

BUSINESS PAPER

ORDINARY MEETING OF COUNCIL

To be held at 6.00 pm on

Monday 7 December 2020

Council Chambers, Level 10,

Council Administration Building, 41 Burelli Street, Wollongong(Note: Councillors will be able to attend and participate in this meeting via electronic means in accordance with legislation relating to the COVID-19 pandemic)

Order of Business

- 1 Opening Meeting
- Acknowledgement of Traditional Owners
- 3 Civic Prayer
- 4 Apologies and Applications for Leave of Absence by Councillors
- 5 Confirmation of Minutes of Ordinary Council Meeting
- 6 Confirmation of Minutes of Extraordinary Ordinary Council Meeting
- 7 Conflicts of Interest
- 8 Petitions and Presentations
- 9 Confirmation of Minutes of Council Committee Meeting
- 10 Public Access Forum
- 11 Call of the Agenda
- 12 Lord Mayoral Minute
- 13 Urgent Items
- 14 Reports to Council
- 15 Reports of Committees
- 16 Items Laid on the Table
- 17 Notices of Motions(s)/Questions with Notice
- 18 Notice of Rescission Motion
- 19 Confidential Business
- 20 Conclusion of Meeting

Members

Lord Mayor –

Councillor Gordon Bradbery AM (Chair)

Deputy Lord Mayor -

Councillor Tania Brown

Councillor Ann Martin

Councillor Cameron Walters

Councillor Cath Blakey

Councillor David Brown

Councillor Dom Figliomeni

Councillor Janice Kershaw

Councillor Jenelle Rimmer Councillor John Dorahy

Councillor John Dorany

Councillor Leigh Colacino

Councillor Mithra Cox



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CLOSED SESSION

ITEM C1 CONFIDENTIAL: Financial Support – Illawarra ITeC Pty Ltd

Reason for Confidentiality

This report recommends that this item be considered in Closed Session to the exclusion of the press and public in accordance with Section 10A(2)d(i)) of the Local Government Act, 1993, as the report contains commercial information of a confidential nature that would, if disclosed, prejudice the commercial position of the person who supplied it.



MINUTES

ORDINARY MEETING OF COUNCIL

at 6.00 pm

Monday 16 November 2020

Present

Lord Mayor - Councillor Gordon Bradbery AM (in the Chair)

Deputy Lord Mayor - Councillor Tania Brown

Councillor Ann Martin
Councillor Jenelle Rimmer
Councillor Cameron Walters
Councillor Cath Blakey
Councillor David Brown
Councillor David Brown
Councillor Councillor Mithra Cox

Councillor Dom Figliomeni Councillor Janice Kershaw

Manager Regulation + Enforcement

In Attendance

General Manager (Acting)	Renee Campbell
Director Infrastructure + Works, Connectivity Assets + Liveable City (Acting)	Glenn Whittaker
Director Planning + Environment, Future City + Neighbourhoods	Linda Davis
Director Corporate Services, Connected + Engaged City (Acting)	Brian Jenkins
Director Community Services, Creative + Innovative City	Kerry Hunt
Manager Governance + Customer Service	Todd Hopwood
Chief Financial Officer (Acting) (attended via electronic means)	Tana Ramsden
Manager Property + Recreation (attended via electronic means)	Lucielle Power
Manager City Strategy (attended via electronic means)	Chris Stewart
Manager City Works (attended via electronic means)	Corey Stoneham
Manager Project Delivery (Acting) (attended via electronic means)	Robert Ryan
Manager Infrastructure Strategy + Planning (Acting)	Andrew Heaven
Manager Open Space + Environmental Services (attended via electronic	Joanne Page
means)	
Manager Community Cultural + Economic Development (attended via electronic means)	Sue Savage
,	

Note: Due to current government requirements around social distancing obligations due to the COVID-19 pandemic, participants in the meeting can participate via electronic means as permitted under legislation relating to the COVID-19 pandemic. Those who participated via electronic means are indicated in the attendance section of the Minutes.

Danny Madigan



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CONFLICTS OF INTERESTS

Councillor T Brown declared a non-significant, non-pecuniary conflict of interest in Item 6 Post Exhibition – Cycling Strategy 2030, as her employer SMART at UOW, is referenced in the report. Councillor T Brown advised that she would remain in the Chamber during debate and voting on the item.

457 CONFIRMATION OF MINUTES OF ORDINARY MEETING OF COUNCIL HELD ON MONDAY, 26 OCTOBER 2020

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Colacino that the Minutes of the Ordinary Meeting of Council held on Monday, 26 October 2020 (a copy having been circulated to Councillors) be taken as read and confirmed.

PETITION - APPLICATION NUMBER DA - 2019/1356

Councillor Blakey tabled Petition containing 161 signatures, requesting that Council takes appropriate action on objections regarding loss of views and solar access, prior to determining DA Application 2019/1356.

PUBLIC ACCESS FORUM

ITEM	TITLE	NAME OF SPEAKER
		Greg Knight
4	Post Exhibition – Climate Change Mitigation Plan	Renew Illawarra
		For Recommendation
		Rowan Huxtable
4	Post Exhibition – Climate Change Mitigation Plan	Citizens Climate Lobby
		For Recommendation
		Donna Ashelford
7	Proposed Agreement – Animal Management Services	Animal Welfare League NSW Illawarra Branch
		For Recommendation

DEPARTURE OF COUNCILLOR

During the Public Access Forum, Councillor Colacino departed and returned to the meeting, the time being from 6:06 pm to 6:09 pm.

458 COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Colacino that all speakers be thanked for their presentation and invited to table their notes.

CALL OF THE AGENDA

459 COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that the staff recommendations for Items 2, 3, 5, then 8 to 12 and 14 be adopted as a block.



ITEM 1 - ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2020 - POST ADVERTISING

460 COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor Cox that the audited Financial Statements for the year ended 30 June 2019, together with the Auditor's report, be presented to the public.

An AMENDMENT was MOVED by Councillor Figliomeni seconded Councillor Dorahy that -

- 1 The audited Financial Statements for the year ended 30 June 2019, together with the Auditor's report, be presented to the public.
- Council engage an independent expert to undertake a health check including Council policy commitments to confirm Council's financial viability for the next 4 years to tie in with the budget forecasts.

Councillor Figliomeni's AMENDMENT on being PUT to the VOTE was LOST.

In favour

Councillor Figliomeni

Against

Councillors Cox, Colacino, Rimmer, Kershaw, D Brown, Blakey, Dorahy, Bradbery, T Brown, Martin and Walters

Councillor D Brown's MOTION was then PUT to the VOTE and was CARRIED to become the RESOLUTION.

ITEM 2 - DRAFT QUARTERLY REVIEW STATEMENT - SEPTEMBER 2020

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 459)

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that -

- 1 The draft Quarterly Review Statement September 2020 be adopted.
- 2 The Budget Review Statement as at September 2020 be adopted and revised totals of income and expenditure be approved and voted.

ITEM 3 - POST EXHIBITION - WOLLONGONG CITY-WIDE DEVELOPMENT CONTRIBUTIONS PLAN 2020

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 459)

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that the Wollongong City-Wide Development Contributions Plan (2020) be adopted.

ITEM 4 - POST EXHIBITION - CLIMATE CHANGE MITIGATION PLAN

- 461 COUNCIL'S RESOLUTION RESOLVED UNANIMOUSLY on the motion of Councillor Cox seconded Councillor Martin that -
 - 1 The updated draft Climate Mitigation Action Plan 2020, as attached in this report, be adopted
 - 2 An addition be made to point L14 of the report to read "Prepare subsequent Climate Change Mitigation Plan 2022-2026 including adjusting the carbon budget based on the latest scientific assessment from the Intergovernmental Panel on Climate Change (IPCC) and the Australian Climate Change Authority."
 - An amendment be made to Clause E13 to also read "Investigate the establishment of a joint PPA for The City of Wollongong and including major industrial and commercial entities within the LGA. Provide a briefing to Councillors by June 2021."



Variation

The variation moved by Councillor Martin (the addition of Point 3) was accepted by the mover and seconder.

An AMENDMENT was MOVED by Councillor Colacino seconded Councillor Walters that the updated draft Climate Mitigation Action Plan 2020, as attached in this report, be adopted.

Councillor Colacino's AMENDMENT on being PUT to the VOTE was LOST.

In favour

Councillors Colacino, Walters and Dorahy

Against

Councillors Cox, Bradbery, Rimmer, Kershaw, D Brown, Blakey, T Brown, Martin and Figliomeni

Councillor Cox's MOTION was then PUT to the VOTE and was CARRIED to become the RESOLUTION.

A PROCEDURAL MOTION was MOVED by Councillor D Brown seconded Councillor T Brown that Councillor Colacino be granted an additional 30 seconds to address the meeting in relation to Item 4.

DEPARTURE OF COUNCILLOR

During debate and prior to voting on Item 4, Councillor Walters departed and returned to the meeting, the time being from 6:48 pm to 6:50 pm.

During debate and prior to voting on Item 4, Councillor Blakey departed and returned the meeting, the time being from 7:16 pm to 7:18 pm.

ITEM 5 - POST EXHIBITION - SUSTAINABLE WOLLONGONG 2030: A CLIMATE HEALTHY CITY STRATEGY

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 459)

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that -

- 1 The updated draft Sustainable Wollongong 2030: A Climate Healthy City Strategy, as attached in this report, be adopted by Council.
- 2 The existing Environmental Sustainability Policy be repealed.

ITEM 6 - POST EXHIBITION - CYCLING STRATEGY 2030

462 COUNCIL'S RESOLUTION – RESOLVED on the motion of Councillor Colacino seconded Councillor T Brown that -

- 1 The draft Cycling Strategy 2030 be adopted.
- 2 That persons who made submissions on the draft strategy be thanked and advised of Council's resolution.

In favour Councillors Cox, Bradbery, Colacino, Rimmer, Kershaw, D Brown, Blakey, Dorahy, T Brown, Martin and Walters

Against Councillor Figliomeni



DEPARTURE OF COUNCILLOR

During debate and prior to voting on Item 6, Councillor Rimmer departed and returned to the meeting, the time being from 7:52 pm to 7:54 pm.

During debate and prior to voting on Item 6, Councillor Cox departed and returned to the meeting, the time being from 7:55 pm to 7:57 pm.

ITEM 7 - PROPOSED AGREEMENT - ANIMAL MANAGEMENT SERVICES

463 COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that -

- 1 Council resolves, pursuant to section 55(3) of the *Local Government Act* 1993, to enter into the proposed agreement with RSPCA without the calling of tenders as it considers that a satisfactory result would not be achieved by inviting tenders because of extenuating circumstances and the unavailability of competitive or reliable tenders for the following reasons
 - a The RSPCA is the only organisation available within the local government area with a centrally located animal shelter capable of providing professional animal care and management required of Council under legislative requirements;
 - b The entry into this agreement provides a significant economic benefit to the Council over the term of the contract when compared to the cost of Council providing its own facility.
- 2 Council authorise the General Manager to execute the Agreement between Council and the RSPCA and any other documentation to give effect to this resolution.
- 3 Council provide financial assistance pursuant to section 356 of the *Local Government Act* 1993 in the amount of \$25,000/annum to the RSPCA for the next three years in respect of the Community Animal Welfare Scheme (CAWS).

ITEM 8 - POST EXHIBITION - WOLLONGONG CBD NIGHT TIME ECONOMY COUNCIL POLICY

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 459)

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that -

- 1 Council adopt the Wollongong CBD Night Time Economy Council Policy.
- Council note work is currently underway to investigate any implications and opportunities for Wollongong's Night Time Economy, arising from the NSW Government's Liquor Amendment (24-hour Economy) Bill 2020, subject to it becoming law. Further, Council staff are reviewing the detail of additional night time economy announcements and will consult with the NSW Government on implementation of these initiatives.

ITEM 9 - POST EXHIBITION - PLANNING AGREEMENTS POLICY

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 459)

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that the Planning Agreements Policy (2020) be adopted.



ITEM 10 - POLICY REVIEW - CODES OF CONDUCT AND PROCEDURES FOR ADMINISTRATION OF THE CODES OF CONDUCT

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 459)

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that Council adopt the revised -

- 1 Code of Conduct for Councillors
- 2 Code of Conduct for Staff
- 3 Code of Conduct for Council Committee Members, Delegates of Council and Council Advisors
- 4 Procedures for the Administration of the Codes of Conduct.

