

There being only one tender received and accepted the panel decided to undertake the usual evaluation assessment to ensure the tenderer offered the best value for money. The evaluation criteria and criteria weightings were agreed to by all TEC members and detailed in the Evaluation Plan prior to the tender close date and time. A ratio of Price 50% and Non-price 50% was applied to the formula.

The evaluation was conducted in 5 chronological stages:

Stage 1: Initial Cull

Opening and recording of all submissions received and noting any late submissions.

Stage 2: Compliance Criteria (Conforming)

Ensuring each Respondent's response to the compliance criteria as specified in the Tender Schedules ('Yes' or 'No');

Stage 3: Non-price Criteria (Qualitative)

Evaluating of all submissions against the evaluation criteria (Demonstrated experience with similar Projects, Detail of Program, Project Understanding and Detail of Methodology, Quality Management and Traffic & Pedestrian Management) as specified in the Tender Schedules. The scoring criteria included a 0-100 rating.

Stage 4: Price (Quantitative)

Comparing the Respondents price through a Normalised price model.

Stage 5: Financial Details

The TEC could have requested financial details from the preferred tenderer in order to test the company's financial standing. However, the TEC agreed that this stage of the evaluation process was not necessary given the standing of the preferred tenderer.

Tender Evaluation Committee (TEC)

- Bart McGuffin, Facilities Officer, Enriching Waverley.
- Sharon Cassidy, Executive Manager (Acting), Project Waverley.
- Jack Farag, Project Officer, Project Waverley.

Evaluation Results

The submitted tender was assessed and scored against the advertised evaluation criteria listed in the tender document and weightings agreed to by the TEC. The tender assessment scoring summary details the TEC agreed scores.

Tender Evaluation Committee Endorsement

The tender was evaluated strictly in accordance with Council's Purchasing Policy and Procedures, the Act and the Regulation.

Following a rigorous evaluation process of the submitted tender, the Tender Evaluation Committee is confident in its recommendation that the services offered by the tenderer conform to Council's requirements.

5. Relationship to Waverley Together 3 & Delivery Program 2013-17

The relationship to *Waverley Together 3* and *Delivery Program 2013-17* is as follows:

Direction:	C4 Community support services continue to be targeted to and accessible to those who need them most, including children and young people, older people and people with a disability.
Strategy:	C4a Continue to resource and diversify the funding sources of family support services, affordable child care and programs for young people, older people and people with a disability.
Deliverable:	High quality affordable long day care and family day care for children aged birth to five years and holiday and recreational programs for preschool children

6. Financial impact statement/Timeframe/Consultation

The tendered price is within the budget allocated for the Gardiner EEC Landscape Upgrade in the Asset Renewal 2017/18 budget.

Construction tender award	July 2017
Construction commences	September 2017
Construction completed	November 2017

7. Conclusion

The TEC agreed that the tender process has enabled the Committee to recommend The Gardenmakers Pty Ltd for delivery of the Gardiner EEC Landscape Upgrade.

The Gardenmakers Pty Ltd scored generally well in all of Stage 3 non-price criteria.

The Gardenmakers Pty Ltd has completed a number of construction projects of similar scope, including Foster Park for Woollahra Council and numerous Kindergarten centres for Children Services, of equal or greater value and are well-established for over 35 years. This firm has been designing and constructing playgrounds for over 20 years. In addition, The Gardenmakers have continued to work on interesting urban and public domain infrastructure projects in collaboration with numerous Government Authorities across Australia.

The Gardenmakers Pty Ltd work demonstrates a high level of innovation and their urban and public domain infrastructure has been incorporated into an impressive list of award winning projects.

The TEC has formed the view that this company, taking into consideration all of the information provided, is recommended for the delivery of the Gardiner EEC Landscape Upgrade.

8. Attachments

1. Gardiner EEC Landscape Upgrade Tender Evaluation Matrix (confidential)

REPORT
CM/7.4/17.07

Subject: **Operations Committee - Delegation to Determine Tenders**

TRIM No.: A02/0649

Author: Al Johnston, Governance and Internal Ombudsman Officer

Director: Cathy Henderson, Acting General Manager

RECOMMENDATION:

That Council:

1. Notes the amendment to s 377(1)(i) of the *Local Government Act 1993* that permits a council to delegate to the general manager or any other person or body the function of determining tenders other than those for the provision of services currently provided by council staff.

2. Delegates to the Operations Committee the authority to determine tenders, other than those for the provision of services currently provided by Council staff.

3. Notes that the Operations Committee has no authority under s 377(1) of the Act to vary Council's budget for the tendered service or product.

1. Executive Summary

Section 377(1)(i) of the *Local Government Act* (the Act) was amended in September 2016 to permit a council to delegate to the general manager or any other person or body the function of determining tenders other than those for the provision of services currently provided by council staff.

This report recommends to Council that it delegates the function of determining tenders to the Operations Committee to reduce the workload of Council and help better balance the workload between Council and the Committee.

2. Introduction/Background

At its meeting in December 2013, Council delegated to the Operations Committee the authority to determine any matter except those listed under s 377(1) of the Act. Matters that could not be delegated under s 377(1) included the determination of tenders. Only the full Council could exercise this function.

In September 2016 the NSW Parliament introduced the *Local Government Amendment (Governance and Planning) Act 2016* (the Phase 1 amendments). The Phase 1 amendments amended s 377(1)(i) of the Act to permit a council to delegate to the general manager or any other person or body the function of determining tenders other than those for the provision of services currently provided by council staff.

As those matters listed under s 377(1) of the Act have now changed, Council's delegation to the Operations Committee has also changed by default. The purpose of this report is to seek Council's confirmation or

otherwise that it wishes to delegate to the Operations Committee the authority to determine tenders, except those for the provision of services currently provided by council staff, which cannot be delegated.

Table 1 below sets out the provisions of section 377(1) prior to their amendment in September 2016. The amended provisions are set out in Table 2. The relevant provision is 377(1)(i), which has been bolded in both tables.

Table 1

Section 377(1) General power of the council to delegate – Before the amendment in September 2016
(1) A council may, by resolution, delegate to the general manager or any other person or body (not including another employee of the council) any of the functions of the council under this or any other Act, other than the following: (a) the appointment of a general manager, (b) the making of a rate, (c) a determination under section 549 as to the levying of a rate, (d) the making of a charge, (e) the fixing of a fee, (f) the borrowing of money, (g) the voting of money for expenditure on its works, services or operations, (h) the compulsory acquisition, purchase, sale, exchange or surrender of any land or other property (but not including the sale of items of plant or equipment), **(i) the acceptance of tenders which are required under this Act to be invited by the council,** (j) the adoption of an operational plan under section 405, (k) the adoption of a financial statement included in an annual financial report, (l) a decision to classify or reclassify public land under Division 1 of Part 2 of Chapter 6, (m) the fixing of an amount or rate for the carrying out by the council of work on private land, (n) the decision to carry out work on private land for an amount that is less than the amount or rate fixed by the council for the carrying out of any such work, (o) the review of a determination made by the council, and not by a delegate of the council, of an application for approval or an application that may be reviewed under section 82A of the Environmental Planning and Assessment Act 1979 , (p) the power of the council to authorise the use of reasonable force for the purpose of gaining entry to premises under section 194, (q) a decision under section 356 to contribute money or otherwise grant financial assistance to persons, (r) a decision under section 234 to grant leave of absence to the holder of a civic office, (s) the making of an application, or the giving of a notice, to the Governor or Minister, (t) this power of delegation, (u) any function under this or any other Act that is expressly required to be exercised by resolution of the council.

Table 2

Section 377(1) General power of the council to delegate – As amended
(1) A council may, by resolution, delegate to the general manager or any other person or body (not including another employee of the council) any of the functions of the council under this or any other Act, other than the following: (a) the appointment of a general manager, (b) the making of a rate, (c) a determination under section 549 as to the levying of a rate, (d) the making of a charge, (e) the fixing of a fee, (f) the borrowing of money, (g) the voting of money for expenditure on its works, services or operations, (h) the compulsory acquisition, purchase, sale, exchange or surrender of any land or other property (but not including the sale of items of plant or equipment), **(i) the acceptance of tenders to provide services currently provided by members of staff of the council,** (j) the adoption of an operational plan under section 405, (k) the adoption of a financial statement included in an annual financial report, (l) a decision to classify or reclassify public land under Division 1 of Part 2 of Chapter 6, (m) the fixing of an amount or rate for the carrying out by the council of work on private land, (n) the decision to carry out work on private land for an amount that is less than the amount or rate fixed by the council for the carrying out of any such work, (o) the review of a determination made by the council, and not by a delegate of the council, of an application for approval or an application that may be reviewed under section 82A of the Environmental Planning and Assessment Act 1979 , (p) the power of the council to authorise the use of reasonable force for the purpose of gaining entry to premises under section 194, (q) a decision under section 356 to contribute money or otherwise grant financial assistance to persons, (r) a decision under section 234 to grant leave of absence to the holder of a civic office, (s) the making of an application, or the giving of a notice, to the Governor or Minister, (t) this power of delegation, (u) any function under this or any other Act that is expressly required to be exercised by resolution of the council.

It is recommended by officers that Council delegates the function of determining tenders to the Operations Committee to reduce the workload of Council and help better balance the workload between Council and the Committee.

3. Relevant Council Resolutions

Council or Committee Meeting and Date	**Minute No.**	**Decision**
Council Meeting 10 December 2013	1312.14.1	That Council: 1. Adopt Option 2 such that: i. The FESP and CHESPW Committees be disestablished and replaced with an Operations Committee as per the provisions of Clause 260 of the Local Government Regulation 2005, with all councillors being voting

		members. ii. The chairing of this committee be on a rotating basis to be shared equally between two councillors with Cr Cusack (Alternate Chair Cr Burrill) being Chair commencing February 2014, and Cr Mouroukas (Alternate Chair Cr Goltsman) being Chair commencing March 2014. iii. The delegations of the Operations Committee be as per Attachment 1. iv. This committee have the authority to adopt its own minutes in line with the provisions of Clause 266 of the Local Government Regulation 2005. v. The Committee's Order of Business be based upon Council's revised Order of Business around a structure consisting of: • Officers' reports requiring determination • Officers' reports for information vi. The Committee's decisions be by a majority basis. 2. Adopt the new Agenda and Order of Business as set out in the Report and Attachment 2 and this be implemented on a 12 month trial basis commencing as of February 2014. 3. Adopt the Report layouts as per Attachment 3 and that these form the templates to be used in Infocouncil, subject to the addition of a new Section 1 for Officer Reports entitled Executive Summary, which would immediately precede the Introduction / Background section. 4. Change the Council meeting commencement time to 6.30pm and set the new Operations Committee commencement time to 7.00pm. 5. Not consider an investigation into webcasting of Council meetings until after a revised Code of Meeting Practice has been endorsed by Council, which is scheduled for 2014.

4. Discussion

Should Council wish to delegate the determination of tenders to the Operations Committee, it is important to note there would be two limitations on the Committee's authority:

1. The amendment to s 377(1)(i) does not permit tenders for the provision of services currently provided by council staff to be delegated. This means the full Council must determine any tenders of this sort.

2. Section 377(1) does not permit Council to delegate the voting of money for expenditure on its works, services or operations: s 377(1)(g). This means the Operations Committee has no authority

to vary Council's budget for the service or product tendered. For example, where there is budget shortfall in meeting the cost of the tender, the tender and budget adjustment must be determined by the full Council.

5. Relationship to Waverley Together 3 & Delivery Program 2013-17

The relationship to *Waverley Together 3* and *Delivery Program 2013-17* is as follows:

Direction:	G1 Inspiring community leadership is achieved through decision making processes that are open, transparent, corruption resistant and based on sound integrated planning..
Strategy:	G1b Promote and embed good governance and corruption prevention practices in operational activities.
Deliverable:	Internal audit function supported.

6. Financial impact statement/Timeframe/Consultation

There is no financial impact to Council to delegate the determination of tenders to the Operations Committee.

If approved by Council, the delegation would become effective for the August 2017 Operations Committee meeting.

There has been no consultation with Councillors prior to this report.

7. Conclusion

This report recommends to Council that it delegates the function of determining tenders to the Operations Committee to reduce the workload of Council and help better balance the workload between Council and the Committee.

8. Attachments

Nil.

REPORT
CM/7.5/17.07

Subject: **Trade Debtors Policy - Review**

TRIM No.: A16/0865

Author: Teena Su, Acting Executive Manager, Financial Waverley

Director: Cathy Henderson, Acting General Manager

RECOMMENDATION:

That Council:

1. Adopts the Trade Debtors Policy attached to this report.

2. Fixes $2,500 (including GST) as the amount above which debts may be written off only by resolution of Council, in accordance with clause 213(2) of the *Local Government (General) Regulation*, noting that the General Manager can write off debts under this amount.

1. Executive Summary

Council officers have undertaken a review of the Trade Debtors Policy with the aim of improving the internal controls in place to manage Council's trade customers.

A number of changes are recommended, including the separation of the existing Policy into two separate documents covering policy and procedures. This report also provides a response to the Council resolution on the investigation of credit reference default reporting for commercial waste service and footpath seating customers.

Furthermore, the report recommends fixing an amount—$2,500—above which debts can only be written off by resolution of Council.

2. Introduction/Background

The Trade Debtors Policy relates to the recovery of trade debtors' outstanding debt, and was adopted by Council on 21 May 2013.

A policy review has been undertaken with the aim of improving the collection of outstanding debt.

The current Policy includes procedures for managing trade debtors' outstanding debts. This review recommends the separation of those business processes from the Policy by creating a separate document named Trade Debtors Procedures.

3. Relevant Council Resolutions

Council or Committee Meeting and Date	Minute No.	Decision
Council Meeting 17 May 2017	CM/7.9/17.05	That Council: 1. Approves the write-off of the bad debts detailed in this report of $38,629.94 in accordance with Clause 213 (3) of the Local Government (General) Regulation 2005. 2. Notes that a report on credit referencing will be presented to Council in June 2017
Council Meeting 16 June 2015	CM/7.5/15.06	That Council: 1. Receives and notes this report. 2. Approves the write-off of the bad trade debts and general abandonments identified in this report of $9,115.95 in accordance with Clause 213 (3) of the Local Government (General) Regulation 2005. 3. Investigates using the services of a credit reporting and listing agency to report bad debts on credit files and a report come back to Council.
Council Meeting 21 May 2013	1305.12.1	That Council adopt the revised Trade Debtors Policy subject to Clause 8.3.4 being amended to read as follows: '8.3.4 If payment is not received by 60 days from invoice date the responsible operating Division/Section is to contact the debtor without delay by phone, letter or email with a reminder that payment is past due and unless payment is made within 5 working days a further "late payment fee" will be charged against the account, service withdrawn and the debt referred to Council's financial Services Section to consider referral to Council's external debt recovery provider.'

4. Discussion

A. Policy Review

A Policy review was conducted to improve the management of trade debtors' accounts, and to achieve effectiveness and efficiency in relation to the collection of outstanding debts through the relevant policies and procedures.

The revised Policy and Procedures have been drafted with the aim to provide guidelines, and support to staff in managing trade debtors' accounts. The revised Policy is attached to this report.

Major changes to the Policy are as follows:

1. Separating the processes from the Policy, by creating a separate document called Trade Debtors Procedures.

2. Updating the responsible sub-programs for each trade category as detailed in the Procedures.

3. Unifying and instigating legal recovery action for debt overdue by 60 days for all categories, where economically viable.

4. Improvements have been, or will be introduced, to mitigate the risk of debt defaulting, such as:

    (a) Implementing a bond system for footpath seating customers.

    (b) Performing a credit history check within the Council's record in the core financial system (TechnologyOne) for footpath seating and commercial waste service on new and renewing customers. (Please note that footpath seating has applied this credit checking initiative since June 2017 at the application assessment stage, which is performed by Building Waverley.)

    (c) Considering moving bad commercial waste customers to advance billing cycle for the new service contract if they have a debt default record with Council.

These changes have been discussed with the relevant staff, and the impact on the business in relation to financial and resource capacity has been carefully considered.

The Procedures will be reviewed from time to time as required to improve and strengthen the internal process and controls, and to achieve cost-effective outcomes in collecting outstanding debts. Any changes to the Procedures require ELT approval, but are not required to go to Council for adoption.

B. Credit Reference Default Reporting

An initial investigation on the credit reference default reporting has been undertaken in response to a Council resolution regarding concerns raised with the write off of bad debt for commercial waste and footpath seating customers.

Council officers currently use LegalForce to assist with debt recovery collection, and a default/collection notice may be placed on the customer's file for a period of five years from the date it is listed at the judgement stage. No other debt collection firm on the Council's supplier panels is able to place a bad customer onto the Credit Reference Default Reporting Register at the stage of commencement of collection. The three main suppliers (Credit Watch, Dun & Bradstreet and Equifax) able to place a default/collection notice to the customer's file are not listed as Council's preferred suppliers.

To change the debt collection company outside Council's supplier panels requires the calling of a tender; however, it is not recommended to call for a debt collection tender until the current contract expires.

It is recommended to improve the current internal control to mitigate the risk of debt default. The introduction of the proposed improvements noted in section A of this report to footpath seating and commercial waste service customers will have a significant improvement on the internal control in relation to outstanding debt collection management.

C. Writing Off Bad Debts

Under clause 213(2) of the *Local Government (General) Regulation*, Council 'must from time to time, by resolution, fix an amount above which debts to the council may be written off only by resolution of [Council].' If a resolution is in place, debts below the fixed amount can be written off by the General Manager by order in writing.

Pursuant to clause 213(5), only certain (bad) debts can be written off; that is, where:

(a) The debts are not lawfully recoverable, or

(b) The debts are a result of a decision of a court, or

(c) Council or the General Manager believes on reasonable grounds that an attempt to recover the debts would not be cost effective.

None of the above applies to outstanding rates and charges, which are dealt with by different sections and clauses of the Act and Regulation respectively.

It is recommended that Council fixes $2,500 (including GST) as the amount above which debts may be written off only by resolution of Council. This will allow the General Manager to write off debts below this amount. By way of comparison, Randwick Council has fixed the amount at $2,500, while Woollahra Council's maximum is $25,000.

It is proposed that a report be tabled to the Executive Leadership Team (ELT) meetings on a quarterly basis (in September, December, March and June) outlining the details of the debts written off by the General Manager. The report will include debtor name, owner (where applicable), debt details and amount.

5. Relationship to Waverley Together 3 & Delivery Program 2013-17

The relationship to *Waverley Together 3* and *Delivery Program 2013-17* is as follows:

Direction:	G1 Inspiring community leadership is achieved through decision making processes that are open, transparent, corruption resistant and based on sound integrated planning..
Strategy:	G1a Develop and maintain a framework of plans and policies that ensures open and transparent operations that facilitate equitable benefit sharing and progress towards sustainability..
Deliverable:	Significant governance policies developed and existing policies reviewed regularly and access to Council's policy register provided.

6. Financial impact statement/Timeframe/Consultation

There is no direct financial impact on the Council through the adoption of this policy. The policy will be put in place immediately after adopted by the Council.

The review of the policy and its internal control processes have been developed in consultation with managers and Executive Managers from the following sub-programs:

- Building Waverley.
- Safe Waverley.
- Enriching Waverley.
- Internal Ombudsman, Governance and Civic.

7. Conclusion

A review of the Trade Debtors Policy has been completed with suggestions to improve the internal control in relation to managing the money owing to Council. It is recommended that Council approves the changes made to the Policy, and fixes the amount above which debts can only be written off by resolution.

8. Attachments

1. Trade Debtors Policy

Trade Debtors Policy

Responsible Officer	Executive Manager, Financial Waverley
Date adopted by Executive Leadership Team	10 July 2017
Date adopted by Council	TBA
Version	V2
Review date	June 2021
TRIM reference	A16/0865

Policy Amendments

Version	Date	Responsible Officer	Description
1	04 April 2013	Ian Mead	Trade Debtors Policy
2	27 June 2017	Teena Su	Procedures separated from the Policy

1. Background

This policy relates to the recovery of trade debtors outstanding debt.

2. Objective (Purpose)

The purpose of this policy is to ensure the efficient collection of money owed to the Council. The policy engages responsible sub-programs to work together towards effective recovery of outstanding debt.

3. Definitions

3.1. Trade Debtor

For the purposes of the policy a trade debtor is defined as an individual or organisation who owes money to the Council for the provision of goods and services.

3.2. Doubtful Debt

Doubtful debt refers to debt that has a risk of non-recovery.

3.3. Bad Debt

Bad debt is a debt that is deemed as being non recoverable

4. Scope

This policy applies to all Council staff responsible for collection of revenue.

5. Credit Terms

Unless otherwise agreed in writing by the Executive Manager Financial Waverley invoices must be paid in full by the date specified on the invoice or per the lease or license arrangement. This is normally in advance of receiving the good or service that has been agreed to be supplied by Waverley Council.

6. Debt Recovery

6.1. Payment terms are strictly 14 days from date of invoice so all invoices should be paid before commencement of the next calendar month.

6.2. If after the debtor has been pursued for late payment by the responsible sub-program, the payment remains overdue by 30 days, the responsible sub-program is to contact the debtor by phone, letter or email with a reminder that payment is

past due and unless payment is made within 7 working days, service may be withdrawn.

6.3. If payment is overdue by 60 days, the responsible sub-program will refer the debt to Council's Financial Waverley for external debt recovery. Refer to Trade Debtors Procedures for details.

6.4. Legal proceedings will commence with the issue of a Letter of Demand and continue with the issue and service of a Statement of Liquidated Claim (Summons), followed by Judgement, then Writ and finally issue an Examination Summons to recover the outstanding debt. Any costs incurred by the Council in connection with legal recovery will be added to the outstanding account.

6.5. If having followed the above process the debt remains outstanding a decision will be made by Financial Waverley in conjunction with the Executive Manager of the responsible sub-program for the debt to be referred to the General Manager and Executive Leadership Team (ELT) or Council if the write off value is above the General Manager's delegation, to be written off.

6.6. All correspondence to be recorded in relevant Trim for audit purposes.

7. Payment Arrangements

Any person, organisation or company who is having genuine difficulty in paying the debt, is encouraged to contact Council's relevant sub-program and make a personal payment plan/arrangement to pay off the debt in a reasonable and manageable timeframe. The Executive Manager of the relevant sub-program may consider and agree upon a plan (i.e. a payment arrangement to make weekly payments of an agreed amount until the debt is paid in full). Details of the payment arrangement must be recorded and payments monitored. Failure to adhere to the arrangement shall result in Council commencing debt recovery procedure.

8. Doubtful Debts

a. Reporting Requirement

The Council is required to provide for doubtful debts in its annual accounts in accordance with Accounting Standard AASB 139.

b. Timing

The methodology used to calculate the provision for doubtful debts will be reviewed on an annual basis to ensure it represents a reasonable estimate of risk to the Council based on historical data obtained.

c. Methodology - Trade Debtors Doubtful Debt Provision

The provision for doubtful trade debts will be based on specific debts overdue greater than 90 days based on the following schedule

DAYS	%
0 - 90	0%
91 - 180	50%
181 - 365	75%
365 +	100%

9. Bad Debts

9.1 Timing

The write-off of bad debts will occur on a quarterly basis after the recovery actions in this policy have taken place.

9.2 Recommendations and Approval

All requests for bad debt write-offs must be made by the Executive Manager of the respective sub-program via the Executive Manager Financial Waverley. The Executive Manager Financial Waverley will then prepare a report to the General Manager or Council for the debts to be written off.

10. Applicable Legislation

- Local Government Act (1993)
- Local Government (General) Regulation (2005)
- Other relevant legislation and regulation.

11. Related Policies and Procedures

This document is supplemented by Trade debtors' procedures providing details of how this policy is to be implemented.

12. Links to the Delivery Program and Operational Plan

G1a Develop and maintain a framework of plans and policies that ensures open and transparent operations that facilitate equitable benefit sharing and progress towards sustainability.
G5a Promote and advocate the provision of financial reporting systems in an accurate, timely, transparent and honest manner to ensure sustainability of public assets and resources.

13. Review of Policy

This Policy will be reviewed every four years or as required in the event of legislative changes or requirements. The Policy may also be changed as a result of other amendments. Any amendments to the Policy must be way of a Council resolution or with the approval of the General Manager.

REPORT
CM/7.6/17.07

Subject: **Rates and Charges Policy - Review**

TRIM No.: A16/0865

Author: Teena Su, Acting Executive Manager, Financial Waverley

Director: Cathy Henderson, Acting General Manager

RECOMMENDATION:

That Council:

1. Adopts the Rates and Charges Policy attached to this report.

2. Fixes $100 as the amount above which rates and charges may be written off only by resolution of Council, in accordance with clause 131(1) of the *Local Government (General) Regulation*, noting that the General Manager can write off rates and charges under this amount.

1. Executive Summary

A review of the Rates and Charges Collection and Hardship Assistance Policy has been undertaken to ensure the Policy is kept up to date with the relevant legislation, and to ensure effective controls are in place to manage ratepayers' accounts.

A number of changes are recommended to the Policy, including renaming the Policy to the 'Rates and Charges Policy'. The report further recommends fixing the amount—$100—above which rates and charges may be written off only by resolution of Council, allowing the General Manager to write off amounts below this figure. An annual report will be submitted to Council at the start of each financial year detailing any rates and charges written off by the General Manager in the previous financial year.

2. Introduction/Background

The Rates and Charges Collection and Hardship Assistance Policy covers all aspects of the collection of rates and charges, including hardship and recovering outstanding amounts. The policy was adopted by Council on May 2011. The Policy was due for a periodic review to ensure it is kept up to date with the relevant legislation, and to ensure effective controls are in place to manage ratepayers' accounts.

3. Relevant Council Resolutions

Council or Committee Meeting and Date	Minute No.	Decision
Finance, Ethics & Strategic Planning Committee 3 May 2011	F-1105.7	That Council adopt the Rates and Charges Collection and Hardship Assistance Policy attached to this report.

4. Discussion

A. Policy Review

A Policy review was conducted to ensure Council's compliance with relevant legislation, and to achieve effectiveness and efficiency in the collection of debts relating to rates and charges.

The revised Policy has been drafted with the aim to provide guidelines and support to staff in managing ratepayers' accounts and is attached to this report.

Major changes to the Policy are as follows:

1. Renaming the Policy to 'Rates and Charges Policy' from 'Rates and Charges Collection and Hardship Assistance Policy.'

2. Further clarifying the supplementary amendments to rates and the need to approve small immaterial balance write off from the subdivisions.

3. Explaining the need and circumstances under which the Act allows for the write off of interest.

4. Adding a new section – Postponed Rates, and its need to write off such rates under the *Local Government Act* after a period of five years.

5. Adding information about the garden organic green lid bin.

6. Proposing an annual report on rates and charges to be submitted to Council at the start of each financial year covering any debt written off by the General Manager in the previous financial year.

7. Removing references to fees. These are dealt with under different sections of the Act.

It is also noted that the Policy will require further review at a later date to align with the three-bins policy roll-out.

B. Writing Off Rates and Charges

Under clause 131(1) of the *Local Government (General) Regulation*, Council 'must, from time to time, by resolution, fix the amount of rates and charges above which any individual rate or charge may be written off only by resolution of [Council].' If a resolution is in place, rates and charges below the fixed amount can be written off by the General Manager by order in writing.

Pursuant to clause 131(4) of the Regulation, an amount of rates or charges can be written off only:

(a) If there is an error in the assessment, or

(b) If the amount is not lawfully recoverable, or

(c) As a result of a decision of a court, or

(d) If Council or the General Manager believes on reasonable grounds that an attempt to recover the amount would not be cost effective.

It is recommended that Council fixes $100 as the amount above which rates and charges can be written off only by resolution of Council.

It is proposed that a report will be tabled to ELT on a quarterly basis (in September, December, March and June) outlining the rates and charges written off by the General Manager. This report will include ratepayer name, the relevant account and the amount.

Consistent with clause 131(6), it is further proposed that an annual report on rates and charges written off by the General Manager be submitted to Council at the start of each financial year covering any rates and charges written off by the General Manager in the previous financial year.

5. Relationship to Waverley Together 3 & Delivery Program 2013-17

The relationship to *Waverley Together 3* and *Delivery Program 2013-17* is as follows:

Direction:	G1 Inspiring community leadership is achieved through decision making processes that are open, transparent, corruption resistant and based on sound integrated planning..
Strategy:	G1a Develop and maintain a framework of plans and policies that ensures open and transparent operations that facilitate equitable benefit sharing and progress towards sustainability..
Deliverable:	Significant governance policies developed and existing policies reviewed regularly and access to Council's policy register provided.

6. Financial impact statement/Timeframe/Consultation

There is no direct financial impact on the Council through the adoption of this policy. The policy will be put in place immediately after adoption by Council.

The review of the policy has been developed in consultation with:

- Executive Manager, Clean and Attractive.
- Executive Manager, Sustainable Waste.
- Internal Ombudsman.

7. Conclusion

A review of the rates and Charges Collection and Hardship Assistance Policy has completed with changes proposed to further explain the legislative requirements for rate and charges. It is recommended that Council approves the changes made to the Policy, and fixes the amount above which rates and charges can only be written off by resolution.

8. Attachments:

1. Rates and Charges Policy

Rates and~~&~~ Charges ~~Collection & Hardship Assistance~~ Policy

Responsible Officer	Executive Manager, Financial Waverley
Date adopted by Executive Leadership Team	~~TBA~~10 July 2017
Date adopted by Council	TBA
Version	2
Review date	June 2021~~2019~~
TRIM reference	~~TBA~~A16/0865

Policy Amendments

Version	Date	Responsible Officer	Description
1	May 2011	Brett Grunert	Existing Policy
2	June 2017	Teena Su	Periodical Review

1. PRINCIPLES, PURPOSE AND SCOPE

Rates and Charges

1.1 Council aims to set rates and charges that provide a sustainable long-term income but do not impose undue hardship on property owners, and are set in accordance with the *Local Government Act 1993* (the Act) and the *Local Government (General) Regulation 2005*.