ITEM 11 - TENDER T20/26 - DETAILED DESIGN AND CONSTRUCTION OF MOUNTAIN BIKE AND WALKING TRAILS AT CRINGILA HILLS

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 459)

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that -

- 1 In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Dirt Art Pty Ltd for detailed design and construction of mountain bike and walking trails within the Cringila Hills Recreation Precinct, in the sum of \$1,280,462.00 excluding GST.
- 2 Council delegate to the General Manager the authority to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required, to give effect to this resolution.

ITEM 12 - TENDER T20/39 - AUTOMATIC IRRIGATION SYSTEM AT ROBERT ZIEMS PARK - CRICKET OVAL - CORRIMAL

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 459)

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that -

- 1 In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Water Well Sales Pty Ltd for the supply and Installation of an automatic irrigation system, in the sum of \$153 340.00, excluding GST.
- 2 Council delegate to the General Manager the authority to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required, to give effect to this resolution.

ITEM 13 - QUOTATIONS VP197651 AND E5573 - HELENSBURGH TODDLERS' POOL - NEW FILTRATION SYSTEM

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COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor Colacino seconded Councillor Rimmer that Council note the engagement of SPK Plumbing and Civil Pty Ltd to complete the proposed new filtration system to the Helensburgh Toddlers' Pool for the total sum of \$223,309.00 (Ex GST).



ITEM 14 - CITY OF WOLLONGONG TRAFFIC COMMITTEE MINUTES OF MEETING HELD ON 21 OCTOBER 2020

The following staff recommendation was adopted as part of the Block Adoption of Items (refer Minute Number 459)

COUNCIL'S RESOLUTION - RESOLVED UNANIMOUSLY on the motion of Councillor D Brown seconded Councillor T Brown that in accordance with powers delegated to Council, the Minutes and Recommendation related to Regulation of Traffic, of the City of Wollongong Traffic Committee held on 21 October 2020, be adopted.

THE MEETING CONCLUDED AT 8:27 PM	
Confirmed as a correct record of proceedings at the C Wollongong held on Monday 7 December 2020.	rdinary Meeting of the Council of the City of
	Chairperson



File: LM-914.002 Doc: IC20/738

ITEM A LORD MAYORAL TRANSPORT PLAN

MINUTE - DRAFT ILLAWARRA

SHOALHAVEN REGIONAL

The Draft Illawarra-Shoalhaven Regional Transport Plan has been prepared by the NSW Government and presents the strategic framework for how Transport for NSW will respond to anticipated changes in land use, population and travel demand across the region.

The Plan identifies 58 initiatives which, if implemented, would transform the way people and goods travel through the Illawarra-Shoalhaven region over the next 20 years. Much of the plan aligns with the transport priorities identified in Wollongong City Councils strategic planning documents, such as upgrades to Picton Road, the Mt Ousley Interchange and rolling our integrated active transport across the LGA.

The NSW Government is seeking feedback on Draft Illawarra-Shoalhaven Regional Transport Plan by 29 January 2021. It is proposed that Council write to Transport for NSW requesting that the consultation period be extended to mid-February 2021 to provide adequate opportunity for community feedback, particularly as the consultation is occurring over the summer holidays.

RECOMMENDATION

Wollongong City Council write to Minister for Transport and Roads to -

- Acknowledge and thank the NSW Government for committing \$44 million to progress the Picton Road motorway upgrade and \$21 million to progress the Mt Ousley Interchange Project.
- 2 Request that the consultation period for the draft Illawarra-Shoalhaven Regional Transport Plan be extended to 14 February 2021 to provide adequate time for community feedback and for Council to respond.

ATTACHMENTS

There are no attachments for this report.



File: CST-100.04.035 Doc: IC20/695

ITEM 1 DRAFT ILLAWARRA SHOALHAVEN REGIONAL PLAN 2040

The NSW Department of Planning, Industry and Environment is exhibiting the Draft Illawarra Shoalhaven Regional Plan 2041 and Proposed Special Infrastructure Contribution Illawarra Shoalhaven until 17 December 2020.

It is recommended that Council make a submission on both documents.

RECOMMENDATION

Delegation be issued to the General Manager to finalise the draft submission on the Draft Illawarra Shoalhaven Regional Plan 2041 and Proposed Special Infrastructure Contribution Illawarra Shoalhaven (Attachment 2) and to submit to the NSW Department of Planning, Industry and Environment.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

- 1 Summary of Themes, Objectives, Actions and Activities
- 2 Draft Submission

BACKGROUND

The draft Illawarra Shoalhaven Regional Plan 2041 is the third regional plan published by the NSW Department of Planning, Industry and Environment. The Illawarra Regional Strategy 2006-31 was adopted in 2006, and the Illawarra Shoalhaven Regional Plan 2036 was adopted in 2015. Regional Plans are now required to be reviewed and updated by the Department every 5 years.

The draft Illawarra Shoalhaven Regional Plan 2041 provides the latest 20-year vision for the region and is being exhibited from 2 November 2020 to 17 December 2020.

Concurrently, the Department is also exhibiting the Proposed Special Infrastructure Contribution (SIC) Illawarra Shoalhaven.

In 2011 the Department exhibited the draft West Lake Illawarra Special Infrastructure Contribution plan (SIC), but it was never finalised and adopted by the State. West Lake Illawarra includes the West Dapto Release Area, Tallawarra lands and the Calderwood Release Area. Since 2011, the Department has required developers to enter into Planning Agreements to contribute to the cost of State infrastructure (State roads and land for schools). The Planning Agreements currently include a contribution rate of \$59,000 per developable hectare in West Dapto. It is estimated that the Department has collected about \$10M from developers in West Dapto Release Area. No contributions are made under the current draft SIC from the Calderwood Release Area, as the State has entered a Planning Agreement with the Calderwood developer (Lend Lease) for the delivery of State infrastructure within that precinct.

The Department has advised that it allocated \$600,000 from the SIC funds collected to the design of the Fowlers Road – Princes Highway- Fairwater Drive project. Earlier this year, the Department sought nominations for projects to be funded from the collected funds. In August 2020, Council staff nominated four projects, and sought support from the relevant State agency:

- Funding for the provision of a primary school site at West Dapto Application not supported by NSW Education
- Funding for West Dapto Biocertification Application not supported by DPIE -Environment, Energy & Science
- Northcliffe Drive Extension at Kembla Grange Funding for a Business Case Application supported by Transport for NSW



• Neighbourhood Planning of West Dapto Town Centres.

Advice on the outcomes of the applications has not been received.

The exhibition of the draft Illawarra Shoalhaven Regional Plan 2041 was proposed to be concurrent with the exhibition a draft Illawarra Shoalhaven Regional Transport Plan prepared by Transport for NSW, but this separate document is not yet available for viewing and comment.

PROPOSAL

Draft Illawarra Shoalhaven Regional Plan 2041

The draft Illawarra Shoalhaven Regional Plan 2041 provides the latest 20-year vision for the region's four Local Government Areas (LGAs) of Wollongong, Shellharbour, Kiama and Shoalhaven. In terms of strategic planning hierarchy, a Regional Plan sits above Council's Wollongong Local Strategic Planning Statement (2020). The Regional Plan is important as it guides strategic planning work and can provide strategic merit for draft Planning Proposals (rezoning proposals).

The draft Regional Plan contains:

- A one-page vision consisting of 10 vision statements,
- Four regional themes:
 - o A productive and innovative region
 - o A sustainable and resilient region
 - o A region that values its people and places
 - o A smart and connected region
- 15 Regionally Significant precincts, including Metro Wollongong, West Dapto (residential and employment areas), Tallawarra (residential and employment areas) and Port Kembla.
- 30 objectives that sit under the themes.
- Nine actions to be led by the NSW Department of Planning, Industry and Environment, to be delivered in the next five years.
- 61 strategies to be undertaken by Council and other State agencies, of which six strategies have Council as the specified lead responsible agency, and a further 36 strategies include Council as a responsible partner agency. Several other strategies will also require Council's participation.
- Five collaboration activities of which three require Council's involvement

The themes, objectives, strategies, actions and activities are listed in Attachment 1. The table also includes comments on some of the strategies, actions and activities. Generally, the objectives, strategies, actions and activities are consistent with Council's policies and direction.

Compared to the current Regional Plan, there is greater responsibility on each of the Council's to deliver on the strategies identified in the draft Plan. The draft Regional Plan does not contain any funding to resource the actions, strategies or activities. Council's commitment to progress strategies and projects identified under the Regional Plan would need to be consistent with our Community Strategic Plan, Delivery program and Local Strategic Planning Statement.

The draft Regional Plan only mentions a few infrastructure projects required to support growth, although more are identified in the draft Special Infrastructure Contribution Illawarra Shoalhaven.

The draft Regional Plan is more explanatory that the current Plan, explaining the current situation and proposed direction, albeit that many directions remain in place from the previous Plan. The following comments highlight some of the aspects of the draft Regional Plan and are also contained in the draft submission (Attachment 2).



Regionally significant precincts

The identification of regional significant precincts, including Metro Wollongong, West Dapto (residential and employment areas), Tallawarra (residential and employment areas) and Port Kembla, is supported. These precincts deliver on multiple themes and objectives. These precincts will continue to be important for employment and housing opportunities in the region.

Metro Wollongong

The Department defines Metro Wollongong to include the Wollongong City Centre, Wollongong Hospital precinct, Wollongong Foreshore, University of Wollongong and the Innovation Campus, basically the area serviced by the Gong Shuttle. It is not a term used by Council.

The draft Regional Plan includes an objective and four strategies which support the Wollongong City Centre Planning work and the Access and Movement for People study being undertaken by Council. In addition, one strategy encourages Venues NSW to better utilise the WEC and WIN Stadium.

West Dapto Release Area

The West Dapto Release Area is part of the West Lake Illawarra District (also includes Tallawarra and Calderwood). West Dapto does not feature as prominently in the draft Plan, compare to the previous Regional Plans, as Council has demonstrated that it can manage development in an orderly manner and does not require the intervention of the State.

West Dapto is estimated to be developed into 19700 lots. To-date land for some 12,000 lots have been zoned to permit urban development, and three draft Planning Proposals for another 3000 lots are under assessment. Council has approved 12 Neighbourhood Plans for some 5100 lots and six draft Neighbourhood Plans for 5760 lots are under assessment. Council has approved 29 development applications for subdivision creating 2139 lots of which 1789 lots have been constructed and released for housing. Council has also approved a development application for 108 units within a residential apartment building complex, nine units within a multi-unit housing development and 105 dual occupancy developments.

The draft Regional Plan does not identify the need for any schools in the West Dapto Release Area. The 2011 draft SIC identifies the need for eight primary school and two high school sites within West Dapto. Similarly, the West Dapto DCP chapter shows the indicative location of six potential primary school and two high school sites. The West Lake Illawarra Growth Area map (page 63) of the draft Illawarra Shoalhaven Regional Plan only identifies new school sites in the Calderwood Release Area, which are being delivered by the developer, through a Planning Agreement with the State.

Despite Council's active advocacy over many years, the Department of Education is yet to provide clarity and commitment to the provision of new schools that will be required to support the education needs of our new communities. It appears the Department of Education will commit to school sites where a single large developer has been able to provide new school sites at Calderwood as a part of a planning agreement with the State. But where a much larger population is being planned at West Dapto which has fragmented land ownership, the State has continued to show-little interest in engaging with Council or West Dapto developers to make sure that the existing and future communities are treated equally.

Since 2003, when the relocation of Dapto Primary School to Horsley was approved, no school site has been identified by the State in the West Dapto Release Area. The capacity of the Dapto Primary School at Horsley has recently been approved to increase to 870 students (from 738 students), through DA-2019/698 which includes the demolition of 14 demountable classrooms and the erection of two new 2-3 storey buildings containing 20 home-bases.

A productive and innovative region

This theme includes economic drivers of the regions, including Metro Wollongong, Wollongong City Centre. Port of Port Kembla, regionally significant employment lands, tourism, agricultural activities and resource lands.

Port of Port Kembla



The acknowledgement and continued protection of Port Kembla as one of the State's significant import/export freight hubs is supported. Strategy 3.1 requires Council to reduce land use conflicts between Port operations and the transport corridors, with residential and commercial development. Consultants for the NSW Department of Planning, Industry and Environment have undertaken a study into the buffer area, however the study has not been released. For Council to consider and progress the study's findings, the study needs to be made available.

Strategy 3.2 to support the development of the Port as a green hydrogen hub is an exciting initiative and is supported. On 18 November 2020, the State identified Port Kembla as a Renewable Energy Zone as part of the Electricity Infrastructure Bill 2020.

A sustainable and resilient region

This theme includes the protection of the environment, community resilience, increasing the tree canopy, net zero emissions by 2050, circular waste economy and securing the water resources.

The inclusion of a net zero emissions target by 2050 is a welcome addition to the regional plan and reflects the target having already been adopted by the four Councils in the region. On 16 November 2020 Council adopted the Climate Change Mitigation Plan which details the first set of actions that Council will implement to meet the target.

The 2019-20 bushfires and floods have highlighted the need for greater resilience, especially in isolated and vulnerable locations. Large areas of the Wollongong LGA are prone to bushfires, floods, landslip and coastal inundation. Due to the historic development patterns the avoidance of these risks is difficult. Many of our towns were located adjacent to watercourses for water supply, but the creeks also flood. Housing has been permitted in the lower escarpment in areas prone to bushfire and landslip. Managing these challenges continues to be a focus for Council's planning and mitigation activities.

A region that values its people and places

This theme includes housing supply and local character.

The draft Regional Plan has less emphasis on housing supply and housing projections than previous plans. The draft Plan acknowledges that there is sufficient forecast housing supply to meet the forecast demand to 2041 is welcomed. This supports the findings of Council's Housing and Affordable Housing Options Paper. The objectives of providing housing supply in the right location and deliver housing that is more diverse and affordable are supported and are consistent with Council's Housing and Affordable Housing Options Paper.

However, the absence of a housing projection target weakens the line-of-sight, from the State Housing policy to Council's Local Strategic Planning Statement and draft Housing Strategy (in preparation), in terms of the quantum of housing required to be provided for the growing population.

A smart and connected region

This theme includes improved infrastructure connections to Sydney, Western Sydney and Nowra, improved walking and cycling networks and smart infrastructure.

As noted, a draft Regional Transport Plan was proposed to be exhibited concurrently with the draft Regional Plan but has not been released by Transport for NSW. It is anticipated that the draft Transport Plan would have greater detail about future transport initiatives.

The improved linkages to Western Sydney are supported. Transport for NSW has recently released a survey on the Outer Sydney Orbital Stage 2 – which is seeking comment on two options to link Appin Road with Menangle and bypass Appin. The November 2020 State budget also includes an allocation for design of upgrades to Picton Road. However, the budget did not include a construction budget. The budget also did not include an allocation for the next stage of design funding for the Mount Ousley Road interchange.

The faster rail connections between Wollongong and Nowra (Bomaderry) are supported, although the proposed improvements seem to be located between Kiama and Bomaderry – with a passing loop at



Toolijooa and additional platform at Bomaderry. The State should be encouraged to electrify the Kiama – Bomaderry section of the network to improve travel times.

The draft Regional Plan does not mention any improvements in the LGA, such as duplicating the track south of Unanderra, or any improvements north of Thirroul.

The draft Regional Plan does acknowledge the need for a new freight rail connection to Sydney via the Maldon-Dombarton corridor, although does not mention the South West Illawarra Rail Link (SWIRL) which includes passenger services.

The strategy to improve the pedestrian and cycle networks is consistent with Council's strategies. On 16 November 2020 Council adopted the Wollongong Cycling Strategy 2030.

The strategy to consider the use of Council-owned land for electric vehicle charging stations is consistent with the draft policy Council considered on 31 August 2020, although the strategy in the draft Regional Plan should be expanded to also include Crown and State-owned land.

Proposed Special Infrastructure Contribution Illawarra Shoalhaven

The draft SIC determination proposes a contribution rate of \$125,159 / hectare of net developable residential land area for West Dapto. This rate is significantly higher than the \$73,219 / hectare rate proposed by the 2011 draft SIC, and the \$59,000 / hectare of net developable area, that the developers are currently paying through Planning Agreements to the State.

The draft SIC determination proposes a lower rate of \$97,668/hectare for Calderwood and Tallawarra.

The draft SIC does propose a staged increase in the contribution, with 50% of contribution rate (ie \$62,579 / ha for West Dapto) being payable till 1/7/22, and 75% of the contribution rate (ie \$93,869 / ha for West Dapto) being payable between 1/7/22 and 30/6/23.

The draft SIC does not include a rate for the development of employment land (zoned IN2 Light Industrial or IN3 Heavy industrial).

The draft SIC includes projects to the total value of \$1,046M, of which \$676M is proposed to service the West Dapto Release Area, as indicated in the table below. The draft SIC proposes to collect \$86M in developer contributions to partially fund these projects. The remaining \$590M will be required to be funded by the State.

	2020 draft SIC - West Dapto projects		
Infrastructure item	100% Attributable Cost	Project cost funded through contributions	
Road and Intersection Upgrades			
Yallah Interchange	\$74,186,565	\$7,418,656	
Tallawarra On-ramp	\$15,455,534	\$1,545,553	
Tallawarra Off-ramp	\$15,455,534	\$1,545,553	
Emerson Road On-ramp Upgrade	\$12,364,427	\$1,236,442	
Emerson Road Off-ramp	\$12,364,427	\$1,236,442	
Fowlers Road On-ramp	\$8,036,877	\$803,687	
Fowlers Road Off-ramp	\$8,036,877	\$803,687	
Kanahooka Road Off-ramp (South Bound Off-ramp Capacity Improvements)	\$8,036,877	\$803,687	
Kanahooka Road on-ramp (North Bound On-ramp Capacity Improvements)	\$8,036,877	\$803,687	
Illawarra Highway Upgrade	\$49,457,710	\$4,945,771	
M1 – Additional Lanes – Tallawarra to Emerson Road	\$12,364,427	\$1,236,442	



	2020 draft SIC - West Dapto projects		
Infrastructure item	100% Attributable Cost	Project cost funded through contributions	
M1 – Additional Lanes – Emerson Road to Fowlers Road	\$12,364,427	\$1,236,442	
M1 – Additional Lanes – Fowlers Road to Kanahooka Road	\$12,364,427	\$1,236,442	
M1 – Additional Lanes – Kanahooka Road to Northcliff Drive	\$16,073,755	\$1,607,375	
M1 – Additional Lanes – Northcliffe Drive to Five Islands Road	\$24,728,855	\$2,472,885	
Northcliffe Drive Extension	\$74,186,565	\$7,418,656	
Princes Highway Upgrade x 2 Intersections	\$17,186,554	\$1,718,655	
West Lake Illawarra Major Road Spine	\$260,000,000	\$26,000,000	
Subtotal	\$640,700,715	\$64,070,062	
Education			
Provision of Primary and Secondary School Student Places	\$15,979,025	\$1,597,902	
Biodiversity			
West Dapto Biodiversity	\$20,000,000	\$20,000,000	
Planning and Delivery			
Nowra Bomaderry and West Lake Illawarra		\$931,977	
TOTAL	\$676,679,740	\$86,599,941	

There is no detail behind how the cost estimates have been determined, or the apportionment between development within release areas and infill development in the rest of the Region.

The majority of these projects were listed in the 2011 draft SIC. Contributions towards the widening of the M1 projects were not included in the 2011 draft SIC, as the need for the widening was only partially attributed to population growth in the release areas.

The list does include an allocation to the Northcliffe Drive extension (\$74M) and West Lake Illawarra Major Road Spine projects (\$260m), located with the Release Area, both of which are supported. It is understood that the Spine Road is Council's proposed West Dapto ring road and the \$260M cost has been based on Council's draft West Dapto Development Contribution Plan 2020.

As part of the preparation of the draft West Dapto Development Contribution Plan, Council promoted the inclusion of the ring road in the draft SIC. The inclusion in the SIC will result in the cost being removed from Council's West Dapto Development Contribution Plan and a significant decrease in the contribution rates. The responsibility for constructing the road (Council, developers or Transport for NSW), design standards and timing will still need to be clarified. If construction is Council's responsibility 10% of the project cost is not sufficient to progress construction. Consideration will also need to confirm whether developers can build sections as part of a Planning Agreement. The mechanism to transfer funds to Council will also need to be clarified.

Upon the finalisation of the SIC, Council's West Dapto Development Contribution Plan (2020) may need to the amended to remove projects that are listed in the SIC, to prevent developers contributing twice to the same project in two plans.

Without seeing the detail project cost estimates and land area the contribution is allocated over, it is difficult to assess the accuracy of the number. It is unclear whether the land that has been developed for housing in the West Dapto Release Area for housing over the past 10 years, is included in the area



calculation. It is unclear how development in Calderwood has been treated where the lead developer has entered into a Planning Agreement with the State to deliver State infrastructure.

A lower rate for Tallawarra is supported, but without knowing the inputs between the 2 release areas, it is difficult to review or comment on the accuracy of the number.

Similar to local development contribution plans, the draft SIC should include an expenditure program. The draft SIC only proposes to collect 10% of funds required for the infrastructure projects, therefore requiring a further 90% to be allocated from the State budget. It is unclear whether the State is committed to this amount of funding.

The timing of infrastructure provision is important to enable Council to align its construction program for local collector roads that link with the State and regional roads.

It is disappointing that only \$15.9m has been allocated in total to the provision of primary and secondary schools in the West Lake Illawarra Growth Area (Wollongong and Shellharbour). The 2011 draft SIC allocated \$18.6m to the provision of land for 8 primary school and 2 high school sites within West Dapto. As noted, in the discussion on the draft Regional Plan, Council has been advocating for the identification of school sites for over 10 years.

The inclusion of an allocation of \$20m to the West Dapto Biodiversity Certification (Biocertification) is supported. It is noted that it is the only project to be fully funded under the draft SIC. The Biocertification of West Dapto has been stalled since 2014 due to the lack of funding to progress the proposed conservation measures. Council is unable to include Biocertification funding in the West Dapto Development Contribution Plan and has been advised that the SIC is the appropriate funding source. The allocation of funds should allow the NSW Department of Planning, Industry and Environment – Environment Energy and Science, to progress Council's West Dapto Biocertification application. The finalisation of the Biocertification application will provide certainty for the community and developers on biodiversity outcomes and avoid the site by site biodiversity assessment and debates. The mechanism to transfer funds to Council will need to be resolved.

The draft SIC, similar to the 2011 draft SIC, does not contain any allocation for active transport (cycleways), Regional Open Space, Emergency Services or Community health facilities in the West Dapto Release area. The West Dapto Development Contribution Plan includes funds for the provision of footpaths and cycleways and open space. During the preparation of the West Dapto 2007 vision and draft 2011 SIC, emergency management organisations and NSW Health advised that the existing services in Dapto could cater or be expanded for the future community, and no specific funding was required though the draft SIC.

CONSULTATION AND COMMUNICATION

The draft Illawarra Shoalhaven Regional Plan and draft Special Contribution Plan is being exhibited by the NSW Department of Planning, Industry and Environment until 17 December 2020.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of all goals of Our Wollongong 2028.

It specifically delivers on core business activities as detailed in the Land Use Planning Service Plan 2020-21.

CONCLUSION

The NSW Department of Planning, Industry and Environment is exhibiting the Draft Illawarra Shoalhaven Regional Plan 2041 and Proposed Special Infrastructure Contribution Illawarra Shoalhaven until 17 December 2020.

It is recommended that Council make a submission on both documents. A draft submission is attached for Council's consideration. Overall, the draft Regional Plan is supported.