1.2 Council is committed to a rates and charges process that is both ethical and~~,~~ transparent. The rating determinations will be made in accordance with the relevant legislation and will be applied in a uniform basis. All personal information, intellectual property, and information of a confidential or proprietary nature will be securely maintained and will not be disclosed unless required by Federal or State legislation.

Debt Recovery

1.3 Council has a responsibility to recover any outstanding rates and charges in a timely, efficient and effective manner.

1.4 Council aims to ensure effective control over debts owed to Council, including overdue rates, ~~fees,~~ charges and interest, and to maintain debt recovery procedures for the efficient collection of receivables and management of outstanding debts, including deferment and alternative payment arrangements.

Hardship Assistance

1.5 Council recognises there are cases of genuine financial hardship requiring respect and compassion in special circumstances. This policy establishes guidelines for assessment of hardship applications applying the principles of social justice, fairness, integrity, appropriate confidentiality, and compliance with relevant statutory requirements. It applies to all applications for waiving, deferment and alternative payment arrangements, or writing off of rates, ~~fees,~~ annual charges and interest accrued on such debts.

1.6 This policy provides a framework for responding to applications from owners/ratepayers and other clients experiencing genuine hardship with the payment of their rates and charges ~~and fees~~ in accordance with the Act and Regulation.

1.7 Privacy will be maintained in accordance with the *Privacy and Personal Information Protection Act 1998*.

2. RATES AND CHARGES POLICY

Council has adopted the following rate and charging policy setting under the Act.

Rates Structure

2.1 Rate revenue will be levied on the basis of 'ad-valorem' valuation of land and minimum rate levies determined annually by Council.

2.2 The Business Category is subject to sub-categorisation on the basis of section 529(2)(d) of the Act, which provides Council with the authority to determine a rate sub-category by the centre of activity. For the Waverley local government area the centre of activity is Bondi Junction and any land not within the defined area is Ordinary. Land determined to be subject to the business category that falls within the 1996 LEP, Bondi Junction defined area, and satisfying the business criteria of sections 518 and 529 (2) (d) of the Act will be subject to Business – Bondi Junction rate. Any other land that is compliant with the business criteria of Section 518 will be determined to be subject to the Business – Ordinary rate. A map detailing the rate categories and sub-categories is available for further enquiries.

2.3 Rates and charges will be calculated in accordance with the Council adopted Operational Plan and the Revenue Policy. Ordinary and special rates will take into account the land value supplied by the Valuer General with the relevant base date as at the date the rate was made and levied.

Supplementary Amendments to Rates

2.4 In accordance with the quarterly billing requirements (section 562) after the date of strata plan registration amended rates notices will be issued from the subsequent financial quarter to the individual parcel of rateable land.

2.5 When the Valuer General's Office provides formal notification of a valuation amendment due to consolidation or subdivision (section 562) amended rates notices will be issued effective from the date effect, from the subsequent financial quarter to the individual parcel of rateable land.

2.6 Rates will be applied to new parcel/s, on a pro-rata basis, from the first day of the subsequent financial quarter in which the subdivision or consolidation was registered. Conversely, rates will be reversed off the original (parent property/s) from the last day of the financial quarter in which the plan was registered.

The Council will abandon any small immaterial balance that may remain on the parent property after the pro-rata adjustment is complete.

~~2.5~~

Waste Charges

2.62.7 For the purposes of raising the Domestic Waste Charge under section 496 of the Act within the Waverley area, Council deems an eligible assessment for which the service is available to be a parcel of land, which satisfies the residential criteria of section 516 of the ~~Local Government~~ Act. The charges will be billed on the annual rates and charges notice and may be paid by the quarterly billing method in accordance with 562(3) of the Act.

2.72.8 Assessments, which are vacant parcels of land, are subject to domestic waste management charges in accordance with section 496 of the Act. Council will supply to single dwelling houses at the ratepayers' agreement four~~three~~ bins as follows -:

For paper and cardboard recycling – 1 blue lid bin
For other recyclable materials – 1 yellow lid bin
For household waste – 1 red lid bin
For garden organics – 1 green lid bin

Council will supply to residential flat buildings at the ratepayers' agreement bins as follows:

For paper and cardboard recycling – 1 blue lid bin per eight units
For other recyclable materials – 1 yellow lid bin per eight units
For household waste – 1 red lid bin per three units
For garden organics – 1 green lid bin per residential flat building, where Council considers a suitable amount of garden organic waste will be generated.

2.82.9 The secondary waste charge is available to all rateable land where the service is provided at the request and agreement of the ratepayer and the charge is calculated in accordance with the number of waste bins supplied by Waverley Council as per Pricing Policy, Fees and Charges.

Rate Reductions and Exemptions

2.92.10 There will be no discount for early payment of rates and charges.

2.102.11 Council will provide a reasonable range of cost effective options for Ratepayers to make their payments. However, in providing these options Council will pass on any credit card service fees to the card holder undertaking the transaction.

2.112.12 Exemptions from Ordinary Rates will apply in accordance with sections 554 - 559 of the Act.

2.122.13 Eligible pensioner property owners are entitled to a rate rebate not exceeding $250 per annum in accordance with section 575. If a rate increase is approved in excess of the Independent Pricing and Regulatory Tribunal's (IPART) determination of the Local Government Cost Index (LGCI), Council may provide an additional rebate of $50 per annum in accordance with section 582, subject to a resolution by Council at the commencement of the financial year.

2.14 Council will allow overdue rates and charges by pensioners to be accrued to a maximum of 19 years. No action will be taken to recover outstanding amounts until the property is sold, passes to the beneficiary of the estate or the ratepayer is no longer an eligible pensioner. (See section 9 below).

2.15 Section 567 of the Act allows for the write off of interest in the following circumstances:

- the person was unable to pay the rates or charges when they became due and payable for reasons beyond the person's control, or
- the person is unable to pay the accrued interest for reasons beyond the person's control, or
- payment of the accrued interest would cause the person hardship.

A ratepayer may make written request for Council to consider waiving an amount of interest that has accrued on their rates account. Council will consider these requests on a case-by-case basis.

Interest will be considered for write-off in the case of a first time defaulter who objects to the accrual on the basis that they have a good payment history and the amount of interest is immaterial. These requests must be received in writing and decisions will be made in good faith as a once off.

If a request relates to an approved payment arrangement, interest accrued will only be written-off if and when the payment arrangement has been paid as agreed.

A pensioner may make a request to the Council to make payments outside of the scheduled instalment dates each year. In agreement with the pensioner, the Council will write-off interest accrued throughout the year providing the pensioner pays the equivalent of the current year annual rates and charges amount by 30 June of the relevant rating year.

Interest accrued while funds are misallocated will be reversed when the funds are allocated to the correct account. An example of this is when a payment is misallocated to an incorrect account because a ratepayer uses an incorrect customer reference number when making a BPAY payment.

Interest will be reversed if it accrues as a result of an error made by the Council.

~~2.13~~

Interest Charges

~~2.14~~2.16 Council will raise interest charges on overdue rates at the maximum interest rate set by the Minister for Local Government.

3. POSTPONED RATES

Council is obliged to postpone rates each year where the Valuer General has provided an Attributable Value for a property. As per section 585 of the Act, Council will write-off, after five years, rates postponed.

~~3.~~4. RECOVERY OF OVERDUE RATES AND ~~ANNUAL~~ CHARGES

~~3.1~~4.1 Council rates and charges are paid in a single instalment or by quarterly instalments. If a payment is made by single instalment it is due on 31 August, and if it is paid by quarterly instalments it is due by 31 August, 30 November, 28 February, and 31 May. On or before 31 October, 31 January and 30 April, Council will send reminder notices (separately from the rates and charges notice) to each person paying by quarterly instalments; see section 562 of the Act.

~~3.2~~4.2 Where rates and charges are not finalised in accordance with the Act, recovery of outstanding rates and charges will be pursued in accordance with the following principles:

(1) Council will aim to collect all rates and annual charges by the end of each rating year;

~~(1)~~

(2) A fair and reasonable approach to recovery will apply;

~~(2)~~

(3) Council will individually assess cases of financial hardship;

~~(3)~~

(4) Council will not reduce rates or annual charges, but will consider alternative available approaches to dealing with cases of financial hardship;

~~(4)~~

(5) Council will consider a scheme of periodical payment outside the due dates in cases of hardship or extenuating circumstance;

~~(5)~~

(6) Council will utilise the services of Mercantile Agents where required;

~~3.3~~4.3 Council will apply the provisions of the Act relating to the sale of land to recover overdue rates, charges, and interest when appropriate (sections 713-726). Section 713 provides that in the case of any land (excluding vacant land which can be sold with only 1 year's rates and charges overdue), where rates and charges have been unpaid for more than five years, the Council may sell the land, subject to the conditions specified in section 713. In the case of vacant land where rates and charges have been unpaid for more than one year but not more than five years, the Council may sell the land subject to the conditions specified in section 713.

~~3.4~~4.4 Council will issue recovery notices and correspondence as follows:

(1) Reminder Notices will be issued after the due date for each quarterly rate instalment if payment has been not finalised the outstanding rates and charges.

~~(1)~~

(2) A Notice of Legal Action will be directed if the rate account remains overdue after the issue of the Reminder Notice.

~~(2)~~

(3) A letter will be directed from the mMercantile aAgent notifying that Council has referred the matter to agency for recovery.

~~(3)~~

(4) A final letter of demand from the mMercantile aAgent will be issued notifying that a proceeding will be commenced at the Local Court on a specific date if payment of the overdue rates and charges is not made.

~~4.~~5. HARDSHIP ASSISTANCE TO RATEPAYERS AND CUSTOMERS

~~4.1~~5.1 Council recognises that ratepayers may experience hardship in some circumstances in paying rates, annual charges, and associated costs~~fees~~. The Act provides for the following assistance to ratepayers and customers:

(1) Periodical payment arrangements for overdue rates and charges (Section 564);

(2) Writing off or reducing interest accrued on rates or charges (Section 564 & 567);

~~(2)~~

~~(3)~~ Waiving, reducing or deferring the payment of the increase in the amount of rate payable because of hardship resulting from general revaluation of land in

(3) Section 601 of the Act may be considered;

(4) Waiving, or reducing rates, charges and interest of eligible pensioners. (Section 575, 582) may be considered;

~~(4)~~

~~(5) Waiving or reducing Council fees when the inability to pay is due to hardship (Section 610E) may be considered.~~

~~4.2~~5.2 Council will consider each application for assistance under the principles outlined in paragraph ~~5~~4.4.

~~4.3~~5.3 A ratepayer may be eligible for consideration for Hardship Assistance in the payment of overdue rates, ~~annual~~ charges~~,~~ and interest~~, and fees,~~ where:

(1) The person is unable to pay due rates, charges ~~fees~~ or accrued interest when due and payable for reasons beyond the person's control; or

~~(1)~~

(2) Payment when due would cause the person hardship.

~~4.4~~5.4 In determining eligibility, Council will use the criteria used by Centrelink for granting of a pensioner concession card, including the assets and income test. Council may also require a request in writing including a statement of reasons, reasonable proof of financial hardship, details of assets, income and living expenses, and such other information required to make a valid assessment. It may also request the ratepayer attend an interview to assist Council in the understanding of the issues causing hardship.

~~5.~~6. HARDSHIP ASSISTANCE BY PERIODICAL PAYMENT ARRANGEMENTS

5.16.1 Council may enter into a formal agreement with a ratepayer eligible for alternative periodical payment arrangements for due and payable rates, and charges. Council or the ratepayer may initiate a proposal for a periodical payment agreement. In accordance with section 568 of the Act, payments will be applied towards the payment of rates and charges in the order in which they became due.

6.7. HARDSHIP ASSISTANCE BY WRITING OFF ACCRUED INTEREST AND COSTS

6.17.1 Council applies interest rates to the maximum allowable under section 566 of the Act. However Council may write off accrued interest and costs on rates or charges payable by a person under Section 567 of the Act and the Local Government (General) Regulation 2005 where:

(1) The person was unable to pay the rates or charges when they became due for reasons beyond the person's control, or
(1)

(2) The person is unable to pay accrued interest for reasons beyond the person's control, or

(2)

(3) Payment of the accrued interest would cause the person hardship.

6.27.2 Eligibility for this assistance and Council's determination will be in accordance with the Administrative Guidelines – Debt Recovery – Rates and Annual Charges.

7.8. HARDSHIP ASSISTANCE DUE TO CERTAIN VALUATION CHANGES

7.18.1 If a rate increase is approved in excess of IPART 's determination of the LGCI, Council will, subject to a resolution by Council at the commencement of the financial year under Section 601 of the Act, consider applications for r ate relief from any ratepayer who incurs a rate increase following a new valuation of land, if the new rate payable causes the ratepayer to suffer substantial hardship. The Council may on consideration of such an application write off an amount of up to $150.00 of ordinary rates where:

(1) The applicant's ordinary rate has been increased in the year of a general revaluation by more than $200 from the previous financial year's ordinary rate levied, ***and*** where the rate payer is either:

(a) a person in receipt of a pension, benefit or allowance under Chapter 2 of the Commonwealth Social Security Act 1991 or a service pension under Part 3 of the Veterans' Entitlement Act 1986 of the Commonwealth and who is entitled to a Commonwealth Pensioner Concession Card - as prescribed in Clause 134 of the Local Government (General) Regulation 2005 (NSW); or

(b) a person whose income and assets are not in excess of the Commonwealth Government requirements to qualify for a Commonwealth Pensioner Concession Card.

~~8.~~9. ASSISTANCE TO ELIGIBLE PENSIONERS

~~8.1~~9.1 For the purpose of this policy an eligible pensioner is a person in receipt of a pension, benefit or allowance under Chapter 2 of the *Commonwealth Social Security Act 1991* or a service pension under Part 3 of the Veterans' Entitlement Act 1986 of the Commonwealth and who is entitled to a Commonwealth Pensioner Concession Card, as prescribed in clause 134 of the Regulation. If Centrelink removes the entitlement of a person to a pension under these provisions, they will not be entitled to a pensioner rate concession and will need to reapply to Council. Should a ratepayer fail to reapply, rebates will not be granted until such application is made, and for a period of two years only.

~~8.2~~9.2 Pensioner concessions for rates and charges are available under sections 575-584 of the Act. To receive the concessions, an eligible pensioner must apply to Council for a reduction in the ordinary rates and charges for Domestic Waste Management of 50 percent provided this does not exceed $250 (section 575).

~~8.3~~9.3 Council may extend the reduction by an additional $50 (section 582) to an eligible pensioner if a successful application has been made under section 575.

~~8.4~~9.4 Under section 577 of the Act, in order to avoid hardship, Council may extend the pensioner concession to ratepayers who jointly occupy a dwelling and are jointly liable for the rates and charges with an eligible pensioner, if it considers it proper to do so.