Summary of the Illawarra Shoalhaven Regional Plan 2041 - Themes, objectives, strategies, actions and activities

Theme, Objective, Action, Strategy, Activity		Comment	
Theme 1: A productive and innovative region Objective 1 Strengthen Metro Wollongong as a connected, innovative and progressive City			
Action 1 Develop a Metro Wollongong Health Precinct Strategy	DPIE	Support – Council will work with NSW Health and DPIE to prepare a Health precinct strategy. This action is consistent with Wollongong City Centre draft Planning Strategy	
Strategy 1.1 Strengthen Metro Wollongong in local strategic planning and local plans by: creating a permeable and connected pedestrian network encouraging a diversity of housing including affordable housing and student housing around commercial priority areas elevating the importance of design quality and design excellence outcomes utilising green infrastructure to create a green network of open spaces activating public domain to encourage investment and renewal.		Support – consistent with Wollongong City Centre Urban Design Framework, and draft Planning Strategy (if endorsed by Council on 7/12/20)	
Strategy 1.2 Strengthen Metro Wollongong's Commercial Core in local strategic planning and local plans by: • prioritising jobs growth and a resilient Commercial Core by safeguarding land for commercial, job-generating development • strengthening and simplifying planning controls to promote a diversity of buildings that respond to people and place, define the city's skyline and create streets that are scaled for people • developing active city streets that retain local character and support flexibility to the changing retail environment	wcc	Support – consistent with Wollongong City Centre Urban Design Framework, and draft Planning Strategy (if endorsed by Council on 7/12/20)	



ne, Objective, Action, Strategy, Activity		Lead	Comment
•	encouraging the temporary use of vacant properties to help with activation.		
	tegy 1.3 Revitalise and activate the Sports and Entertainment inct and foreshore in local strategic planning and local plans by: improving the visual and physical access to the foreshore, including improving the pedestrian interface with the WEC, WIN Stadium, the beach and Lang Park encouraging broader uses of the Precinct during times outside of events improving access to public and active transport networks including links to Wollongong Train Station and event transport embracing the location's environmental setting by protecting key views, improving and activating public spaces and managing exposure to climate hazards.	wcc	Support – consistent with Wollongong City Centr draft Planning Strategy. Input from Venues NSW an other stakeholders required.
Strat Stad	tegy 1.4 Review opportunities to better utilise the WEC and WIN ium.	Venues NSW	Support. The State is encouraged to invest in the WEC to increase its utilisation.
and	aboration Activity 1 Work with Venues NSW, Wollongong City Council Department of Regional NSW on the revitalisation and activation of Metro Wollongong Sports and Entertainment Precinct and foreshore.	DPIE	Support – consistent with Wollongong City Centr draft Planning Strategy.
	tegy 1.5 Expand the education, innovation and research capabilities letro Wollongong in local strategic planning by: encouraging collaboration between education and research institutions to foster knowledge sharing and innovation encouraging the attraction of an additional university presence in the Commercial Core or Commercial Frame fostering opportunities to develop and enable smart city approaches throughout Metro Wollongong.	wcc	The expansion of education, innovation an research capabilities is beyond the scope of Council responsibility. The LEP permits Education Establishments in the City Centre and Metric Wollongong. The Strategy should be reassigned to Dept Education
	tegy 1.6 Strengthen connectivity in Metro Wollongong in local tegic planning and local plans by:	WCC wit	Support – although the input of Transport for NS and UoW will be required. Council manages the



me, Objective, Action, Strategy, Activity		Lead	Comment	
	activating entrances to Wollongong Train Station and improving place-making at Lowden Square and on Crown Street balancing the needs of pedestrians and vehicle traffic through the West Crown and Keira Street corridor to create a vibrant and iconic intersection promoting walking and cycling through enhancements such as better wayfinding strengthening the feasibility of redevelopment and increased densities within walking distance to Wollongong Train Station integrating bus services with other modes including park and ride facilities, and opportunities for car, bike and scooter sharing services. considering opportunities for innovative mobility changes including electric vehicles and autonomous bus systems		local road network, footpaths and cyclewar Council does not manage the regional road networ buses or trains.	
	boration Activity 2 Work with Wollongong City Council on its Access Movement for People.	DPIE	It is unclear what support the DPIE can provide. It unlikely that the DPIE will provide financial support of the technical expertise to support to project. Support of the implementation of the Stud recommendations through Government would appreciated. For example, support for maintain to Gong Shuttle as a free service.	
	boration Activity 3 Work with Transport for NSW on the development Wollongong Place-based Transport Plan.	DPIE	This activity seems to duplicate the previous or TfNSW should support the development of Counci Access and Movement for People study, rather th	
			producing its own study. The 2 activities should be combined	



Theme, Objective, Action, Strategy, Activity	Lead	Comment	
Action 2 Develop a Nowra City Centre Strategic Roadmap to set a vision, identify actions and guide inter-agency and inter-government collaboration	DPIE	Not relevant to Wollongong	
Strategy 2.1 Activate Nowra City Centre in local strategic planning and local plans	Shoalhaven	Not relevant to Wollongong	
Strategy 2.2 Enhance the diversity and strength of Shellharbour City Centre in local strategic planning and local plans	Shellharbour	Not relevant to Wollongong	
Strategy 2.3 Consider opportunities for the future use of the existing Shellharbour Hospital site.	Illawarra Shoalhaven Local Health District	Not relevant to Wollongong. The draft Plan does not provide guidance on the proposed new Shellharbour hospital. This new facility is of interest as it may provide health services to residents of Wollongong's southern suburbs.	
Objective 3 Grow the Port of Port Kembla as an international trade hub			
Strategy 3.1 Protect Port Kembla as an international gateway for freight and logistics in local strategic planning and local plans by: • reducing land use conflicts from residential and commercial development and, where appropriate, including buffer measures to minimise the impact of development on the efficient functioning of the Port and the freight industry • considering the suitability of high traffic-generating developments, such as large-scale retail and high density residential, on roads that service the Port to reduce conflicts with dangerous goods vehicles.	wcc	The Three Ports SEPP introduced by the State already provides this level of planning control. Council does need to consider noise and traffic issues on buffer locations and fright corridors, given the 24/7 operation of the Port. Access to/from the Port is largely on the State road network, managed by TfNSW. Council does not manage the movement of dangerous goods vehicles. The strategy should also include the progression of the Maldon – Dombarton Link (or SWIRL)	
Strategy 3.2 Support the development of the Port as a green hydrogen hub to create economic and jobs growth in the region	DRNSW	Support the initiative.	

Theme, Objective, Action, Strategy, Activity	Lead	Comment
Objective 4 Activate regionally significant employment precincts to support new and innovative economic enterprises		
Action 3 Develop precinct profiles for the regionally significant employment lands and where required, establish precinct collaboration teams to activate land for economic growth	DPIE	The employment lands at Kembla Grange required the provision of water and sewerage. Sydney Water has advised that there is not sufficient demand to justify a business case to service the precinct. The employment lands at Tallawarra require the land owners to develop the lands. There is opportunity for under-utilised land at Po Kembla – Unanderra to be serviced and developed
Strategy 4.1 Support new and innovative economic enterprises in local strategic planning and local plans by: • retaining and managing regionally significant employment lands and safeguarding them from competing pressures • providing flexibility in local planning controls • aligning infrastructure to support the rollout of employment land in the region.	Councils	The first and second dot points seem contrar Safeguarding regionally significant employmentally is not achieved by providing flexibility planning controls, which enables a broader range uses to be permitted. Council does not provide water, sewer, power telecommunication infrastructure
Strategy 4.2 Monitor the take up and availability of employment land through the Employment Lands Development Program.	DPIE	Support the continuation of the monitoring progra
 Strategy 4.3 Support the defence and advanced manufacturing industries in local strategic planning and local plans by: protecting the airspace around defence facilities consistent with the current Australian Noise Exposure Forecast mapping in local environmental plans providing space and co-location opportunities for electronic, information technology, logistics, and aviation and defence support industries in employment precincts such as the Albatross Aviation and Technology Precinct and the South Nowra Industrial Lands. 	Councils	Strategy appears to relevant to Shoalhaven Councils.



Theme, Objective, Action, Strategy, Activity	Lead	Comment
Strategy 4.4 Support the growth of Shellharbour Airport in local strategic planning and local plans	Shellharbour	Not relevant to Wollongong, although the flight paths, Obstacle Height limits and Australian Noise Exposure Forecast mapping extends into the Wollongong LGA
Objective 5 Create a diverse visitor economy		
Strategy 5.1 Create an environment for a diverse visitor economy through local strategic planning and local plans by: enhancing the amenity, vibrancy and safety of centres and township precincts creating green and open spaces that are accessible and well connected and enhancing existing green infrastructure in tourist and recreation facilities supporting the development of places for artistic and cultural activities protecting heritage, biodiversity and agriculture to enhance cultural, agri and eco-tourism supporting appropriate growth of the night-time economy providing flexibility in planning controls to allow sustainable agritourism and ecotourism improving public access and connection to heritage through innovative interpretation incorporating transport planning with a focus on active transport modes to connect visitors to key destinations.	Councils	Support – generally consistent with the Economic Development Strategy
Strategy 5.2 Support a diverse visitor economy in national parks by working with Destination NSW, Destination Networks, councils and local tourism organisations to encourage and welcome visitors.	DPIE (NPWS)	Support
Objective 6 Activate the region's harbours to promote the blue highway		



Theme, Objective, Action, Strategy, Activity	Lead	Comment
Strategy 6.1 Activate the region's harbour and ports as well as their related commercial areas in local strategic planning and local plans.	Councils, TfNSW	Support – Wollongong Harbour foreshore is managed by DPIE- Crown Land, who should be listed in the strategy.
Objective 7 Respond to the changing nature of retail		
Strategy 7.1 Respond to the changing nature of retail in local strategic planning and local plans by: • providing flexibility in local strategic planning and local plans to facilitate a broad range of uses within centres • focusing future commercial and retail activity in existing commercial centres, unless there is no other suitable site within existing centres, there is a demonstrated need, or there is positive social and economic benefit to locate activity elsewhere.	Councils	Will be considered through the Retail Centres Study (2021)
bjective 8 Strengthen the economic self-determination of Aboriginal		
ommunities		
Strategy 8.1 Partner with Aboriginal communities to identify opportunities to activate land including the biodiversity offset market to drive economic prosperity, training and employment for Aboriginal communities.	DRNSW	Support
Strategy 8.2 Continue to offer the preparation of a strategic assessment of the landholdings of Local Aboriginal Land Councils.	DPIE	Support. Council has a good working relationship with the Illawarra Local Aboriginal Lands Council and can also provide assistance in the conservation of development of their land.
Strategy 8.3 Prioritise the processing of unresolved Aboriginal Land Claims on Crown land.	DPIE (Crown Lands)	Support
Strategy 8.4 Provide opportunities for the region's LALCs to interact with and utilise the NSW planning system and the planning pathways available to achieve development aspirations.	DPIE	Support. In 2019 the DPIE adopted an Aborigina Lands SEPP and has just released the Aboriginal Land (SEPP) Guideline.
Objective 9 Promote agriculture innovation, sustainability and value-add opportunities		



Theme, Objective, Action, Strategy, Activity	Lead	Comment
Strategy 9.1 Promote agriculture and aquaculture innovation, sustainability and value-add opportunities in local strategic planning and local plans by: • protecting identified important agricultural land and industries from other land uses, land use conflict and fragmentation • protecting assets and infrastructure such as freight and logistics facilities from land use conflict and the encroachment of incompatible land use to facilitate investment in the agricultural supply chain • minimising the impacts of development on aquatic habitats in aquacultural estuaries	Councils	Support. Although little agriculture occurs in Wollongong, compared to the rest of the region.
Strategy 9.2 Enable new rural residential development only where it has been identified in a local strategic plan, prepared by council and endorsed by the Department of Planning, Industry and Environment.	Councils	Support intent of strategy, although the need for the Department to endorse the local strategic plan is questioned. The Department does not endorse Council's Local Strategic Planning Statement, Housing Strategy or West Dapto Vision.
Objective 10 Sustainably maximise the productivity of resource lands		
Strategy 10.1 Consider the ongoing operation of existing mining and resource extraction and future development of known resources in local strategic planning and local plans by: • protecting areas of mineral and energy resources potential • protecting infrastructure that facilitates mining industries, such as road and rail freight routes, from development that could affect current or future extraction.	Councils	This strategy appears to cover coal mining, coal seam gas extraction, hard rock quarries and sand mining. Wollongong has a coal mining history — there are currently 2 active coal mines and 2 in maintenance. Coal mining is occurring under the Sydney Drinking Water Catchment Area and areas to the west.
Strategy 10.2 Consider opportunities for strategic biodiversity conservation measures around known hard rock resource lands to protect environmental values and provide certainty for extraction activities	DPIE (EES)	Support - not relevant to Council.
Theme 2: A sustainable and resilient region		



Theme, Objective, Action, Strategy, Activity	Lead	Comment
Objective 11 Protect important environmental assets		
Strategy 11.1 Protect important environmental assets in local strategic planning and local plans by: • recognising the validated high environmental value lands in local environmental plans • minimising potential impacts arising from development on areas of high environmental value and implement the 'avoid, minimise and offset' hierarchy • consistently managing riparian corridors through strategic conservation planning initiatives that accommodate natural physical processes and integrate water sensitive urban design principles.	Councils	Support. Consistent with Council's Local Strategic Planning Statement. However, concern over lead being Councils without specific mention of funding
Strategy 11.2 Protect and enhance the function and resilience of biodiversity corridors in local strategic planning and local environmental plans.	Councils	Support. Consistent with Council's Local Strategic Planning Statement and environmental studies
Strategy 11.3 Consider the needs of climate refugia for threatened and dominant species in local strategic planning including biodiversity and conservation planning.	Councils	Support.
Strategy 11.4 Protect biodiversity values in urban release areas by incorporating validated, up-to date environmental data into local strategic planning and local plans.	Councils	Support.
Strategy 11.5 Protect sensitive estuaries and implement the NSW Government's Risk-Based Framewark far Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions in local strategic planning and local plans to support improved water quality and ecological function.	Councils	Support. This strategy refers to modelling work undertaken by the EPA to support Lake Illawarra catchment health, in particular from development at West Dapto and Calderwood.
Strategy 11.6 Align local plans with any certified Coastal Zone Management Plan or certified Coastal Management Program.	Councils	In November 2020 the Lake Illawarra Coastal Management Program was endorsed.