~~8.5~~9.5 The Act does not provide for the deferral of pensioner rates and charges, apart from the provisions for a formal agreement for periodical payments. However, Council may allow for a delay of recovery proceedings in some cases subject to an interest charge calculated in accordance with section 566 of the Act.

~~9.~~10. DEFERRAL OF RECOVERY PROCEEDINGS AGAINST ELIGIBLE PENSIONERS

~~9.1~~ Council recognises the number of pensioner ratepayers in the community, and is concerned with the difficulties some eligible pensioner ratepayers may have in meeting their rate payments. ~~The deferral of recovery proceedings will not be available to eligible pensioners in hardship that prevents the payment of rates and charges from sources of income or assets.~~

~~9.2~~10.1 Section 712 of the Act provides that proceedings for recovery of a rate or charge may be commenced at any time within nineteen years from the date when the rate or charge became due and payable. The Department of Local Government Rating and Revenue Manual advises that councils have discretion to accrue rates, charges and applicable interest against a pensioner's estate. The Department advises if councils wish to utilise this discretion, agreement is required from the pensioner ratepayer.

~~9.3~~10.2 Where the eligible pensioner requests a delay in recovery action to allow outstanding rates, charges, and interest to accrue against their estate, and is willing to enter into an agreement, Council will:

(1) Provide the eligible applicant pensioner ratepayer with a copy of the Pensioner Deferral Application that will require the disclosure of relevant financial information. The ratepayer must complete the application in order to prevent proceedings commencing.

(2) Provide an annual rates notice of all outstanding rates, charges, and interest as well as appropriate instalment reminders.

(3) Not commence recovery action until there is a change in ownership of the property, either or both ratepayers leave the property (except where the pensioner is in a care facility on a temporary basis being less than 12 months) or either or both become ineligible for a concession. Should any of these events occur, rates and charges will become due and payable.

(4) However, given the constraints as set out in section 712 of the Local Government Act, Council will require pensioners to commence the payment of overdue rates and charges, such that their total debt to Council does not exceed nineteen years.

(5) Should the pensioner be unable to adhere to the above, Council may commence recovery proceedings for any debt in excess of nineteen years.

~~(5)~~

~~9.4~~10.3 The following conditions will apply to Council's agreement to defer recovery action:

(1) Interest will accrue on the deferred rates and charges in accordance with the Local Government Act 1993.

(2) The application to allow accrual of rates against future estate or sale of the property must be in writing, signed by each owner or person having an interest in that land. A letter of confirmation is to be provided each financial year to ensure the ongoing agreement between the ratepayers and the Council.

(3) An eligible pensioner ratepayer must notify Council if the pensioner no longer uses it as his/her principal place of living or rents it out, such notification must be provided by the pensioner within 30 days of vacating the premises.

(4) Council may revoke the deferral of recovery action of rates or charges against land in any of the following circumstances and all overdue rate or charges and interest will become payable immediately when:

(a) the pensioner sells the property, or
(b) when the pensioner ceases to occupy the property as his/her principal place of living, or
(c) when the pensioner rents the property out.

(5) However, where an eligible pensioner does not enter into such an agreement Council will advise the eligible pensioner of their right to negotiate a periodical payment arrangement. Where an agreement on deferral or a periodical payment arrangement is not entered into, debt recovery of rates and annual charges will apply as per this policy.

~~10.~~11. WRITING OFF OF RATES, CHARGES AND INTEREST

11.1 Council may write off rates, charges or interest in accordance with ~~, subject to~~ this policy, the Act and Regulaion:

a) Write off rates and charges in accordance with clause 131(4) of the Regulation:

- If there is an error in the assessment, or
- If the amount is not lawfully recoverable, or
- As a result of a decision of a court, or
- If the council or the general manager believes on reasonable grounds that an attempt to recover the amount would not be cost effective.

b) Write off of accrued interest in accordance with section 567 of the Act is outlined in paragraph 2.15.

11.2 An annual report on rates and charges written off by the General Manager will be tabled to an appropriate ordinary Council meeting at the beginning of the new financial year for the previous financial year.

~~11.~~12. APPLICABLE LEGISLATION

- *Local Government Act 1993*.
- *Local Government (General) Regulation*.
- Council Rating and Revenue Raising Manual Department of Local Government (2007).

~~12.~~13. LINKS TO THE DELIVERY PROGRAM AND OPERATIONAL PLAN

- G1a Develop and maintain a framework of plans and policies that ensures open and transparent operations that facilitate equitable benefit sharing and progress towards sustainability.

- G5a Promote and advocate the provision of financial reporting systems in an accurate, timely, transparent and honest manner to ensure sustainability of public assets and resources.

~~13.~~14. REVIEW OF POLICY

This Policy will be reviewed every four ~~two~~ years or as required in the event of legislative changes or requirements. The Policy may also be changed as a result of other amendments. Any amendments to the Policy must be way of a Council resolution. ~~or with the approval of the General Manager.~~

REPORT
CM/7.7/17.07

Subject: **Investment Portfolio Report - June 2017**

TRIM No.: A03/2211

Author: Julie Makwana, Financial Strategist
Teena Su, Acting Executive Manager, Financial Waverley

Director: Cathy Henderson, Acting General Manager

RECOMMENDATION:

That Council:

1. Receives the Investment Portfolio Report – June 2017.

2. Notes that all investments have been made in accordance with the requirements of section 625 of the *Local Government Act 1993* and directions from the Minister for Local Government, including Ministerial Investment Orders and Council's Investment Policy.

1. Executive Summary

For the month of June 2017, Council's Investment Portfolio generated $320,125 of interest, while for the financial year to date Council's Investment Portfolio has generated $4,145,499 of Interest.

The interest on investment budget for the 2016/17 financial year commenced at $2,846,000 it has increased by $1,203,026 or represented a 42.27% increase from the last three quarterly budget reviews as illustrated in table below:

2016/17 Interest on Investment Budget			**Amendment - increase/ (decrease)**	**Change on original budget - increase/ (decrease)**
	Date Adopted	**Amount**	**$**	**%**
Original Budget	21-Jun-16	2,846,000		
Q1 Amended Budget	15-Nov-16	3,201,000	355,000	12.47%
Q2 Amended Budget	21-Feb-17	3,551,000	350,000	12.30%
Q3 Amended Budget	16-May-17	4,049,026	498,026	17.50%
	Cumulative Amendments		**1,203,026**	**42.27%**

The interest income for the month of June 2017 of $320,125 is tracking at 7.91% of the amended forecast of $4,049,026 while the year to date figure of $4,145,499 is tracking at 102.38%. Council has outperformed the annual amended budget amount of $4,049,026 by 2.38% for 2016 - 2017 financial year.

2. Introduction/Background

Clause 212 of the *Local Government (General) Regulation* requires that Council be provided with a written report setting out details of all money that the Council has invested under section 625 of the *Local*

Government Act 1993 and certifying that these investments have been made in accordance with the Act, regulations, Ministerial Investment Orders and Council's Investment Policy.

The following table below illustrates the monthly interest income received by Council and how this tracks against the original budget and any quarterly adjustments.

Month	Original Budget ($,000)	Actual Monthly ($,000)	Actual YTD ($)	Tracking YTD Original Budget %	Track to YTD Q1 Adjusted Budget %	Track to YTD Q2 Adjusted Budget %	Track to YTD Q3 Adjusted Budget %
July	2,846,000	273,497	273,497	9.61			
August	2,846,000	231,708	505,205	17.75			
September	2,846,000	502,254	1,007,459	35.40			
Q1 Amendment	355,000						
October	3,201,000	304,639	1,312,097	46.10	40.99		
November	3,201,000	442,428	1,754,525	61.65	54.81		
December	3,201,000	310,415	2,064,940	72.56	64.51		
Q2 Amendment	350,000						
January	3,551,000	329,478	2,394,417	84.13	74.80	67.43	
February	3,551,000	434,359	2,828,777	99.39	88.37	79.66	
March	3,551,000	310,462	3,139,239	110.30	98.07	88.40	
Q3 Amendment	498,026						
April	4,049,026	274,349	3,413,589	119.94	106.64	96.13	84.31
May	4,049,026	411,785	3,825,374	134.41	119.51	107.73	94.48
June	4,049,026	320,125	4,145,499	145.66	129.51	116.74	102.38

3. Relevant Council Resolutions

Council or Committee Meeting and Date	Minute No.	Decision
Council Meeting 20 June 2017	CM/7.11/17.06	That Council: 1. Receives the investment Portfolio Report – May 2017. 2. Notes that all investments have been made in accordance with the requirements of section 625 of the *Local Government Act 1993* and directions from the Minister for Local Government, including Ministerial Investment Orders and Council's Investment Policy.

4. Discussion

For the month of June 2017 Council's cash investment portfolio generated interest earnings of $320,125 or 7.91% of the full year amended budget of $4,049,026.

Council's investment portfolio posted a Marked-to-Market return in June 2017 of 2.69 % pa versus the AusBond Bank Bill Index benchmark return of 1.76% pa. Based on the 'yield only' calculation (Weighted Return of Investments) the portfolio posted a return of 2.88% pa.

Over the last 12 months, Council's investment portfolio has exceeded the AusBond bank bill index benchmark by 1.06% pa (2.88% vs 1.82% pa)

Portfolio Value

Council's investment portfolio, as at 30 June 2017, has a current market value of $159,904,938 which represents a gain of $1,703,859 on the $158,201,079 face value of the portfolio with the portfolio generating a 2.73% average yield. The table below provides a summary by investment (asset) type.

Asset Group	$ Face Value	Current $ value	$ Gain / (Loss)	Current Yield
Cash	$8,653,015	$8,653,015	-	1.08%
Floating Rate Note	$23,500,000	$23,709,303	$209,303	2.93%
Floating Rate Term Deposits	$5,500,000	$5,513,167	$13,167	2.85%
Managed Funds	$6,548,064	$6,548,064	-	2.44%
Term Deposit	$114,000,000	$115,481,389	$1,481,389	2.83%
Total	$158,201,079	$159,904,938	$1,703,859	2.73%

Analysis

Attached to this report is the Summary of Investment Portfolio, as prepared by Council's independent financial advisor, Prudential Investment Services Corp, for the period ending 30 June 2017.

Included in that report is a table showing that Council's investment portfolio for the month of June 2017 has exceeded the AusBond bank bill index by 0.93% pa (2.69% to 1.76%). The Portfolio over performed the stated benchmark measure 'Rate of return on cash exceeds AusBond Bank Bill Index' as illustrated in the table below:

Month	Portfolio Last 12 months %	Benchmark Last 12 months %	Variance %
July-16	3.43	2.06	1.38
Aug-16	3.21	2.01	1.20
Sep-16	2.85	1.74	1.11
Oct-16	2.75	1.73	1.01
Nov-16	2.61	1.77	0.84
Dec-16	2.59	1.72	0.87
Jan-17	3.02	1.86	1.15
Feb-17	2.96	1.77	1.19
Mar-17	3.05	1.78	1.26
Apr-17	2.56	1.87	0.70
May-17	2.77	1.72	1.05
Jun-17	2.69	1.76	0.94
Average % return Over the last 12 months	**2.88**	**1.82**	**1.06**

Fossil Fuel Lending ADIs vs Non-Fossil Fuel Lending ADIs

As at the end of June 2017, 54% of Councils portfolio was invested in non-fossil fuel lending ADIs, while Fossil Fuel Lending ADI's accounted for 42% of the portfolio. The remaining 4% is invested with TCorp.

The non-fossil fuel lending ADIs yielded 2.82% pa during the month while fossil fuel lending ADIs yielded 2.92% during the month.

5. Relationship to Waverley Together 3 & Delivery Program 2013-17

The relationship to *Waverley Together 3* and *Delivery Program 2013-17* is as follows:

Direction:	G5 Waverley is financially sustainable with revenue and resources required to support implementation of the community's plans and to provide infrastructure performance and services our community needs.
Strategy:	G5a Promote and advocate the provision of financial reporting systems in an accurate, timely, transparent and honest manner to ensure sustainability of public assets and resources..
Deliverable:	Financial advice and coordination to ensure Council meets overall budget performance targets provided.

6. Financial impact statement/Timeframe/Consultation

This report has been prepared in consultation with Council's Acting Management and Systems Accountant and Council's independent financial advisers, Prudential Investment Services Corp.

7. Conclusion

Council's investment portfolio has accounted $320,125 in interest income for the month of June 2017, and $4,145,499 for the financial year to date. Council has outperformed the annual amended budget amount of $4,049,026 for the 2016 - 2017 financial year.

8. Attachments

1. Investment Summary Report - June 2017

WAVERLEY
COUNCIL

Investment Summary Report
June 2017

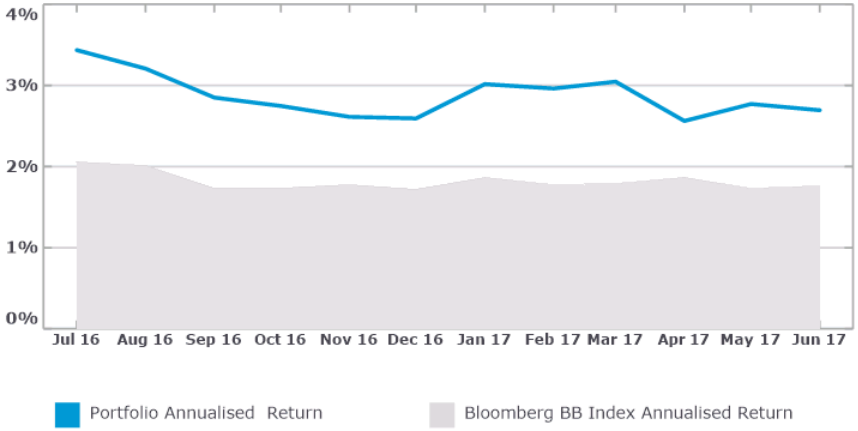
Waverley Council
Executive Summary

WAVERLEY COUNCIL

Investment Holdings

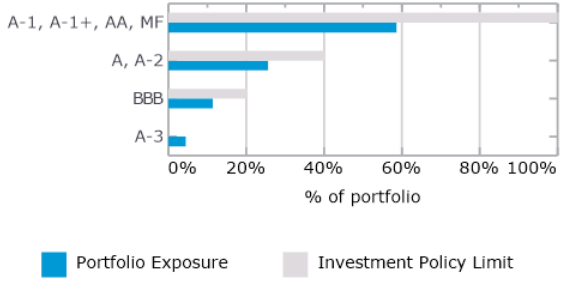
	Face Value ($)	Current Value ($)	Gain/ (Loss)($)	Current Yield (%)
Cash	8,653,015.30	8,653,015.30	0.00	1.0786
Floating Rate Note	23,500,000.00	23,709,302.83	209,302.83	2.9261
Floating Rate Term Deposits	5,500,000.00	5,513,166.71	13,166.71	2.8498
Managed Funds	6,548,063.73	6,548,063.73	0.00	2.4416
Term Deposit	114,000,000.00	115,481,389.16	1,481,389.16	2.8276
	158,201,079.03	**159,904,937.73**	**1,703,858.70**	**2.7344**