Theme, Objective, Action, Strategy, Activity	Lead	Comment
		The Wollongong Coastal Zone Management Plan (2018) was certified in 2018 after a long and costly process. The Plan's certification is due to expire in December 2021. Council requests that the certification timeframe to for the existing Plans be extended until December 2025 to allow sufficient time to review the CZMP and prepare a new draft CMP.
bjective 12 Build resilient places and communities		
Action 4 Develop a resilience maturity matrix for the Illawarra Shoalhaven to identify where councils can increase resilience in the land use planning system	DPIE	Support the intent of the strategy, however the implementation of the matrix recommendations is likely to require resources.
 Strategy 12.1 Support community led development of resilience and adaptation plans that: encourage sustainable and resilient building design and materials including the use of renewable energy promote economic diversity and prosperity, improving liveability and strengthening the health, wellbeing and social cohesion of a place integrate emergency management and recovery needs into new and existing urban areas including evacuation planning, safe access and egress for emergency services personnel, buffer areas, building back better, whole-of-life cycle maintenance and operation costs for critical infrastructure for emergency management actively engage with community to understand risks, vulnerabilities and capabilities, providing information that is transparent, clear and shared. 	Councils	Support the intent of the strategy, however community-led plans cannot be implemented unless adopted by Council and the State. Significant funding will be required to address this strategy. Will also require specific guidance and risk mapping from NSW government
Strategy 12.2 Reduce exposure to natural hazards in local strategic planning and local plans by:	Councils	While the strategy is supported, the constraints of the Wollongong make it difficult to achieve.



Theme, Objective, Action, Strategy, Activity	Lead	Comment
 locating development, including urban release areas, away from areas of known high bushfire risk, flooding hazards or high coastal erosion/inundation to reduce the community's exposure to natural hazards preparing, reviewing and implementing floodplain risk management plans in existing and new growth areas to improve community resilience to the impacts of flooding and to enable flood constraints to be incorporated into planning processes early for new development 		Wollongong is subject to floods, bush fire, land slip coastal inundation. Many of Wollongong's town were developed adjacent to watercourses, which flood. The bushland in the Sydney Drinking Water Catchment, National Parks and Illawarra Escarpment provide a bushland backdrop and landscape setting but also present a bushfire risk. These constraint were considered in Council's draft Housing an Affordable Housing Options Paper and will be further considered in the preparation of the draft Housing Strategy. Council has an on-going program of reviewing Floostudies and Floodplain Risk management Studies and Plans
Strategy 12.3 Take a risk-based-approach to determining sea level rise in local strategic planning and local plans by using the best available science in consultation with the NSW Government.	Councils	The inclusion of this strategy is supported. However a State, then regional approach is required, rather than requiring each Council to develop their own approach. Sea level rise in Wollongong Shellharbour, Kiama and Shoalhaven is likely to be similar, although the impacts may be different.
Objective 13 Increase urban tree canopy cover		
Strategy 13.1 Foster opportunities to increase urban tree canopy coverage in local strategic planning and local plans and consider a long-term urban tree canopy target accounts for local characteristics and community expectations.	Councils	Council has adopted the Urban Greening Strategy and is now implementing the strategy. Council has planted over 5000 trees in the past 3 years, plus 60,000+ plants through the bushcare program. It is acknowledged that some of our suburbs lack shade. The State's program of funding the planting of 5 million trees in Greater Sydney by 2030 (5MT)



Theme, Objective, Action, Strategy, Activity	Lead	Comment
		should be expanded to include Wollongong and the Illawarra, with additional funding
Objective 14 Enhance and connect parks, open spaces and bushland with walking and cycling paths		
Action 5 Develop the Illawarra Shoalhaven Green Grid and identify prior projects for enhancement	DPIE	Council has adopted the Urban Greening Strategy and is now implementing the strategy. The need for a duplicate study over the Wollongong LGA is questioned.
Strategy 14.1 Enhance and increase access to public spaces through local strategic planning and local plans by: planning for urban release areas to supply a sufficient quantity and quality of new accessible open space exploring new public space in accordance with the Government Architect NSW's Greener Places and Better Places guidance, and with consideration of the Designing with Country discussion paper and Everyone Can Play requiring large urban renewal initiatives to demonstrate how the quantity of, or access to, high quality and diverse local public space is maintained or improved.	Councils	Support the intent of the strategy. Recreation areas and open space areas have been / are being planned as part of the West Dapto Release Area and Tallawarra. The expansion of open space area in existing communities is difficult, as land has to be purchased at market rates and there is limited available funds. The use of open space within Department of Education assets should be a commitment under the Plan.
Objective 15 Plan for a Net Zero region by 2050		Support objective. Consistent with Council adopting a net zero target by 2050, and on 16/11/20 adopted the Climate Change Mitigation Plan. The target will need to be readjusted by the state as science is updated.
Action 6 Develop an Illawarra Shoalhaven Sustainability Roadmap that identifies innovative initiatives which can be delivered through an ecosystem of collaboration	DPIE	Council's Climate Change Mitigation Plan, adopted on 16/11/20, will be forwarded to the Department.



Theme, Objective, Action, Strategy, Activity	Lead	Comment
		The Department's roadmap will need to be consistent, as Council cannot implement 2 separate roadmaps.
Strategy 15.1 Encourage initiatives that reduce emissions in local strategic planning and local plans.	Councils	On 16/11/20 Council adopted the Climate Change Mitigation Plan
Action 7 Develop a sustainability framework for regionally significant precincts to promote carbon neutral sustainable growth and development	DPIE	Support action
Strategy 15.2 Encourage energy efficient building design for residential, commercial and industrial areas in local strategic planning and local plans.	Councils	Support – however energy efficiency of residential development is controlled by SEPP - BASIXs. Council cannot require more that the SEPP. The DPIE should expand BASIX's or adopt the Greenstar Program or other initiatives
Strategy 15.3 Promote opportunities for clean energy in the region including pumped hydro, hydrogen and biogenic gas.	Councils	Support the intent of the strategy, however Council's are not responsible for energy production. The action should be reassigned to Energy NSW.
Strategy 15.3 Explore opportunities where carbon sequestration using mangroves could be used for estuary riverbank restoration and/ or be included in coastal management programs.	DPIE (EES)	Support - not responsibility of Council.
Strategy 15.4 Explore opportunities for using agricultural land to sequester carbon in vegetation and soils, and to grow biomass for bioenergy.	DPI (Agriculture)	Support - not responsibility of Council.
Objective 16 Support the development of a circular economy		
Strategy 16.1 Support the development of a circular economy including understanding opportunities for industrial symbiosis in local strategic planning and waste management strategies.	Councils	Will be considered as part of the preparation of Council's next Waste and Recycling Strategy. Concern over lead being Councils as our capacity to affect change is limited without direction from State
Objective 17 Secure water resources		



Theme, Objective, Action, Strategy, Activity	Lead	Comment
Strategy 17.1 Encourage the sustainable use of water resources in local strategic planning and local plans by: Iocating, designing, constructing and managing new developments to minimise impacts on water catchments, including downstream impacts and groundwater sources incorporating water sensitive urban design particularly where development is likely to impact water catchments, water quality and flows encouraging the reuse of water in new development, for urban greening and for irrigation purposes.	Councils	Consistent with Council's Water Sensitive Urban Design DCP chapter, but can be difficult to achieve on some sites due to steep slopes. Sydney Water is water authority in Wollongong, Shellharbour and Kiama. Water recycling needs to be mandated by State
Theme 3: A region that values it people		
Objective 18 Provide housing supply in the right locations		
Strategy 18.1 Identify urban growth boundaries and facilitate opportunities to create an ongoing supply of housing in local strategic planning and local plans.	Councils	The West Dapto urban growth boundaries have been defined.
Strategy 18.2 Facilitate housing opportunities in existing urban areas, particularly within strategic centres through local strategic planning and local plans by: • regularly reviewing planning controls so that they are creating flexible and feasible conditions for housing supply • aligning infrastructure and service delivery to match housing supply needs • exploring public domain improvements that would increase capacity for growth • identifying policies and processes that could be reviewed to improve certainty and streamline development processes • promoting urban design outcomes to support healthy and vibrant communities.	Councils	Consistent with Council's Local Strategic Planning Statement and draft Housing and Affordable Housing Options Paper.



Theme, Objective, Action, Strategy, Activity	Lead	Comment
Strategy 18.3 Identify, prioritise, and coordinate infrastructure needed to support vibrant and healthy communities in the region's urban release areas	DPIE	It is assumed that this strategy relates to the draft Special Infrastructure Contribution (SIC). However the draft SIC does not prioritise the projects listed, or indicate a timeframe for construction.
Strategy 18.4 Monitor land and housing supply through the Illawarra Shoalhaven Urban Development Program.	DPIE	Support the continuation of the on-going monitoring of housing supply through the Illawarra Shoalhaven Urban Development Program.
Collaboration Activity 4 Work with Kiama Municipal Council on the development of a Local Housing Strategy.		Not relevant to Wollongong
Objective 19 Deliver housing hat is more diverse and affordable		
 Strategy 19.1 Provide for and encourage a range of housing choices in local strategic planning and local plans by considering: a mix of housing types and lot sizes including small lots in urban release areas a mix of housing sizes including studios and one-bedroom dwellings incentives to increase the supply of housing that is appropriate for seniors, including low-care accommodation whether development standards, including minimum lot sizes, minimum frontage and floor space ratio are inadvertently inhibiting opportunities for diverse housing options innovative solutions in housing to cater for a range of community needs, including those of older people, multi-generation families, people living in group housing, people with special needs or people from different cultural backgrounds. 	Councils	Support. Action consistent with the finding of Council's draft Housing and Affordable Housing Options Paper, which found that a greater supply of smaller dwellings is required.
Action 8 Establish the Illawarra Shoalhaven Affordable Housing Roundtable with councils, community housing providers and the NSW Government to collaborate, build knowledge and identify barriers to increase the supply of affordable housing	DPIE	DPIE is encouraged to work with Council's to prepare and implement Affordable Housing Policies, Affordable Housing Contribution Schemes and draft Planning Proposals to include Affordable Housing



Theme, Objective, Action, Strategy, Activity	Lead	Comment
		clauses in the LEPs. Additionally the DPIE should reduce the complexity of the process to prepare Affordable Housing Contribution Schemes and draft Planning Proposals.
Strategy 19.2 Investigate affordable housing targets in consultation with the Illawarra Shoalhaven Affordable Housing Roundtable.	Councils	Support. An affordable housing target is required to demonstrate the high need for affordable rental accommodation.
Strategy 19.3 Assess the potential to renew social housing sites to deliver an increase in social housing stock and greater vibrancy in local communities.	DPIE (Land & Housing Corp)	Support. Action consistent with the finding of Council's draft Housing and Affordable Housing Options Paper, which recommends Council continue to work with Land and Housing Corporation to increase the supply of appropriate social housing.
Objective 20 Establish a shared vision for the future of Bombo Quarry lands		
Action 9 Develop a shared vision for the future of Bombo Quarry lands in collaboration with Kiama Municipal Council, landowners and the community	DPIE	Not relevant to Wollongong
Objective 21 Respond to the changing needs of local neighbourhoods		
Strategy 21.1 Consider the changing needs of local neighbourhood centres in local strategic planning and local plans by: • exploring flexibility and supporting a mix of land uses so that local streets and spaces can be adapted to new uses and user needs over time • improving public space, in consultation with the community, to	Councils	Support. Will be considered though the preparation of the Retail Centres Study
foster and support connectivity and great places to live for changing populations.		
Objective 22 Embrace and respect the region's local character		



eme, Objective, Action, Strategy, Activity	Lead	Comment
Strategy 22.1 Support the development of local character statements in accordance with the Local Character and Place Guideline.	Councils	Consistent with action in Council's Local Strategi Planning Statement. The DPIE has just released draf Guidelines.
ective 23 Celebrate, conserve and reuse cultural heritage		
Strategy 23.1 Identify, conserve and enhance cultural heritage values in local strategic planning and local plans by: • engaging with the community early (including Traditional Owners) in the planning process to understand heritage values • undertaking heritage studies early to inform conservation and value add opportunities • applying adaptive reuse and heritage interpretation to create distinctive local places • managing and monitoring the cumulative impact of development on the heritage values and character of places.	Councils	Consistent with Council's Local Strategic Plannin Statement and the Heritage Strategy Review.
ective 24 Support major events, public art and cultural activities		
Strategy 24.1 Support public art, major events and cultural activities in local strategic planning and local plans by: enhancing and protecting creative work and performance spaces, and related facilities supporting the temporary use of vacant buildings for performance and creative work supporting the night-time economy facilitating opportunities for creative and artistic expression and participation with a minimum regulatory burden encouraging the diversification of uses, or activation of underutilised facilities facilitating street art to enhance urban areas and contribute to the attractiveness of neighbourhoods.	Councils	Consistent with Council's Creative Wollongon strategy and Economic Development Strategy.