Investment Performance

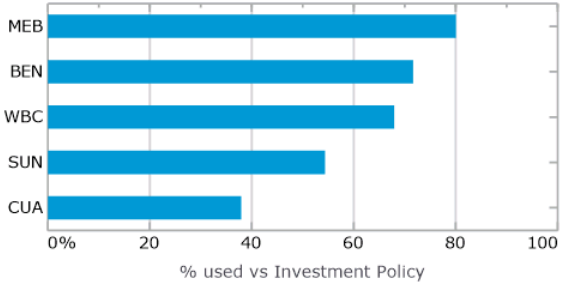


Investment Policy Compliance

Total Credit Exposure



Highest Individual Exposures



Term to Maturities

Maturity Profile	Face Value ($)		Policy Max
Between 0 and 1 Year	115,201,079	73%	100%
Between 1 and 3 Years	34,000,000	21%	50%
Between 3 and 10 Years	9,000,000	6%	30%
	158,201,079		

Waverley Council

Investment Holdings Report

WAVERLEY COUNCIL

Cash Accounts

Face Value ($)	Current Yield	Institution	Credit Rating	Current Value ($)	Deal No.	Reference
6,800,000.00	1.1000%	Commonwealth Bank of Australia	A-1+	6,800,000.00	120789	24hr Call
124,828.99	1.0000%	Commonwealth Bank of Australia	A-1+	124,828.99	120794	General Funds
219,908.10	1.0000%	Commonwealth Bank of Australia	A-1+	219,908.10	120795	Trust Funds
1,048,980.51	1.0000%	Commonwealth Bank of Australia	A-1+	1,048,980.51	120796	Cemetery Funds
391,025.47	1.0000%	Commonwealth Bank of Australia	A-1+	391,025.47	120797	Depositor Funds
4,721.82	1.1000%	Commonwealth Bank of Australia	A-1+	4,721.82	120799	Library CP
26,761.69	1.0000%	Commonwealth Bank of Australia	A-1+	26,761.69	120800	Eastgate CP
7,242.34	1.0000%	Commonwealth Bank of Australia	A-1+	7,242.34	120801	Hollywood Av CP
29,546.38	1.0000%	Commonwealth Bank of Australia	A-1+	29,546.38	370151	Library Gift
8,653,015.30	**1.0786%**			**8,653,015.30**		

Managed Funds

Face Value ($)	Current Yield	Institution	Credit Rating	Fund Name	Current Value ($)	Deal No.	Reference
2,033,721.51	2.5312%	New South Wales T-Corp	MF	Strategic Cash Facility	2,033,721.51	411310	Builder Deposits
4,514,342.22	2.4013%	New South Wales T-Corp	MF	Cash Facility	4,514,342.22	505262	
6,548,063.73	**2.4416%**				**6,548,063.73**		

Term Deposits

Maturity Date	Face Value ($)	Rate	Institution	Credit Rating	Purchase Price ($)	Purchase Date	Current Value ($)	Deal No.	Accrued Interest ($)	Coupon Frequency	Reference
4-Jul-17	3,000,000.00	2.8000%	Suncorp Bank	A-1	3,000,000.00	5-Dec-16	3,047,868.49	534623	47,868.49	AtMaturity	
12-Jul-17	6,000,000.00	2.8000%	Suncorp Bank	A-1	6,000,000.00	12-Dec-16	6,092,515.07	534659	92,515.07	AtMaturity	
2-Aug-17	2,500,000.00	2.8000%	National Australia Bank	A-1+	2,500,000.00	3-Aug-16	2,563,671.23	534099	63,671.23	AtMaturity	
9-Aug-17	3,000,000.00	3.0000%	Westpac Group	A-1+	3,000,000.00	9-Aug-16	3,080,383.56	534115	80,383.56	AtMaturity	
24-Aug-17	3,000,000.00	3.0000%	Westpac Group	A-1+	3,000,000.00	24-Aug-16	3,076,684.93	534165	76,684.93	AtMaturity	
6-Sep-17	3,000,000.00	2.7500%	AMP Bank	A-1	3,000,000.00	3-Mar-17	3,027,123.29	534938	27,123.29	AtMaturity	
13-Sep-17	3,000,000.00	2.8000%	ME Bank	A-2	3,000,000.00	20-Dec-16	3,044,416.44	534673	44,416.44	AtMaturity	

Waverley Council

Investment Holdings Report

WAVERLEY COUNCIL

Term Deposits

Maturity Date	Face Value ($)	Rate	Institution	Credit Rating	Purchase Price ($)	Purchase Date	Current Value ($)	Deal No.	Accrued Interest ($)	Coupon Frequency	Reference
20-Sep-17	3,000,000.00	2.8000%	Bank of Queensland	A-2	3,000,000.00	20-Dec-16	3,044,416.44	534672	44,416.44	AtMaturity	
27-Sep-17	2,750,000.00	3.0000%	Westpac Group	A-1+	2,750,000.00	20-Sep-16	2,814,191.78	534345	64,191.78	Annually	
11-Oct-17	3,000,000.00	2.6300%	Suncorp Bank	A-1	3,000,000.00	15-Feb-17	3,029,398.36	534881	29,398.36	AtMaturity	
18-Oct-17	3,000,000.00	3.0000%	Westpac Group	A-1+	3,000,000.00	18-Aug-16	3,078,164.38	534151	78,164.38	Annually	
18-Oct-17	1,500,000.00	2.8000%	Auswide Bank	A-3	1,500,000.00	19-Apr-17	1,508,400.00	535191	8,400.00	AtMaturity	
25-Oct-17	2,500,000.00	3.0000%	Westpac Group	A-1+	2,500,000.00	12-Oct-16	2,553,835.62	534449	53,835.62	Annually	
8-Nov-17	3,000,000.00	2.7000%	ME Bank	A-2	3,000,000.00	3-May-17	3,013,093.15	535222	13,093.15	AtMaturity	
15-Nov-17	3,000,000.00	2.7000%	ME Bank	A-2	3,000,000.00	22-May-17	3,008,876.71	535259	8,876.71	AtMaturity	
22-Nov-17	2,000,000.00	2.8000%	Bank of Queensland	A-2	2,000,000.00	23-Nov-16	2,033,753.42	534561	33,753.42	AtMaturity	
22-Nov-17	3,000,000.00	2.7000%	ME Bank	A-2	3,000,000.00	19-May-17	3,009,542.47	535257	9,542.47	AtMaturity	
29-Nov-17	3,000,000.00	2.6500%	Suncorp Bank	A-1	3,000,000.00	31-Jan-17	3,032,889.04	534806	32,889.04	AtMaturity	
6-Dec-17	3,000,000.00	2.7000%	Credit Union Australia	A-2	3,000,000.00	24-May-17	3,008,432.88	535263	8,432.88	AtMaturity	
13-Dec-17	2,000,000.00	2.7500%	AMP Bank	A-1	2,000,000.00	15-Mar-17	2,016,273.97	535002	16,273.97	AtMaturity	
13-Dec-17	2,000,000.00	2.7000%	ME Bank	A-2	2,000,000.00	6-Jun-17	2,003,698.63	535319	3,698.63	AtMaturity	
20-Dec-17	2,750,000.00	3.0000%	Westpac Group	A-1+	2,750,000.00	20-Sep-16	2,814,191.78	534347	64,191.78	Annually	
3-Jan-18	2,000,000.00	2.7000%	ME Bank	A-2	2,000,000.00	21-Jun-17	2,001,479.45	535372	1,479.45	AtMaturity	
17-Jan-18	5,000,000.00	2.7000%	Suncorp Bank	A-1	5,000,000.00	18-Jan-17	5,060,657.53	534786	60,657.53	AtMaturity	
24-Jan-18	2,750,000.00	3.0000%	Westpac Group	A-1+	2,750,000.00	20-Sep-16	2,814,191.78	534348	64,191.78	Annually	
7-Feb-18	4,000,000.00	2.6700%	Commonwealth Bank of Australia	A-1+	4,000,000.00	30-Mar-17	4,027,212.05	535109	27,212.05	AtMaturity	
7-Mar-18	3,000,000.00	2.8000%	Credit Union Australia	A-2	3,000,000.00	7-Mar-17	3,026,695.89	534968	26,695.89	AtMaturity	
11-Apr-18	2,750,000.00	3.0000%	Westpac Group	A-1+	2,750,000.00	20-Sep-16	2,814,191.78	534346	64,191.78	Annually	
18-Apr-18	2,000,000.00	2.8500%	Auswide Bank	A-3	2,000,000.00	19-Apr-17	2,011,400.00	535190	11,400.00	AtMaturity	
24-Apr-18	3,500,000.00	2.7500%	Auswide Bank	A-3	3,500,000.00	27-Apr-17	3,517,140.41	535197	17,140.41	AtMaturity	
9-May-18	3,000,000.00	2.7500%	ME Bank	A-2	3,000,000.00	9-May-17	3,011,979.45	535232	11,979.45	AtMaturity	
30-May-18	3,000,000.00	2.7000%	Bendigo and Adelaide Bank	A-2	3,000,000.00	31-May-17	3,006,879.45	535277	6,879.45	AtMaturity	
6-Jun-18	6,000,000.00	2.7000%	Bendigo and Adelaide Bank	A-2	6,000,000.00	14-Jun-17	6,007,545.21	535358	7,545.21	AtMaturity	

Waverley Council

Investment Holdings Report

WAVERLEY COUNCIL

Term Deposits

Maturity Date	Face Value ($)	Rate	Institution	Credit Rating	Purchase Price ($)	Purchase Date	Current Value ($)	Deal No.	Accrued Interest ($)	Coupon Frequency	Reference
24-Aug-18	3,000,000.00	3.1000%	Westpac Group	AA-	3,000,000.00	24-Aug-16	3,079,241.10	534166	79,241.10	Annually	
26-Sep-18	4,000,000.00	3.1000%	Westpac Group	AA-	4,000,000.00	20-Sep-16	4,096,482.19	534344	96,482.19	Annually	
6-Nov-18	2,000,000.00	3.0000%	Westpac Group	AA-	2,000,000.00	3-Nov-16	2,039,452.05	534489	39,452.05	Annually	
15-May-19	3,000,000.00	2.9000%	Bendigo and Adelaide Bank	BBB+	3,000,000.00	18-May-17	3,010,487.67	535251	10,487.67	Annually	
26-Aug-19	2,000,000.00	3.2000%	Westpac Group	AA-	2,000,000.00	24-Aug-16	2,054,531.51	534167	54,531.51	Annually	
	114,000,000.00	**2.8276%**			**114,000,000.00**		**115,481,389.16**		**1,481,389.16**		

Floating Rate Term Deposits

Maturity Date	Face Value ($)	Rate	Institution	Credit Rating	Purchase Price ($)	Purchase Date	Current Value ($)	Deal No.	Accrued Interest ($)	Next Interest Date	Reference
10-Jun-21	3,000,000.00	2.8622%	Commonwealth Bank of Australia ¾yr@4.00% then 3moBBSW+1.08%	AA-	3,000,000.00	13-Jun-17	3,004,234.52	535380	4,234.52	13-Sep-17	
16-May-22	2,500,000.00	2.8350%	Westpac Group 3moBBSW+1.10%	AA-	2,500,000.00	16-May-17	2,508,932.19	535241	8,932.19	16-Aug-17	
	5,500,000.00	**2.8498%**			**5,500,000.00**		**5,513,166.71**		**13,166.71**		

Floating Rate Notes

Maturity Date	Face Value ($)	Current Coupon	Security Name	Credit Rating	Purchase Price ($)	Purchase Date	Current Value ($)	Deal No.	Accrued Interest ($)	Next Coupon Date	Reference
14-Nov-18	2,000,000.00	3.0050%	BEN Snr FRN (Nov18) BBSW+1.27%	BBB+	2,004,260.00	5-Feb-14	2,021,158.90	420520	7,738.90	14-Aug-17	
10-May-19	7,000,000.00	2.7350%	WBC Snr FRN (May19) BBSW+1.00%	AA-	7,000,000.00	11-Mar-16	7,090,695.07	533331	27,275.07	10-Aug-17	
29-Nov-19	2,000,000.00	3.2400%	GBS Snr FRN (Nov19) BBSW+1.50%	BBB	2,000,000.00	29-Nov-16	1,994,254.89	534564	5,858.63	28-Aug-17	
21-Feb-20	3,000,000.00	2.8350%	BEN Snr FRN (Feb20) BBSW+1.10%	BBB+	3,000,000.00	21-Nov-16	3,015,500.55	534540	9,320.55	21-Aug-17	
20-Mar-20	3,000,000.00	3.0200%	CUA Snr FRN (Mar20) BBSW+1.30%	BBB	3,000,000.00	20-Mar-17	2,998,020.41	534995	2,730.41	20-Sep-17	
7-Apr-20	3,000,000.00	3.1350%	NPBS Snr FRN (Apr20) BBSW+1.35%	BBB	3,000,000.00	7-Apr-15	3,021,932.05	504013	21,902.05	7-Jul-17	
12-Apr-21	1,500,000.00	3.1450%	SUN Snr FRN (Apr21) BBSW+1.38%	A+	1,500,000.00	12-Apr-16	1,533,589.73	533415	10,339.73	12-Jul-17	
18-May-21	2,000,000.00	3.2150%	BoQ Snr FRN (May21) BBSW+1.48%	BBB+	2,000,000.00	18-May-16	2,034,151.23	533605	7,751.23	18-Aug-17	

Waverley Council

Investment Holdings Report

WAVERLEY COUNCIL

Floating Rate Notes

Maturity Date	Face Value ($)	Current Coupon	Security Name	Credit Rating	Purchase Price ($)	Purchase Date	Current Value ($)	Deal No.	Accrued Interest ($)	Next Coupon Reference Date
	23,500,000.00	2.9682%			23,504,260.00		23,709,302.83		92,916.57	

Waverley Council
Accrued Interest Report

WAVERLEY COUNCIL

Accrued Interest Report								
Asset Type	**Deal Number**	**Face Value ($)**	**Settlement Date**	**Maturity Date**	**Interest Received ($)**	**Days Accrued**	**Interest Accrued ($)**	**Percentage Return**
Cash								
Commonwealth Bank of Australia	120789	6,800,000.00				30		
Commonwealth Bank of Australia	120794	124,828.99				30		
Commonwealth Bank of Australia	120795	219,908.10				30		
Commonwealth Bank of Australia	120796	1,048,980.51				30		
Commonwealth Bank of Australia	120797	391,025.47				30		
Commonwealth Bank of Australia	120799	4,721.82				30		
Commonwealth Bank of Australia	120800	26,761.69				30		
Commonwealth Bank of Australia	120801	7,242.34				30		
Commonwealth Bank of Australia	370151	29,546.38				30		
Floating Rate Note								
BEN Snr FRN (Nov18) BBSW+1.27%	420520	2,000,000.00	10-Feb-14	14-Nov-18	0.00	30	4,939.73	3.01%
WBC Snr FRN (May19) BBSW+1.00%	533331	7,000,000.00	11-Mar-16	10-May-19	0.00	30	15,735.62	2.74%
GBS Snr FRN (Nov19) BBSW+1.50%	534564	2,000,000.00	29-Nov-16	29-Nov-19	0.00	30	5,326.03	3.24%
BEN Snr FRN (Feb20) BBSW+1.10%	534540	3,000,000.00	21-Nov-16	21-Feb-20	0.00	30	6,990.41	2.83%
CUA Snr FRN (Mar20) BBSW+1.30%	534995	3,000,000.00	20-Mar-17	20-Mar-20	23,403.29	30	7,563.70	3.07%
NPBS Snr FRN (Apr20) BBSW+1.35%	504013	3,000,000.00	7-Apr-15	7-Apr-20	0.00	30	7,730.14	3.13%
SUN Snr FRN (Apr21) BBSW+1.38%	533415	1,500,000.00	12-Apr-16	12-Apr-21	0.00	30	3,877.40	3.15%
BoQ Snr FRN (May21) BBSW+1.48%	533605	2,000,000.00	18-May-16	18-May-21	0.00	30	5,284.93	3.22%
					23,403.29		**57,447.95**	**2.97%**
Floating Rate Term Deposits								
Commonwealth Bank of Australia	533800	3,000,000.00	10-Mar-17	13-Jun-17	0.00	12	2,736.52	2.77%
Commonwealth Bank of Australia	535380	3,000,000.00	13-Jun-17	10-Jun-21	0.00	18	4,234.52	2.86%

Waverley Council
Accrued Interest Report

WAVERLEY COUNCIL

Accrued Interest Report								
Asset Type	**Deal Number**	**Face Value ($)**	**Settlement Date**	**Maturity Date**	**Interest Received ($)**	**Days Accrued**	**Interest Accrued ($)**	**Percentage Return**
Westpac Group 3moBBSW+1.10%	535241	2,500,000.00	16-May-17	16-May-22	0.00	30	5,825.34	2.83%
					0.00		**12,796.38**	**2.83%**
Managed Funds								
New South Wales T-Corp	411310	2,033,721.51	1-Nov-15	29-Dec-17	0.00	30	4,174.01	2.53%
New South Wales T-Corp	505262	4,514,342.22	30-Jun-15	29-Dec-17	0.00	30	8,795.78	2.40%
					0.00		**12,969.79**	**2.44%**
Term Deposit								
Bank of Queensland	534622	3,000,000.00	5-Dec-16	6-Jun-17	42,115.07	5	1,150.68	2.80%
Auswide Bank	534669	4,000,000.00	15-Dec-16	14-Jun-17	56,531.51	13	4,060.27	2.85%
Auswide Bank	534674	4,000,000.00	20-Dec-16	21-Jun-17	57,156.16	20	6,246.58	2.85%
Suncorp Bank	534623	3,000,000.00	5-Dec-16	4-Jul-17	0.00	30	6,904.11	2.80%
Suncorp Bank	534659	6,000,000.00	12-Dec-16	12-Jul-17	0.00	30	13,808.22	2.80%
National Australia Bank	534099	2,500,000.00	3-Aug-16	2-Aug-17	0.00	30	5,753.42	2.80%
Westpac Group	534115	3,000,000.00	9-Aug-16	9-Aug-17	0.00	30	7,397.26	3.00%
Westpac Group	534165	3,000,000.00	24-Aug-16	24-Aug-17	0.00	30	7,397.26	3.00%
AMP Bank	534938	3,000,000.00	3-Mar-17	6-Sep-17	0.00	30	6,780.82	2.75%
ME Bank	534673	3,000,000.00	20-Dec-16	13-Sep-17	0.00	30	6,904.11	2.80%
Bank of Queensland	534672	3,000,000.00	20-Dec-16	20-Sep-17	0.00	30	6,904.11	2.80%
Westpac Group	534345	2,750,000.00	20-Sep-16	27-Sep-17	0.00	30	6,780.82	3.00%
Suncorp Bank	534881	3,000,000.00	15-Feb-17	11-Oct-17	0.00	30	6,484.93	2.63%
Westpac Group	534151	3,000,000.00	18-Aug-16	18-Oct-17	0.00	30	7,397.26	3.00%
Auswide Bank	535191	1,500,000.00	19-Apr-17	18-Oct-17	0.00	30	3,452.05	2.80%
Westpac Group	534449	2,500,000.00	12-Oct-16	25-Oct-17	0.00	30	6,164.38	3.00%
ME Bank	535222	3,000,000.00	3-May-17	8-Nov-17	0.00	30	6,657.53	2.70%

Waverley Council
Accrued Interest Report

WAVERLEY COUNCIL

Accrued Interest Report

Asset Type	Deal Number	Face Value ($)	Settlement Date	Maturity Date	Interest Received ($)	Days Accrued	Interest Accrued ($)	Percentage Return
ME Bank	535259	3,000,000.00	22-May-17	15-Nov-17	0.00	30	6,657.53	2.70%
Bank of Queensland	534561	2,000,000.00	23-Nov-16	22-Nov-17	0.00	30	4,602.74	2.80%
ME Bank	535257	3,000,000.00	19-May-17	22-Nov-17	0.00	30	6,657.53	2.70%
Suncorp Bank	534806	3,000,000.00	31-Jan-17	29-Nov-17	0.00	30	6,534.25	2.65%
Credit Union Australia	535263	3,000,000.00	24-May-17	6-Dec-17	0.00	30	6,657.53	2.70%
AMP Bank	535002	2,000,000.00	15-Mar-17	13-Dec-17	0.00	30	4,520.55	2.75%
ME Bank	535319	2,000,000.00	6-Jun-17	13-Dec-17	0.00	25	3,698.63	2.70%
Westpac Group	534347	2,750,000.00	20-Sep-16	20-Dec-17	0.00	30	6,780.82	3.00%
ME Bank	535372	2,000,000.00	21-Jun-17	3-Jan-18	0.00	10	1,479.45	2.70%
Suncorp Bank	534786	5,000,000.00	18-Jan-17	17-Jan-18	0.00	30	11,095.89	2.70%
Westpac Group	534348	2,750,000.00	20-Sep-16	24-Jan-18	0.00	30	6,780.82	3.00%
Commonwealth Bank of Australia	535109	4,000,000.00	30-Mar-17	7-Feb-18	0.00	30	8,778.08	2.67%
Credit Union Australia	534968	3,000,000.00	7-Mar-17	7-Mar-18	0.00	30	6,904.11	2.80%
Westpac Group	534346	2,750,000.00	20-Sep-16	11-Apr-18	0.00	30	6,780.82	3.00%
Auswide Bank	535190	2,000,000.00	19-Apr-17	18-Apr-18	0.00	30	4,684.93	2.85%
Auswide Bank	535197	3,500,000.00	27-Apr-17	24-Apr-18	0.00	30	7,910.96	2.75%
ME Bank	535232	3,000,000.00	9-May-17	9-May-18	0.00	30	6,780.82	2.75%
Bendigo and Adelaide Bank	535277	3,000,000.00	31-May-17	30-May-18	0.00	30	6,657.53	2.70%
Bendigo and Adelaide Bank	535358	6,000,000.00	14-Jun-17	6-Jun-18	0.00	17	7,545.21	2.70%
Westpac Group	534166	3,000,000.00	24-Aug-16	24-Aug-18	0.00	30	7,643.84	3.10%
Westpac Group	534344	4,000,000.00	20-Sep-16	26-Sep-18	0.00	30	10,191.78	3.10%
Westpac Group	534489	2,000,000.00	3-Nov-16	6-Nov-18	0.00	30	4,931.51	3.00%
Bendigo and Adelaide Bank	535251	3,000,000.00	18-May-17	15-May-19	0.00	30	7,150.68	2.90%
Westpac Group	534167	2,000,000.00	24-Aug-16	26-Aug-19	0.00	30	5,260.27	3.20%
					155,802.74		**266,930.14**	**2.83%**

Waverley Council
Accrued Interest Report

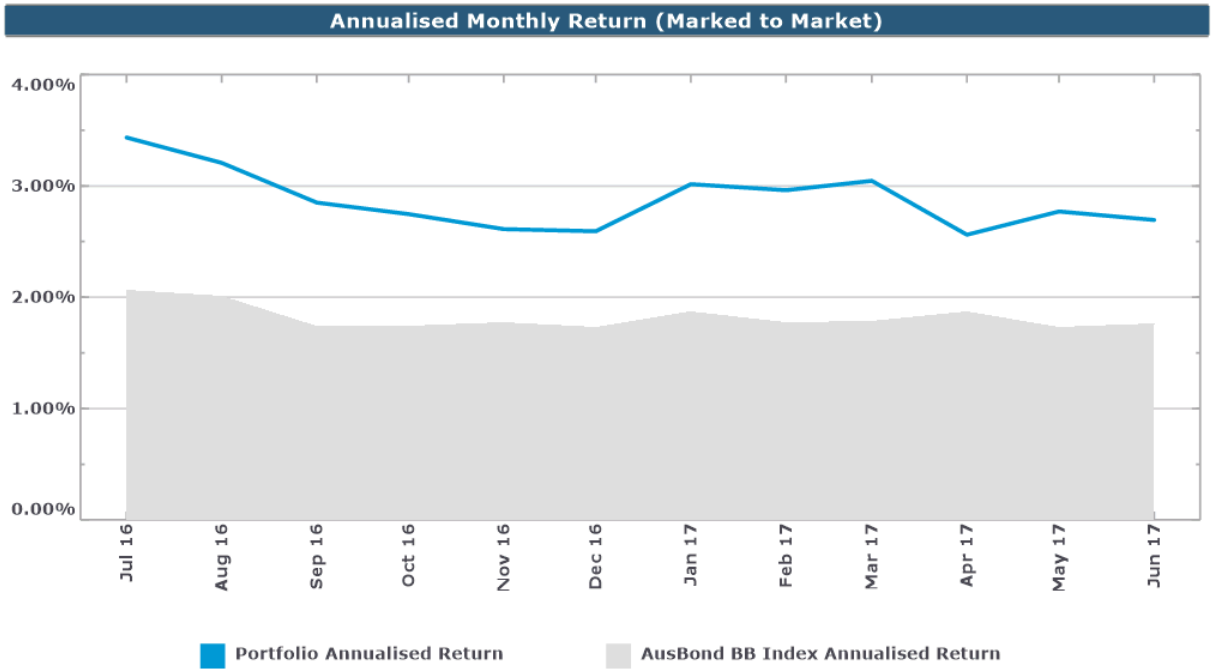
WAVERLEY COUNCIL

Accrued Interest Report

Asset Type	Deal Number	Face Value ($)	Settlement Date	Maturity Date	Interest Received ($)	Days Accrued	Interest Accrued ($)	Percentage Return
Grand Totals					179,206.03		350,144.25	2.84%

Waverley Council
Investment Performance Report

WAVERLEY COUNCIL



Historical Performance Summary

	Portfolio	AusBond BB Index	Outperformance
Jun 2017	2.69%	1.76%	0.94%
Last 3 Months	2.68%	1.78%	0.90%
Last 6 Months	2.84%	1.79%	1.05%
Financial Year to Date	2.88%	1.82%	1.06%
Last 12 months	2.88%	1.82%	1.06%

Waverley Council
Environmental Commitments Report

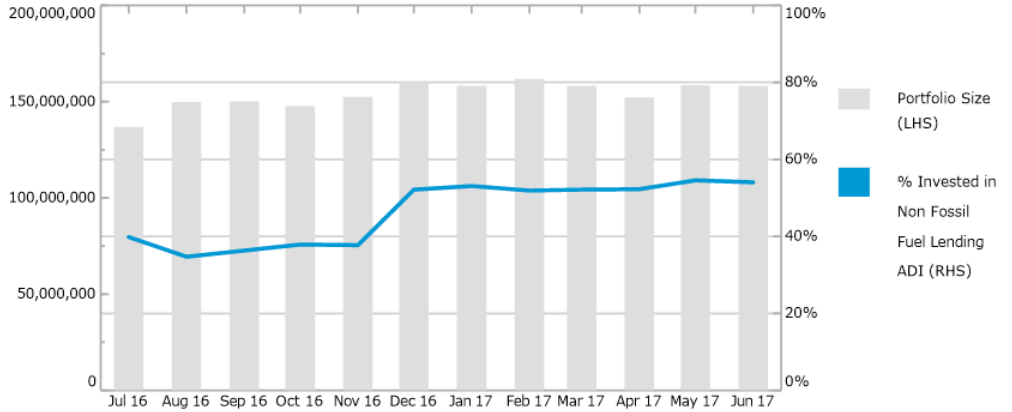
WAVERLEY COUNCIL

Current Breakdown

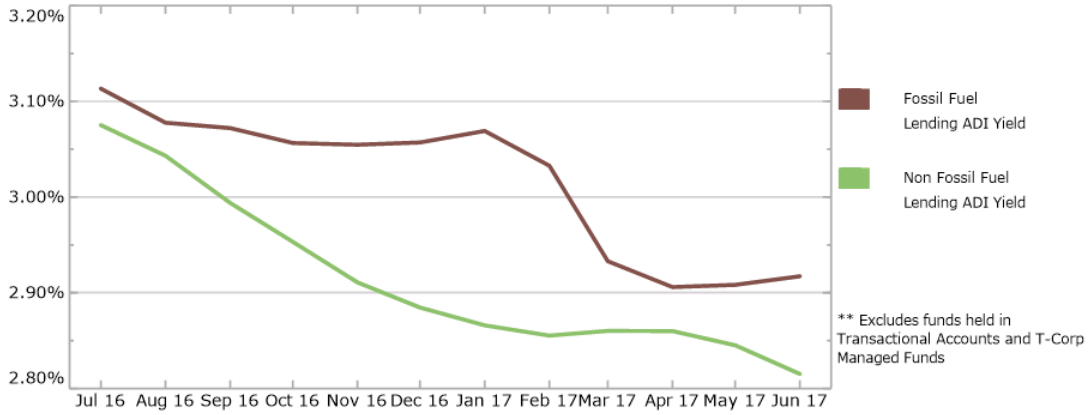
ADI Lending Status *	Face Value ($)	
Fossil Fuel Lending ADIs		
AMP Bank	5,000,000	
Commonwealth Bank of Australia	15,653,015	
National Australia Bank	2,500,000	
Westpac Group	43,000,000	
	66,153,015	**42%**
Non Fossil Fuel Lending ADIs		
Auswide Bank	7,000,000	
Bank of Queensland	7,000,000	
Bendigo and Adelaide Bank	17,000,000	
Credit Union Australia	9,000,000	
Greater Building Society	2,000,000	
Members Equity Bank	19,000,000	
Newcastle Permanent Building Society	3,000,000	
Suncorp Bank	21,500,000	
	85,500,000	**54%**
Other		
New South Wales T-Corp	6,548,064	
	6,548,064	**4%**
	158,201,079	