Theme, Objective, Action, Strategy, Activity		Comment	
Objective 25 Collaborate to leverage opportunities from Western Sydney's growth			
Strategy 25.1 Engage and collaborate on opportunities for mutual and sustainable social, economic and employment benefits across the Illawarra Shoalhaven and Western Sydney.	DRNSW	Consistent with Council's Economic Development Strategy.	
Objective 26 Create faster rail connections between Greater Sydney, Wollongong and Nowra			
Collaboration Activity 5 Work with Transport for NSW on the Fast Rail Network Strategy and identify opportunities to leverage investment at a regional and local scale.		The duplication of track south of Unanderra should be included. Improvements to the rail network north of Wollongong, especially north of Thirroul, are also required. Improving the frequency of rail services at key centres would support sustainable urban outcomes.	
Objective 27 Protect major freight networks			
Strategy 27.1 Optimise the efficiency and effectiveness of the freight handling and logistics network in local strategic planning and local plans by: • protecting, maintaining and improving the existing and emerging freight transport network • balancing the need to minimise negative impacts of freight movements on urban amenity with the need to support efficient freight movements and deliveries • limiting incompatible uses in areas expected to have intense freight activity.	Councils	Council does not have responsibility for freight networks. The action should be the responsibility of TfNSW. The DPIE could also review the Infrastructure SEPP to include additional provisions or requirements. This strategy should also include the progression of the Maldon – Dombarton Link (or SWIRL) (similar to strategy 3.1), rather than a vague reference of "emerging network". Should include investigate opportunities to start decarbonising freight transport	



Theme, Objective, Action, Strategy, Activity	Lead	Comment
Objective 28 Create connected and accessible walking and cycling networks		
Strategy 28.1 Create connected and accessible walking and cycling networks in local strategic planning and local plans by: connecting existing coastal walkways to enhance the user experience and link coastal towns and villages integrating walking and cycling networks into the design of new communities prioritising walking and cycling in areas around schools, health services, aged care facilities, sporting, cultural and recreational facilities.	Councils	Strategy supported. Consistent with the Wollongong Cycling Strategy 2030 adopted by Council or 16/11/20 and Council's Pedestrian Plan (2017)
Objective 29 Utilise smart infrastructure to drive resilience		
Strategy 29.1 Consider how smart technology and the Internet of Things can be integrated into local strategic planning, including consideration of how it can improve community engagement and information sharing in the planning process.	Councils	Strategy supported – ongoing activity
Objective 30 Prepare for mobility changes that improve connectivity and sustainability		
Strategy 30.1 Foster a regional approach to the rollout of electric vehicle charging infrastructure that considers the potential sites for charging stations, including council-owned land, and how these locations can be activated as places.	DPIE (EES)	Strategy support. Consistent with the draft Policy Council endorsed on 31/8/20. Strategy should be expanded to also include Crown land and other State owned land.
Strategy 30.2 Support technology-enhanced mobility changes through local strategic planning and local plans by providing flexibility in the way centres are planned to: • foster the take up of automated and electric vehicles for public transport, active transport and personal use • incorporate facilities to encourage the use of car sharing, and electric and hybrid vehicles, including charging stations.	Councils	Strategy support. Consistent with the draft Policy Council endorsed on 31/8/20. Council does not have responsibility for the provision of public transport or purchase of buses, and Transport for NSW should be a lead agency.





WOLLONGONG CITY COUNCIL

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NSW Department of Planning, Industry and Environment C/- illawarra@planning.nsw.gov.au

Our Ref: File: Date: Z20/256194 CST-100.07.025 XX December 2020

Dear Sir/Madam

Draft Illawarra Shoalhaven Regional Plan 2041 and Proposed Special Infrastructure Contribution Illawarra Shoalhaven

Thank you for the opportunity fo comment on the Draft Illawarra Shoalhaven Regional Plan 2041 and Proposed Special Infrastructure Contribution Illawarra Shoalhaven. Council considered a report on the draft documents on 7 December 2020, a copy of the report and meeting minutes are available on Council's website.

Draft Illawarra Shoalhaven Regional Plan 2041

Council is generally supportive of the draft Regional Plan. Its themes, the objectives, strategies, actions and activities are generally consistent with Council's policies and direction.

However compared to the current Regional Plan, there seems to be a greater expectation that Council's will have responsibility for the strategies identified in the draft Plan. The draft Regional Plan does not contain any funding to resource the actions, strategies or activities. Any expectations of Council to progress projects identified in the draft Regional Plan would need to be consistent with Council's Community Strategic Plan, Delivery Program and Local Strategic Planning Statement.

The draft Regional Plan is lacking in terms of identifying the intrastructure projects required to support growth in the region, with only a few projects with existing funding commitments mentioned.

Council supports:

- The acknowledgement of climate change, and the commitment to net zero emissions by 2050
- The continued acknowledgement of Wollongong City Centre, West Dapto Release Area, Tallawarra and Port of Port Kembla as Regional Significant Precincts (strategies, 1.1, 1.2, 1.6)
- Strategies 1.3 and 1.4 the better utilisation of the WEC and WIN Stadium, and foreshore precinct
- Strategy 3.2 the development of the Port as a green hydrogen hub

Council does not support:

- Being the lead agency for strategy 1.5 expanding Education in the City Centre, as the Department of Education would be more appropriate. Council is supportive of the intent of the strategy.
- Being the lead agency for strategy 12.3 determining Sea Level Rise, where the State is more
 appropriate to determine the change that impacts the whole region
- Being the lead agency for strategy 15.3 promote opportunities for clean energy as Council is not responsible for large scale energy production and the responsibility should be assigned to Energy NSW.
- The lack of identification of school sites in the West Dapto Release Area. Council has advocated for the identification of school sites and funding over many years. This issue is further discussed under the Proposed Special Infrastructure Contribution Illawarra Shoalhaven section of this submission.



 The lack of commitment to the Maldon – Dombarton Rail link or South West Illawarra Rail Link (SWIRL), where it is only mentioned in the text and does not form part of a strategy (could be included in strategy 3.1 and 27.1)

The attached table provides additional comments on many other strategies and activities.

Proposed Special Infrastructure Contribution Illawarra Shoalhaven

Council notes that the proposed Special Infrastructure Contribution Illawarra Shoalhaven (SIC) will replace the current draft West Lake Illawarra Special Infrastructure Contribution (SIC) 2011, which has been draft for nine (9) years. Council estimates that the Department has collected \$10 million from developers in the West Dapto Release Area through Planning Agreements under the draft SIC. To-date only \$600,000 has been allocated towards the design of the Princes Highway – Fairwater Drive link. It is acknowledged that in August 2020, the Department sought nominations for projects to be funded by the collected funds, and Council looks forward to an announcement on the outcomes of the applications.

Council supports the inclusion of.

- an allocation of \$20m to the West Dapto Biodiversity Certification (Biocertification). The Biocertification
 of West Dapto has been stalled since 2014 due to the lack of funding to progress the proposed
 conservation measures. The allocation of funds should enable the NSW Department of Planning,
 Industry and Environment –Environment Energy and Science, to progress Council's West Dapto
 Biocertification application. The finalisation of the Biocertification application will provide certainty for
 the community and developers on biodiversity outcomes, and avoid the site by site biodiversity
 assessment and debates.
- an allocation to the Northcliffe Drive extension (\$74m) and the West Lake Illawarra Major Road Spine
 project (\$260m) (the West Dapto Ring Road). Council would welcome confirmation that the inclusion
 of the major spine road in the draft SIC is an indication that the State accepts responsibility for the
 funding, and coordination of the delivery of the road. If Council is expected to deliver this road, a
 funding apportionment of 10% is not adequate.

Council requests details of the mechanisms to be put in place to ensure the timely transfer of collected funds to Council where it has a role in the delivery of the infrastructure.

Council is disappointed in the lack of funding for public primary and high schools in the draft Plan. The proposed \$15.9m allocation to the provision of primary and secondary schools in the West Lake Illawarra Growth Area (Wollongong and Shellharbour), is less than the \$18.6m identified in the 2011 draft SIC for the provision of land tor eight primary school and two high school sites within West Dapto.

Council has advocated for the identification of school sites over many years. The West Dapto DCP chapter shows the indicative location of six potential primary school and two high school sites. However the Department of Education has yet to provide clarity and commitment to the provision of new schools that will be required to support the education needs of our new communities. It appears the Department of Education will commit to school sites where a single large developer has been able to provide new school sites at Calderwood as a part of a planning agreement with the State. But where a much larger population is being planned at West Dapto which has fragmented land ownership, the State has continued to show-little interest in engaging with Council or West Dapto developers to make sure that the existing and future communities are treated equally.

Since 2003, when the relocation of Dapto Primary School to Horsley was approved, no school site has been identified by the State in the West Dapto Release Area. The capacity of the Dapto Primary School at Horsley has recently been approved to increase to 870 students (from 738 students), through DA-2019/698 which includes the demolition of 14 demountable classrooms and the erection of two new 2-3 storey buildings containing 20 home-bases.

Council notes that many of the road infrastructure projects listed were previously identified in the 2011 draft SIC, although the cost estimates have increased. It is noted that upgrades to the M1 have now been included in the current draft SIC, whereas previously the need tor the widening was generated by overall population increase, rather than just being attributed to development in the release areas.

Council is concerned that there is no detail behind how the cost estimates have been determined, and to justify the significant cost estimate increases.



The draft SIC determination proposes a contribution rate of \$125,159/hectare of net developable residential land area. This rate is significantly higher than the \$73,219/hectare rate proposed by the 2011 draft SIC, and the \$59,000 / hectare of net developable area, that the developers are currently paying through Planning Agreements to the State. Without seeing the detail project cost estimates and land area the contribution is allocated over, it is difficult to assess the accuracy of the number. It is unclear whether the land that has been developed for housing in the West Dapto Release Area for housing over the past 10 years, is included in the area calculation. It is unclear how development in Calderwood has been treated where the lead developer has entered into a Planning Agreement with the State to deliver State infrastructure.

A lower rate for Tallawarra is supported, however without knowing the inputs between the 2 release areas, it is difficult to review or comment of the accuracy of the number.

The staged introduction of the SIC is supported, to allow the market to adjust and encourage early development to beat the increases.

Similar to local development contribution plans, the draft SIC should include an expenditure program. The draft SIC only proposes to collect 10% of funds required for the infrastructure projects, therefore requiring a further 90% to be allocated from the State budget. It is unclear whether the State is committed to this amount of funding.

The timing of infrastructure provision is important to enable Council to align its construction program for local collector roads, that link with the regional roads.

Should you require any further information, please contact Linda Davis, Director Planning + Environment on telephone 4227 8805.

Yours faithfully

Greg Doyle General Manager Wollongong City Council Telephone: (02) 4227 7111

enc



File: CST-100.03.062 Doc: IC20/686

ITEM 2

WOLLONGONG CITY CENTRE - DRAFT PLANNING STRATEGY, DRAFT PLANNING PROPOSAL, DRAFT DEVELOPMENT CONTROL PLAN

Planning for changes to development controls that will support the success of Wollongong City Centre into the future has been a Council priority for a number of years. Council has taken a staged approach to this important process, starting with establishing an agreed vision and Urban Design Framework before moving on to the statutory changes that will deliver the agreed outcomes for the city centre.