** source: http://www.marketforces.org.au*

Historical Portfolio Exposure to Non Fossil Fuel Lending ADIs



Weighted Average Yield - Fossil Fuel vs Non Fossil Fuel Lending ADI



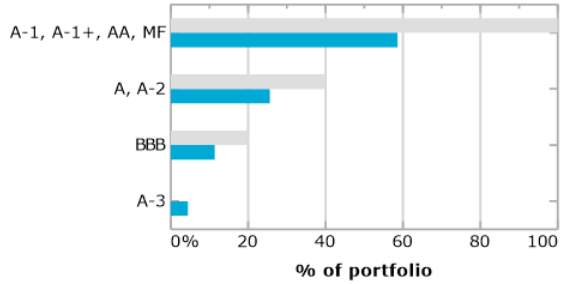
** Excludes funds held in Transactional Accounts and T-Corp Managed Funds

Waverley Council

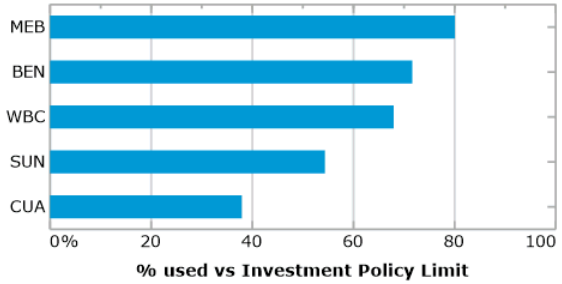
Investment Policy Compliance Report

WAVERLEY COUNCIL

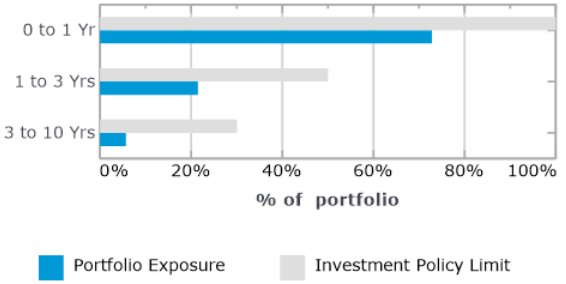
Total Credit Exposure



Individual Institutional Exposures



Term to Maturities



	Credit Rating	Face Value ($)		Policy Max	
Short Term	A-1	25,000,000			
Short Term	A-1+	37,653,015			
Short Term	MF	6,548,064			
Long Term	AA	23,500,000			
		92,701,079	**59%**	**100%**	✔
Short Term	A-2	39,000,000			
Long Term	A	1,500,000			
		40,500,000	**26%**	**40%**	✔
Long Term	BBB	18,000,000			
		18,000,000	**11%**	**20%**	✔
Short Term	A-3	7,000,000			
		7,000,000	**4%**	**0%**	✘
		158,201,079	**100%**		

✔ = compliant
✘ = non-compliant

	% used vs Investment Policy Limit	
Members Equity Bank (A-2, BBB)	80%	✔
Bendigo and Adelaide Bank (A-2, BBB+)	72%	✔
Westpac Group (A-1+, AA-)	68%	✔
Suncorp Bank (A-1, A+)	54%	✔
Credit Union Australia (A-2, BBB)	38%	✔
Bank of Queensland (A-2, BBB+)	29%	✔
Commonwealth Bank of Australia (A-1+, AA-)	25%	✔
Newcastle Permanent Building Society (A-2, BBB)	19%	✔
Greater Building Society (A-2, BBB)	13%	✔
AMP Bank (A-1, A)	13%	✔
New South Wales T-Corp (MF)	4%	✔
National Australia Bank (A-1+, AA-)	4%	✔
Auswide Bank (A-3, BBB-)	0%	✘

	Face Value ($)		Policy Max	
Between 0 and 1 Year	115,201,079	73%	100%	✔
Between 1 and 3 Years	34,000,000	21%	50%	✔
Between 3 and 10 Years	9,000,000	6%	30%	✔
	158,201,079			

Detailed Maturity Profile	Face Value ($)	
00. Cash + Managed Funds	15,201,079	10%
01. Less Than 30 Days	9,000,000	6%
02. Between 30 Days and 60 Days	8,500,000	5%
03. Between 60 Days and 90 Days	11,750,000	7%
04. Between 90 Days and 180 Days	33,750,000	21%
05. Between 180 Days and 365 Days	37,000,000	23%
06. Between 365 Days and 3 Years	34,000,000	21%
07. Between 3 Years and 5 Years	9,000,000	6%
	158,201,079	

PRUDENTIAL INVESTMENT SERVICES CORP

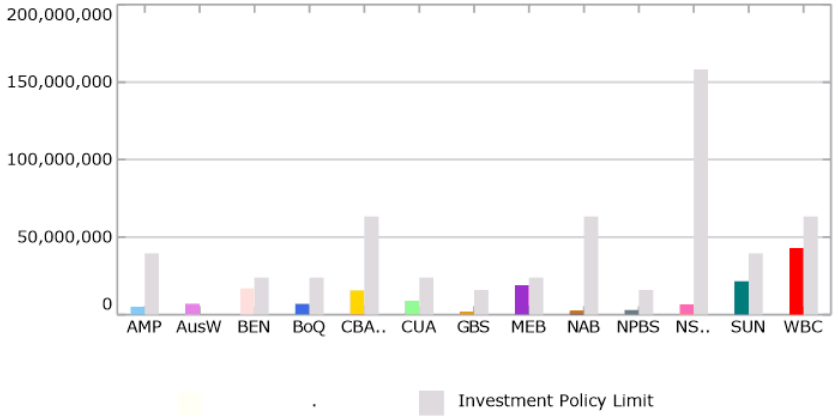
Waverley Council
Individual Institutional Exposures Report

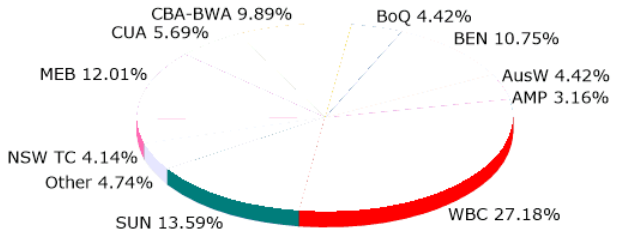
WAVERLEY COUNCIL

Individual Institutional Exposures

Parent Group	Credit Rating	Portfolio Exposure ($)	Investment Policy Limit ($)
AMP Bank	A, A-1	5,000,000	39,550,270
Auswide Bank	A-3, BBB-	7,000,000	0
Bank of Queensland	A-2, BBB+	7,000,000	23,730,162
Bendigo and Adelaide Bank	A-2, BBB+	17,000,000	23,730,162
Commonwealth Bank of Australia	A-1+, AA-	15,653,015	63,280,432
Credit Union Australia	A-2, BBB	9,000,000	23,730,162
Greater Building Society	A-2, BBB	2,000,000	15,820,108
Members Equity Bank	A-2, BBB	19,000,000	23,730,162
National Australia Bank	A-1+, AA-	2,500,000	63,280,432
New South Wales T-Corp	MF	6,548,064	158,201,079
Newcastle Permanent Building Society	A-2, BBB	3,000,000	15,820,108
Suncorp Bank	A-1, A+	21,500,000	39,550,270
Westpac Group	A-1+, AA-	43,000,000	63,280,432
		158,201,079	

Individual Institutional Exposure Charts





Waverley Council
Cash Flows Report

WAVERLEY COUNCIL

Current Month Cashflows

Transaction Date	Deal No.	Cashflow Counterparty	Asset Type	Cashflow Description	Cashflow Received
6-Jun-17	534622	Bank of Queensland	Term Deposits	Interest - Received	42,115.07
		Bank of Queensland	Term Deposits	Maturity Face Value - Received	3,000,000.00
				Deal Total	3,042,115.07
	535319	ME Bank	Term Deposits	Settlement Face Value - Paid	-2,000,000.00
				Deal Total	-2,000,000.00
				Day Total	**1,042,115.07**
13-Jun-17	533800	Commonwealth Bank of Australia	Floating Rate Term Deposits	Interest - Received	21,664.11
		Commonwealth Bank of Australia	Floating Rate Term Deposits	Maturity Face Value - Received	3,000,000.00
				Deal Total	3,021,664.11
	535380	Commonwealth Bank of Australia	Floating Rate Term Deposits	Settlement Face Value - Paid	-3,000,000.00
				Deal Total	-3,000,000.00
				Day Total	**21,664.11**
14-Jun-17	534669	Auswide Bank	Term Deposits	Interest - Received	56,531.51
		Auswide Bank	Term Deposits	Maturity Face Value - Received	4,000,000.00
				Deal Total	4,056,531.51
	535358	Bendigo and Adelaide Bank	Term Deposits	Settlement Face Value - Paid	-6,000,000.00
				Deal Total	-6,000,000.00
				Day Total	**-1,943,468.49**
20-Jun-17	534995	Credit Union Australia	Floating Rate Note	Coupon - Received	23,403.29
				Deal Total	23,403.29
				Day Total	**23,403.29**
21-Jun-17	534674	Auswide Bank	Term Deposits	Interest - Received	57,156.16
		Auswide Bank	Term Deposits	Maturity Face Value - Received	4,000,000.00
				Deal Total	4,057,156.16
	535372	ME Bank	Term Deposits	Settlement Face Value - Paid	-2,000,000.00
				Deal Total	-2,000,000.00
				Day Total	**2,057,156.16**
				Net Cash Movement for Period	**1,200,870.14**

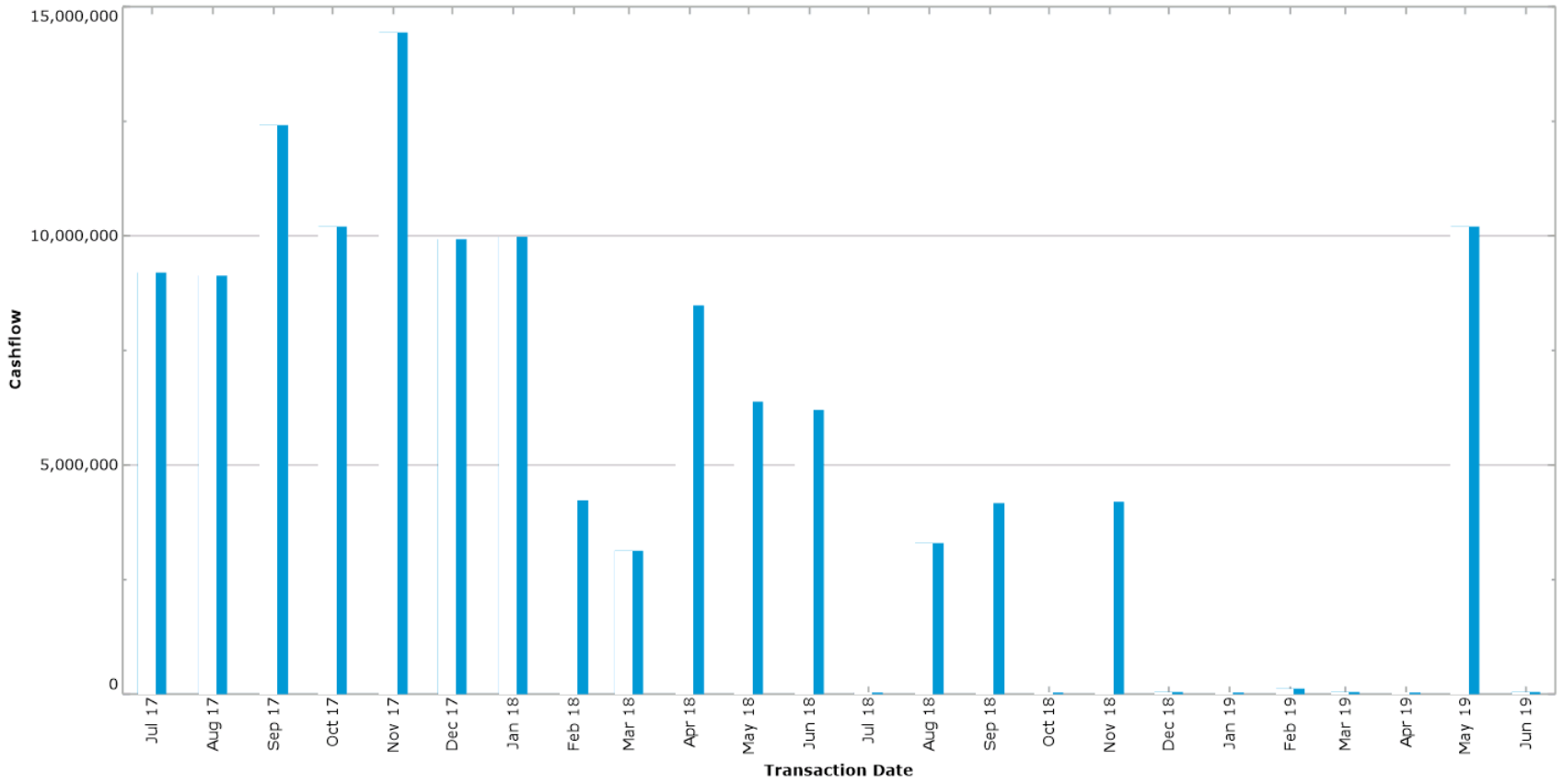
Waverley Council
Cash Flows Report

WAVERLEY COUNCIL

Next Month Cashflows

Transaction Date	Deal No.	Cashflow Counterparty	Asset Type	Cashflow Description	Cashflow Due
4-Jul-17	534623	Suncorp Bank	Term Deposit	Interest - Received	48,558.90
		Suncorp Bank	Term Deposit	Maturity Face Value - Received	3,000,000.00
				Deal Total	3,048,558.90
				Day Total	**3,048,558.90**
7-Jul-17	504013	Newcastle Permanent Building Society	Floating Rate Note	Coupon - Received	23,448.08
				Deal Total	23,448.08
				Day Total	**23,448.08**
12-Jul-17	533415	Suncorp Bank	Floating Rate Note	Coupon - Received	11,761.44
				Deal Total	11,761.44
	534659	Suncorp Bank	Term Deposit	Interest - Received	97,578.08
		Suncorp Bank	Term Deposit	Maturity Face Value - Received	6,000,000.00
				Deal Total	6,097,578.08
				Day Total	**6,109,339.52**
19-Jul-17	510101	Commonwealth Bank of Australia	Floating Rate Note	Coupon - Received	15,770.00
				Deal Total	15,770.00
				Day Total	**15,770.00**
				Net Cash Movement for Period	**9,197,116.51**

Waverley Council
Cash Flows Report



REPORT
CM/7.8/17.07

Subject: **Petition - Waverley Multi-purpose Courts and Parking for Residents**

TRIM No.: A02/0638

Author: Natalie Kirkup, Governance and Internal Ombudsman Officer

Director: Cathy Henderson, Acting General Manager

RECOMMENDATION:

That the petition requesting the extension of parking restrictions and patrols by parking officers in streets adjacent to the Waverley multi-purpose courts, Bondi Junction, be forwarded to the Executive Manager, Creating Waverley and the Executive Manager, Customer First, for appropriate action.