On 30 May 2016, Council adopted the Vision for Wollongong City Centre, *A City for People - a people-orientated, sustainable and liveable city.* In 2018 work commenced on the City Centre Planning Review, a comprehensive review of land use and built form controls to bring them into alignment with *A City for People.*

On 21 September 2020 Council adopted the Urban Design Framework to guide the preparation of a draft Planning Strategy, including amendments to the Wollongong Local Environmental Plan 2009 and Wollongong Development Control Plan 2020.

We have now moved to the next phase of the process which is to translate the endorsed vision and Framework into a draft planning strategy and statutory plans to provide residents, businesses and property owners an opportunity to review and test the proposed new controls. The draft Wollongong City Centre Planning Strategy and draft amendments to the Wollongong Local Environmental Plan 2009 and Wollongong Development Control Plan 2009 have been prepared.

It is recommended that the draft Wollongong City Centre Planning Strategy, draft Wollongong City Centre Planning Proposal and draft Wollongong DCP 2009 – Chapter D13 Wollongong City Centre be endorsed for Gateway determination and subsequent exhibition. Following the exhibition, a report on submissions will be prepared.

RECOMMENDATION

- 1 The draft Wollongong City Centre Planning Strategy (Attachment 1) be endorsed for exhibition.
- The draft Wollongong City Centre Planning Proposal (Attachment 2) be endorsed for referral to the NSW Department of Planning, Industry and Environment for a Gateway Determination to enable exhibition. The Department be advised that Council will not be seeking delegation to progress the finalisation of the Planning Proposal after exhibition and the consideration of submissions.
- An application be made to the NSW Department of Planning, Industry and Environment requesting that the table in clause 25K of the Environmental Planning and Assessment Regulation 2000 be amended to refer to both the B3 Commercial Core and B4 Mixed Use zones within the Wollongong City Centre, as mapped in the Wollongong Local Environmental Plan 2009. This would enable development contributions of up to 2% of the capital development of development to be collected from the entire revised City Centre area. This request is included in the draft Planning Proposal.
- 4 The draft Wollongong Development Control Plan 2009 Chapter D13 Wollongong City Centre (Attachment 3) be endorsed for exhibition.
- Following the receipt of the Gateway Determination, all documents be exhibited for a minimum period of 60 days. In the interim period prior to the commencement of formal exhibition, the draft documents are to be available on Council's website for information and informal consultation.
- 6 Following the exhibition period, the issues raised in submissions be reported to Council.
- 7 To incentivise the construction of new employment generating developments, the 2% Wollongong City Centre Development Contribution rate under the Wollongong City Wide Development Contributions Plan be reduced to 1% for new commercial-only development applications within the B3 Commercial Core zone of the Wollongong City Centre lodged after this meeting, for a period of 3 years.



REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

- 1 Draft Wollongong City Centre Planning Strategy
- 2 Draft Wollongong City Centre Planning Proposal
- 3 Draft Wollongong Development Control Plan 2009 Chapter D13 Wollongong City Centre

BACKGROUND

In March 2014, Council resolved to review the existing City Centre Revitalisation Strategy; a suite of four documents setting the strategic framework for the City Centre: (1) City Centre Vision, (2) Wollongong City Centre Local Environmental Plan (LEP), (3) Wollongong City Centre Development Control Plan (DCP) and (4) Wollongong City Centre Civic Improvement Plan.

Council engaged Gehl Architects to partner in developing *Wollongong Public Spaces Public Life*. The Gehl philosophy is based on encouraging life in a City by improving the public spaces and built environment. If more people are using the City, the economics and life of the City will increase.

Setting a renewed Vision for Wollongong City Centre - A City for People 2016

The analysis performed through *Wollongong Public Spaces Public Life* informed a new vision for the City Centre. On 30 May 2016 Council adopted the vision outlined in *A City for People* together with key strategies and outcomes aspired to be achieved in the short, medium and long term.

Council also resolved to retire the *Revitalising Wollongong City Centre Vision* (2007), *Civic Improvement Plan* (2007) and *Wollongong CBD Action Plan* (2010) as policy documents.

The City Centre Vision

The vision presented in *A City for People* is about what Wollongong City Centre aspires to become. It is intended to set a clear direction to guide decision making and priorities in the City Centre over time.

In the 21st century Wollongong City Centre will be a people orientated, sustainable and liveable city.

Wollongong City Centre is a thriving and unique Regional City, delivering a diverse economy and offering a high-quality lifestyle. The City Centre is nationally recognised as a liveable city and is the place where people want to live, learn, work and visit.

The vision is underpinned by 12 aspirational goals for delivering the Wollongong City Centre of the future. These goals are grouped under the following themes:

- Celebrate the uniqueness.
- Develop a human scale City.
- Grow a living City.
- Create an accessible, pedestrian friendly City.

Wollongong City Centre Urban Design Framework

A City for People identified a disconnect between our current City Centre planning controls and the vision the community helped to define. In order to address the disconnect and deliver a planning strategy for the future, a comprehensive City Centre Planning Review was undertaken.

The Review included planning, urban design, open space and economic analysis to inform appropriate distribution of height and scale of buildings across the City Centre, including refinement of the City Centre boundary and associated planning policy amendments.

In 2018, Architectus and Andrew Burns Architects were commissioned to prepare an Urban Design Framework (UDF) to incorporate the planning, urban design, open space and economic analysis and



present a new way forward for planning outcomes, in alignment with *A City for People*. The UDF and Economic Analysis focused on the Commercial areas of the City Centre, zoned B3 Commercial Core and B4 Mixed Use.

On 24 February 2020, Council considered a report on the draft UDF and *Economic Analysis*. Council resolved that:

- 1 Community and stakeholder feedback be sought on the Wollongong City Centre Urban Design Framework and Economic Analysis.
- 2 Following the consultation period and review of submissions, the draft Planning Proposal and draft Development Control Plan amendments be finalised and reported to Council for consideration.
- 3 The suggested LGA-wide retail centres study be included for possible funding within the preparation of the next budget.

The draft UDF and Economic Analysis were exhibited between 25 February and 27 April 2020. Feedback came from 123 submissions, which included: 98 online survey responses from individuals 25 written submissions, 10 of these were from individuals and 15 from groups.

On 21 September 2020 Council considered the post exhibition report. The report recommended a number of minor amendments in response to the community input. Amendments were made in relation to the commercial-only area, precinct boundaries and naming as well as the retail narrative. Additionally amendments were made to increase clarity, correct errors and respond to the results of further testing instigated through the engagement feedback. Council resolved that:

- 1 The community and stakeholder feedback on the Draft Wollongong City Centre Urban Design Framework (February 2020) and Wollongong City Centre Planning Review: Economic Analysis (June 2019) as documented in the City Centre Planning Review Engagement Report, be noted.
- 2 The revised final Wollongong City Centre Urban Design Framework be adopted as a planning policy to guide development outcomes in the City Centre and the preparation of a Draft Wollongong City Centre Planning Strategy.
- 3 A Draft Wollongong City Centre Planning Strategy, including the Draft Planning Proposal and Draft Wollongong Development Control Plan Chapter, be finalised and reported to Council by no later than 30 June 2021 and after considering and including those suggestions received during the exhibition that will lead to a more consultative and positive outcome for CBD owners, operators, commerce and the community.

PROPOSAL

Following on from the endorsement of the Wollongong City Centre Urban Design Framework, a draft Wollongong City Centre Planning Strategy and implementation documents have been prepared.

The draft Planning Strategy consists of:

- Draft Wollongong City Centre Planning Strategy.
- Draft Wollongong City Centre Planning Proposal recommends amendments to the Wollongong LEP 2009.
- Draft Wollongong Development Control Plan 2009 Chapter D13 Wollongong City Centre.
- Amendments to the Wollongong City-wide Development Contributions Plan.

The proposed new controls are informed by Wollongong City Centre vision, Urban Design Framework, Economic Analysis, Economic Development Strategy and community consultation. The draft controls have been tested to understand their broad implications on development outcomes across the City and on individual properties. Endorsing the draft Planning Strategy, draft Planning Proposal and DCP chapter will enable more detailed testing to understand how the proposed changes will impact on individual properties/owners.



Draft Wollongong City Centre - Planning Strategy

The draft Planning Strategy Planning Strategy (Attachment 1) recommends detailed changes to planning controls, based on the strategies outlines in the UDF. This will ensure that the Wollongong City Centre will maintain its role as the centre of economic activity in the Illawarra-Shoalhaven region and builds upon its strengths, by fine tuning planning controls that already are working well. It revises those that are have demonstrated to promote poor planning outcomes or that restrict opportunities for the economic growth of the City Centre, the Wollongong local government area and the region.

The draft Planning Strategy is based on the UDF and sets clear policy recommendations to guide development in the City Centre aligned with its Vision.

a Land Use Strategy: A vibrant and growing Regional City

Planning controls promote land use diversity to encourage a vibrant mix of offers throughout the City Centre, day and night. Jobs and population growth support Wollongong's role as a Regional City. Wollongong is an attractive place to live, work, visit and invest. The directions are:

- 1 Prioritise jobs growth and establish a resilient commercial core.
- 2 Define active commercial streets that respond to character.
- 3 Plan for a variety of housing to support a lively and inclusive city.

b Built Form Strategy - An attractive and diverse city in a unique natural setting

Clear planning controls preserve the unique character of Wollongong's precincts. Renewal at all scales is encouraged and this creates an interesting built fabric. Built form variety creates a recognisable city skyline that celebrates the natural setting and responds to human scale.

- 4 Grow a legible city that supports a distinctive and evolving character.
- 5 Strengthen and simplify planning controls to promote built form diversity in response to people and place.
- 6 Elevate the importance of design quality in the City Centre.

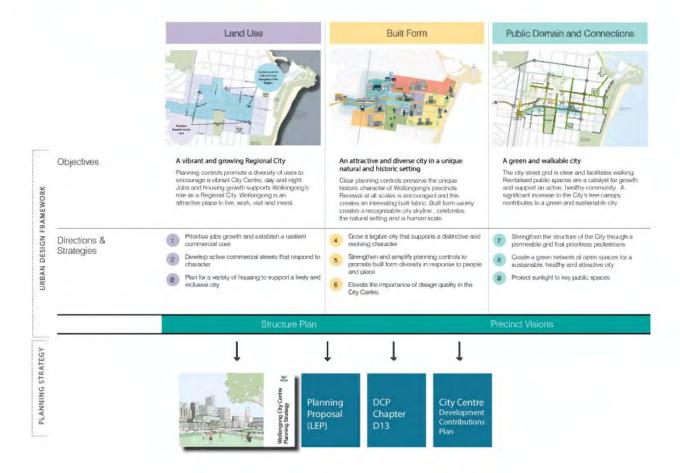
c The Public Domain and connections Strategy - A green and walkable city

A significant increase to the City's tree canopy contributes to a green, walkable and sustainable city. Attractive and revitalised public spaces support an active and healthy community and are a catalyst for growth in the city. The city grid is clear and permeable and facilitates walkability.

- 7 Strengthen the structure of the City through a permeable grid that prioritises pedestrians.
- 8 Create a green network of open spaces for a sustainable, healthy and attractive city.
- 9 Protect sunlight to key public places.

The recommendations of the draft Planning Strategy will be implemented via the draft Planning Proposal, draft DCP chapter and amendments to the Wollongong City-wide Development Contributions Plan.





Work is also progressing on the preparation of a City Centre Affordable Housing Contributions Study and a City Centre Heritage Study which will be reported to Council for consideration in 2021.

It is important to note that development activity in the City Centre will continue while proposed changes to planning requirements are progressed. Development Applications may continue to be lodged under current planning controls until such time as the Planning Proposal process is finalised and the LEP amendment made. The draft planning controls will start to be one of the matters for consideration in the development assessment process once the formal exhibition process has commenced. In the intervening period, the draft documents signal Council's intention to progress new planning controls to improve development outcomes and implement the vision for Wollongong City Centre endorsed in 2016.