1. Executive Summary

Council has received a petition containing 27 signatures from residents requesting a timed extension to the existing parking restrictions in adjacent streets to the Waverley multi-purpose courts, and to extend patrols by parking officers to cover the hours that the courts are in use.

It is recommended that the petition be forwarded to both the Executive Manager, Creating Waverley, and the Executive Manager, Customer First, for appropriate action.

2. Introduction/Background

Council accepts petitions from persons who have an interest in the Waverley Local Government Area as residents, landowners, business people or in some other capacity. Petitions must concern matters that Council is authorised to determine.

3. Relevant Council Resolutions

Nil.

4. Discussion

The subject of the petition states:

> *'This petition of residents of Waverley living near the courts draws your attention to:*
>
> *1) The problems residents have to find parking spaces now that the courts have been constructed in Waverley Park and provided with lights.*
>
> *2) The present situation where parking restrictions in adjacent streets (James St, Goldie Ave, Paul St, St Mary's Ave) apply until 6pm whereas the courts have lighting until 9pm.'*

The action requested states:

'The undersigned petitioners therefore ask the Mayor and Council:

1) To extend parking restrictions in adjacent streets until lighting is extinguished in the courts.

2) To extend parking patrols by Parking Officers to cover the hours that the courts are in use.'

5. Relationship to Waverley Together 3 & Delivery Program 2013-17

The relationship to *Waverley Together 3* and *Delivery Program 2013-17* is as follows:

Direction:	G2 Our community is actively engaged in well-informed decision processes.
Strategy:	G2b Provide opportunities in a variety of forums for all stakeholders to contribute to community decision making..
Deliverable:	A website that supports community comment and engagement and includes a 'Have a Say' portal.

6. Financial impact statement/Timeframe/Consultation

There is no financial impact in Council receiving the petition.

7. Conclusion

It is recommended that the petition be forwarded to the Executive Manager, Creating Waverley, and the Executive Manager, Customer First, for appropriate action.

8. Attachments

Nil.

NOTICE OF MOTION
CM/8.1/17.07

Subject: **Bronte Park Plan of Management - SAMP Funding for Maintenance**

TRIM No.: A16/0168

Submitted by: Councillor Masselos

MOTION:

Given the POM is a 10-year action plan with funding allocated through SAMP and the LTFP for its implementation, that an allocation is made from the approved SAMP Parks budget from 2017/18 in order to undertake high priority repair/maintenance works within Bronte Park including:

1. Painting of picnic shelters within park.

2. General repair, painting andor varnishing of any damaged/aged seats within the park.

3. Replacement of worn 'Welcome' signs at major entry points and on the promenade.

Background

The community consultation undertaken as part of the Bronte Plan of Management has identified the need for a general tidy up and asset renewal of much loved infrastructure within the park. Funding has been allocated to undertake asset repair work as part of the 2017/18 SAMP program in the approved budget. This motion is to ensure some funds are allocated to commence this important asset repair work and a general tidy up of the area as our highest priority.

NOTICE OF MOTION
CM/8.2/17.07

Subject: **Violence Prevention, Intervention and Respectful Relationships**

TRIM No.: A15/0451

Submitted by: Councillor Burrill
Councillor Cusack

MOTION:

That Council:

1. Prepares and implements an internal communication campaign for employees informing them of the tools and resources available on violence prevention, intervention and respectful relationships.

2. Reviews relevant HR policies and procedures to promote and ensure gender equality in the workplace and to strengthen Council's stance in relation to anti-bullying legislation.

3. Identifies smaller projects or activities which demonstrate Council's support of White Ribbon both internally and externally with users of Council's services.

4. Identifies opportunities for collaboration with relevant organisations and/or neighbouring Councils to hold combined community events or activities or to provide support to organisations offering relevant support services in this area.

5. Officers prepare a report for Council consideration that identifies outcomes achieved and actions recommended.

Background

Council has previously passed a number of motions relating to violence prevention, intervention and respectful relationships and has asked Council officers to investigate White Ribbon's Accreditation Program.

In June 2017, Councillors received a presentation from White Ribbon that outlined the work of the organisation and provided more information regarding their Accreditation Program. A number of Councils across Australia, including City of Sydney, have already become accredited.

The Accreditation Program requires significant commitment (both time and resources) from Council and takes a least 18 months to complete and with the uncertainty around amalgamation, now may not be the most appropriate time for Council to begin this process. This motion, however, recommends that Council takes further steps to strengthen its stance in relation to anti-bullying legislation.

The first phase of the Accreditation Program focuses on Leadership and Commitment and includes criteria related to both Internal and External Communication and Collaboration.

I would therefore like to ask Council officers to evaluate what Council currently offers in each of these three areas with the aim of strengthening or improving Council's commitment:

Internal Communication – provide employees with appropriate tools and resources on domestic and family violence which could include information and fact sheets, activities or events to raise awareness and promoting Council's counselling service. The next stage could involve reviewing relevant HR policies and policies and procedures to promote and ensure gender equality in the workplace and to strengthen Council's stance in relation to anti-bullying legislation.

External Communication – actively promote White Ribbon internally to employees through smaller events such as the BBQ held at the AIF in December and also externally to users of Council's key services, e.g. child care centres and sports facilities.

Collaboration – identify opportunities for collaboration with relevant organisations and/or neighbouring Councils to hold combined community events or activities to raise awareness, e.g. Randwick City Council holds an annual White Ribbon Day walk. Also continue Council's support of relevant support services in the Waverley area, e.g. Council already provides support to Bondi Beach Cottage in the form of subsidised rent and small grants.

NOTICE OF MOTION
CM/8.3/17.07

Subject: **Reservoir Perimeter Plantings**

TRIM No.: A08/0562-03

Submitted by: Councillor Mouroukas
Councillor Kay

MOTION:

That Council:

1. Undertakes an assessment of existing planting on the boundary of the Sydney Water reservoir bordering Council Street, St James Street and Waverley Park in Bondi Junction.

2. Prepares a simple landscape plan for appropriate trees/shrubs to screen the infrastructure, in consultation with Sydney Water and seeking approval where necessary.

3. Implements the planting program in 2017/18 using funds allocated to Waverley Park.

Background

The reservoir is a necessary component of our local water infrastructure. Along the perimeter, the structure exhibits sections of bare concrete wall formwork which negatively impacts the streetscape of Council Street, St James Street, Waverley Park and surrounds. It is also a target for graffiti vandals and bill posting.

Attempts have been made in the past to address the issue with the introduction of trees and other plants; however, these are inconsistently deployed with the existence of many gaps.

By filling the gaps with additional, and appropriate plantings, the job started many years ago can be completed to the betterment of the local area.

NOTICE OF MOTION
CM/8.4/17.07

Subject: **Review of Council's Approach to Illegal Dumping**

TRIM No.: A06/1732

Submitted by: Councillor Kay
Councillor Goltsman

MOTION:

That:

1. Council reviews our existing approach to illegal dumping throughout the LGA from both a responsive (customer complaint led) and a proactive (planning) basis with a view to improving street cleanliness and the overall look and feel of Waverley, without compromising our strategic waste targets. The review should consider the current approach to illegal dumping from waste collection, education and compliance perspectives, benchmark Waverley against best practice approaches by other Councils and identify opportunities for improvement.

2. Council officers report back to Council with recommendations for improvement that include instant impact 'quick wins' and longer-term changes on how we can better address illegal dumping and clean up our municipality.

Background

It has been some time since Waverley Council has undertaken a holistic review of how we manage illegal dumping throughout our local government area.

Illegal dumping is currently defined by many types of materials being left in our streets without being:

(a) Part of a zone based clean-up (annual) or assigned to an on-request pick-up (two free per year per residence), or

(b) Containerised within waste and recycling bins.

Non-containerised waste that is left beside the waste and recycling bins during scheduled weekly pick-ups, including green waste, is currently not collected at the time of the pick-up. Examples include cardboard (neatly stacked between two bins), green waste in bags, and boxes of bottles. This 'illegal dumping' can be limited in size to even one item, yet it is added to by other residents over the course of a few days and becomes a larger illegal dump. The review should consider whether it is appropriate for this protocol to continue (referring to Waverley's operational guidelines, and practices of other Councils) against the benefits to the community of an improved streetscape.

Distinctions can obviously be made between types of waste material (e.g. glass, paper, chemical, furniture). It may also be appropriate to consider waste collected from single dwelling houses, unit blocks, and commercial properties in a different manner. Our protocols for enforcement and investigation may therefore need to be categorised for illegal dumping in each of these contexts, and where the illegal dump

is located in a zone that cannot be easily traced to a specific residence, like at the intersection of two streets or where there is an empty block of land.

Other Councils are already operating a frequent (even weekly) clean-up collection, but it is unclear how the cost and streetscape benefits achieved actually translate to overall waste tonnages, and whether the increased tonnages collected are offset by the reduced accumulation at illegal waste sites. The review should consider these initiatives as a basis for a new approach to address illegal dumping.

Our current approach is defined through Council's Sustainable Waste Strategy that identifies the key actions for illegal dumping including future strategies for infrastructure, compliance, education, and reporting.

With the recent focus and successes with illegal dumping enforcement through our support of the Regional Illegal Dumping (RID) Squad, it is an opportune time to review the overall approach to managing illegal dumping throughout the LGA in order to improve street cleanliness and reduce customer complaints, without compromising our strategic waste targets.

NOTICE OF MOTION
CM/8.5/17.07

Subject: **Clarifying the Facts on Bondi Pavilion**

TRIM No.: A15/0272

Submitted by: Councillor Goltsman
Councillor Cusack

MOTION:

That:

1. In the light of the misinformation which has unfortunately affected community understanding of the Bondi Pavilion Upgrade and Conservation Project, the General Manager prepares an urgent report for the next Council meeting outlining a plan of how Council can ensure that the community has the correct information.

2. Council notes the fact that at no time has it been Council's intention to privatise or demolish the Bondi Pavilion.

3. Council notes that it is also Council's intention to ensure current community useable space is retained or enhanced in the upgraded Bondi Pavilion.

NOTICE OF MOTION
CM/8.6/17.07

Subject: **Waverley Public Art Plan - Inclusion of Bondi Pavilion**

TRIM No.: A05/0416

Submitted by: Councillor Burrill
Councillor Goltsman

MOTION:

That:

1. As endorsed by the Public Art Committee, the Bondi Pavilion be included in the Waverley Public Art Masterplan as the next site for the commissioning and installation of public art in the Waverley LGA.

2. The work specifically addresses local indigenous themes and stories, and the work is ideally by an indigenous artist, commissioned in consultation with the La Perouse Local Aboriginal Land Council.

3. The Public Art Masterplan be updated to reflect the new priority order.

Background

Stage one development of the Bondi Pavilion Upgrade and Conservation Project is expected to commence in 2018. During a consultation with elders from the local indigenous community of La Perouse regarding plans for the Bondi Pavilion redevelopment and upgrade, a keen interest was expressed in the implementation of a public artwork relating to Waverley's Indigenous heritage. Following this, Council officers have identified several sites to be investigated for suitability within the new Bondi Pavilion site.

At present, the Bondi Pavilion features a floor mosaic by Warramirri Artist Terry Yulumbul, created in 1983 with Justin Robson and Lloyd Keleman. This was one of the first artworks to be fired in the newly created Bondi Pavilion pottery studios.

It is considered that the implementation of a new indigenous public work, as well as Yulumbul's floor mosaic and other artworks on display across the pavilion would contribute to a diverse and dynamic cultural hub.

In April 2015, a masterplan for public art in Waverley was adopted by Council identifying priority sites across Waverley for public art. As outlined in the Public Art Masterplan, commissions are in progress for Gould and Roscoe Streets and Waverley Mall. Both these works will be installed by the end of 2017. The third site designated for public art commissioning is Oxford Street Mall.

The Public Art Committee has discussed a proposal that Council includes the Bondi Pavilion in the Waverley Public Art Masterplan as the next site for commissioning and installation of public art.

The order of the sites identified in the Public Art Masterplan would then become:

1. Gould and Roscoe Streets
2. Waverley Mall
3. Bondi Pavilion
4. Oxford Street Mall
5. Clementson Park
6. Waverley Park
7. Dickson Park
8. Normal Lee Place
9. Cox and Hall Streets
10. Bondi Park
11. Seven Ways
12. Hunter Park

It should be noted that, as a part of the Creative Lighting Strategy recently adopted by Council, a temporary lighting project is to be installed in Oxford Street Mall from September 2017.

If Council agrees to the new priority order, the commissioning of a public art work for Oxford Street Mall would take place after the Bondi Pavilion and the temporary lighting work outlined in the Creative Lighting strategy.

URGENT BUSINESS
CM/9/17.07

Subject: **Urgent Business**

Author: Cathy Henderson, Acting General Manager

In accordance with clause 241 of the *Local Government (General) Regulation 2005* and clause 3.5 of Council's Code of Meeting Practice, business may be transacted at a meeting of Council even though due notice of the business has not been given to Councillors. However, this can happen only if:

1. The business proposed to be brought forward is ruled by the chairperson to be of great urgency; and

2. A motion is passed to have the business transacted at the meeting.

Such a motion can be moved without notice.

Only the mover of a motion can speak to the motion before it is put. A motion to have urgent business transacted at the meeting requires a seconder.

For business to be considered urgent it must be of a kind:

1. That requires immediate action or attention, and

2. That cannot be dealt with as a Mayoral Minute or Notice of Motion at a later meeting or by any other means.

The mover of the motion must, when speaking to the motion, explain why he or she believes the business to be of great urgency.

CLOSED SESSION
CM/10/17.07

Subject: **Moving into Closed Session**

Author: Cathy Henderson, Acting General Manager

There are no confidential reports for consideration.

Introduction/Background

In accordance with section 10A(2) of the Act, a Council may close part of its meeting to deal with business of the following kind:

(a) Personnel matters concerning particular individuals.
(b) Personal hardship of any resident or ratepayer.
(c) Information that would, if disclosed, confer a commercial advantage on a person with whom Council is conducting (or proposes to conduct) business.
(d) Commercial information of a confidential nature that would, if disclosed:
    i prejudice the commercial position of a person who supplied it: or
    ii confer a commercial advantage on a competitor of Council;
    iii reveal a trade secret.
(e) Information that would, if disclosed, prejudice the maintenance of law.
(f) Matters affecting the security of Council, Councillors, Council staff and Council property.
(g) Advice concerning litigation, or advice that would otherwise be privileged from production in legal proceedings on the grounds of legal professional privilege.
(h) Information concerning the nature and location of a place or an item of Aboriginal significance on community land.
(i) Alleged contraventions of any Code of Conduct requirements applicable under section 440.

Pursuant to section 10A(4) of the Act and clause 252 of the *Local Government (General) Regulation*, members of the public may make representations to the meeting immediately after the motion to close part of the meeting is moved and seconded, as to whether that part of the meeting should be closed.