Draft Wollongong City Centre - Planning Proposal

To implement the recommendations of the draft Planning Strategy into the Wollongong Local Environmental Plan 2009, a draft Planning Proposal has been prepared (Attachment 2). The draft Planning Proposal includes both Map and Clause amendments, including:

- Amendments to the Wollongong City Centre Map to reflect the new boundary largely focused on the B3 Commercial Core, B4 Mixed use zones, SP1 Special Purposes, and SP3 Tourist zones between Wollongong Hospital, Foreshore, Smith Street and Ellen Streets.
- Amendments to the land Zoning map to reflect the proposed boundary changes between the B3 Commercial Core and B4 Mixed use zones.
- Amendments to the Floor Space Ratio (FSR) map to reflect the proposed maximum floor space ratios. Clause 4.4A has also been amended to remove the differentiation of FSR between commercial and residential development and the sliding FSR scale depending on the property size and frontage. This will lead to a simpler approach to understanding the FSR for each site, and a significant improvement.



- Amendments to the Height of Buildings Map to reflect the revised height strategy, that protects views, sunlight and aligns with the FSR. In addition, a height limit of 9m for land zoned RE1 Public Recreation, within the old City Centre boundary has been proposed to be consistent with the rest of the LGA. There is currently no height limit for these reserves. In addition, an 8m height limit has been is proposed to apply to Crown foreshore land at Wollongong Golf Course, consistent with the adjoining land.
- Amendments to the Sun Plane Protection Map to reflect the additional sites to be protected from overshadowing, including Crown Street Mall and Church Street (mall), and broadening of identified surrounding properties that have the potential to overshadow the key public spaces.
- Amendments to the Key Sites Map to include a number of additional key sites, where design excellence is required to be considered in more detail.
- Amendments to the Active Frontage Map to identify sites required to have active ground floor frontages. This will replace the use of clause 7.13 for the City Centre, which requires ground floor retail space in the B3 Commercial Core and B4 Mixed Use zones. This is a significant change that will reduce the spread of retail floor space beyond the commercial core, undermining activity in the commercial core. Residential Apartment Buildings will be able to be approved in the B4 Mixed Use without the requirement for ground floor retail space.
- Amendments to the Land Acquisition Reservation Map to remove sites that have now been acquired by Council (lots in MacCabe Park and Town Hall Place) and Transport for NSW (road widening on Corrimal Street and Keira Street).
- New Street Wall Heights Map showing the proposed maximum street wall building heights at the street front property boundary.
- New Precincts Map showing:
 - Commercial only Burelli St precinct.
 - Residential cap precinct.
 - o Flinders Street, North Wollongong precinct (B6 Enterprise Corridor zone).
- Amend the B3 Commercial Core zone, by:
 - o Removing the fifth objective which promotes high density residential development.
 - Removing Boarding house, Seniors housing and Shop top housing as permissible uses, although they will remain permissible in the non-commercial office only precincts through an additional use provision.
 - As a consequence of the changes being proposed to support commercial outcomes in the city centre B3 zone, an additional use clause is proposed to be included for land zoned B3 Commercial Core at Dapto and Warrawong, to retain Boarding house, Seniors housing and Shop top housing as permissible uses.
- Amend clause 7.14 Minimum site width to remove the requirement for a minimum site width of 24m for residential flat buildings in the City Centre, and clarify where site width is measured (will apply to the LGA)
- Amend clause 7.18 Design Excellence update the clause to reflect the increased emphasis on design quality and the different processes as development site areas increase.

Draft Wollongong Development Control Plan 2009 - Chapter D13 Wollongong City Centre

To accompany and expand on the draft Planning Proposal, a new draft Wollongong Development Control Plan 2009 - Chapter D13 Wollongong City Centre has been prepared (Attachment 3). If adopted, following exhibition, the chapter will replace the current DCP chapter D13 Wollongong City Centre and provide detailed guidance for the lodgement and assessment of development applications.



The draft DCP chapter is divided into the following sections:

- 1. Introduction
 - Design excellence
- 2. Character precincts and Key sites details the character, objectives, public domain and connections, preferred land use and built form controls for the 8 precincts
- 3. City Centre Development Controls
 - Context
 - i. Site analysis
 - Solar access to public spaces
 - iii. Public views to the escarpment and coast
 - iv. Permeability improved pedestrian links
 - Built Form
 - i. Typical built forms
 - ii. Building setbacks
 - iii. Street walls
 - iv. Tower massing and form
 - v. Wind effects
 - vi. Residential development on narrow lots
 - Public Interface
 - i. Activity and program
 - ii. Active street frontages
 - iii. Residential frontages at ground
 - iv. Materials
 - v. Awnings
 - vi. Landscaping
 - vii. Publicly accessible spaces
 - viii. Public art
 - ix. Acoustic privacy
 - x. Car parking requirements (see below)
 - xi. Late night trading (consistent with the Night time Economy Policy)

Site specific DCP chapters override the general DCP chapters in the event of an inconsistency, however they don't repeat controls in the general chapters. For example, the DCP chapters on Sustainability, Flood Management, Landscaping, Heritage and Traffic Management still apply.

Business Incentive

It is proposed that car parking rates for office premises and business premises in the B3 Commercial Core zone be reduced from a minimum of 1 space per 60m2 to 1 space per 120m2 of floor space. This proposed change will provide an incentive for commercial development in the City Centre by reducing the construction cost of parking. It will also help to encourage the use of public transport to the City and the park and ride Gong Shuttle. Traffic, parking rates, pedestrian and cycle movement will be further



reviewed as part of the draft Wollongong City Centre – Access and Movement for People Study which is in preparation.

As a consequence to the review of the DCP chapter D13 Wollongong City Centre, consequential amendments are required to a number of other DCP chapters. The proposed amendments to these chapters will be reported to Council in 2021, for consideration as to whether they should be exhibited.

Amendments to the Wollongong City-Wide Development Contributions Plan

The Wollongong City-Wide Development Contributions Plan levies contributions towards local infrastructure under Section 7.12 of the Environmental Planning and Assessment Act 1979. This Plan applies to the whole of the Local Government Area (LGA) (excluding the West Dapto Urban Release area where a Section 7.11 Contributions Plan applies) and levies contributions based on the proposed cost of carrying out the development. The maximum levy rate percentage that can be levied is prescribed in clause 25K of the Environmental Planning and Assessment Regulation 2000. The levy rates that apply to the majority of the LGA are shown at Table 1.

Table 1 City Wide levy rates

Proposed cost of the Development	Levy %
Up to and including \$100,000	Nil
More than \$100,000 up to and including \$200,000	0.5%
More than \$200,000	1%

In 2007, the Minister for Planning approved an increased (2%) levy on development in the Wollongong City Centre B3 Commercial Core with a value greater than \$250,000 (the 'City Centre 2% levy'), to fund projects identified in the 2007 Civic Improvements Plan. The levy rates that currently apply to the B3 Commercial Core zoned land within the City Centre are shown at Table 2.

Table 2 City Centre (B3 zoned land) levy rates

Proposed cost of the Development	Levy %
Up to and including \$250,000	Nil
More than \$250,000	2%

Since 2007, approximately \$12m in development contributions has been collected and approximately \$9m has been allocated to a range of capital projects.

The B3 Commercial Core zone applies to some 577 lots and an area of 63 hectares.

Wollongong City Centre is one of seven (7) centres listed in the table to clause 25K of the Regulations. Table 3 provides a comparison of the centres, their maximum percentage rates, the applicable zones and approximate area that the clause applies too. The contribution income and expenditure of the other locations is unknown.

Table 3 Comparison rates

Centre	Max Rate %	Zones	Applicable Area (approx)
Wollongong	2	B3	63 ha
Newcastle	3	B3, B4, R3	162 ha
Parramatta	3	B3, B4	153 ha
Liverpool	3	B3, B4, R4, IN2	214 ha
Chatswood	3	B3, B4, B5, R2, R3, R4	57.5 ha



Gosford	4	B3, B4, R1	200 ha
Burwood	4	B4	48.3 ha

The comparison indicates that the Wollongong rate is the lowest, and covers a smaller number of zones and area than many of the other centres.

As part of the preparation of the draft Planning Strategy the area to which the City Centre 2% levy applies has been reviewed. The April 2020 DPIE *Discussion Paper: Criteria to request a higher Section 7.12 percentage* establishes three key principles for a levy rate of more than 1%. These are:

- 1 The area being proposed for a higher maximum percentage levy must be identified in a strategic plan as a strategic centre, local centre or economic corridor.
- 2 It must have an existing or identified potential for significant employment growth.
- 3 Planning controls will need to reflect and support the planned increase in population and employment capacity of the identified area.

It was found that both the B3 Commercial Core and B4 Mixed Use zoned land within the City Centre, meet these criteria and will have similar demand and requirements for local infrastructure. It is proposed that Council apply to the Department of Planning, Industry and Environment seeking an update to clause 25K(1)(b) of the *Environmental Planning and Assessment Regulation 2000, to enable the 2%* rate to be applied to both the B3 Commercial Core and B4 Mixed Use zones within the revised City Centre boundary. This would mean that an additional 273 properties (estimated 27 hectares) would be subject to the 2% development contribution levy. An amendment to Clause 25K of the Environmental Planning and Assessment Regulation 2000 is proposed to facilitate the change and is included in the draft Planning Proposal.

Business Incentive

To incentivise employment generating opportunities, through commercial-only developments, it is proposed to grant an exemption from Section 7.12 contributions where the development is located within the B3 Commercial Core zoned land and is for commercial development only. Commercial development may include retail premises, office premises, business premises, tourism accommodation, education establishments (as defined in *Wollongong LEP 2009*) but not be a mixed development that includes residential development. This exemption will therefore be considered on a case by case basis.

A discount to the specified rate, can be introduced via a resolution of Council, and does not require a legislation change. It is proposed that the discount rate be available for 3 years and then reviewed. The discount rate is proposed to apply to new development applications lodged after the Council meeting, and will not be backdated to any existing development consents, as it is to incentivise new developments.

At this stage the discount cannot apply to commercial-only development within the B4 Mixed Use zone, as the existing 1% contribution rate continues to apply until the Regulations are amended. If the Regulations are amended, the application of the discount will be considered for the B4 Mixed Use zone.

CONSULTATION AND COMMUNICATION

The draft UDF and Economic Analysis were exhibited between 25 February and 27 April 2020. The purpose of the engagement was to establish the community's level of support for the key Directions and Strategies of the draft UDF. Feedback came from 123 submissions, which included: 98 online survey responses from individuals 25 written submissions, 10 of these were from individuals and 15 from groups.

On 15 September 2020 the Lord Mayor held a Crown Street stakeholder meeting with landowners and business operators to discuss options to activate the mall. As an outcome a series of themed stakeholder forums are proposed to occur.



Through these engagement processes, city centre stakeholders have consistently asked that the detail of proposed changes to planning controls be released to allow detailed analysis of their implications on development outcomes. The release of the draft planning package provides the opportunity for such analysis to proceed.

If the draft documents are endorsed by Council, the draft Planning Proposal will be referred to the NSW Department of Planning, Industry and Environment for a Gateway determination to enable formal (statutory) exhibition. This process is anticipated to take 2-3 months.

In the intervening period, Council officers will be available to discuss the recommended changes with landowners, developers and the community, both generally and for specific properties. This informal consultation will assist stakeholders to prepare submissions to be lodged during the formal exhibition. It is important that both the existing and proposed planning controls are understood to inform submissions. The informal engagement process will not lead to any changes to the endorsed draft documents.

Once a Gateway Determination has been received (possibly February – March 2021), the formal exhibition period will commence. A 60 day exhibition period is proposed and will be advertised widely, including letters to individual landowners.

Council officers have met with peak development organisations and have agreed to workshop development implications prior to statutory exhibition to support meaningful feedback to the exhibition process.

Wollongong Local Planning Panel Review

In accordance with the Ministerial Direction, on 14 June 2019, the Wollongong Local Planning Panel reviewed the draft Urban Design Framework and proposed amendments to the Wollongong LEP 2009. The Panel recommended that the following advice be provided to Council as part of a report on the Planning Proposal:

The Wollongong Local Planning Panel has reviewed and supports the proposed Planning Proposal for the Wollongong City Centre. The Planning Proposal has strategic merit as it is supported by an Urban Design Framework, an Economic Study, a 3D model and thorough analysis, and implements Council's 2016 Vision for the City.

The draft Planning Proposal (Attachment 2 Appendix 1) contains a copy of the Panel's advice and comments on the proposed LEP amendments presented to the Panel.

Since 2019, the draft UDF was exhibited and adopted, and a draft Planning Strategy and draft Planning Proposal prepared, which has resulted in some changes to the proposed amendments presented to the Panel. The changes respond to community input and increase the strategic merit of the draft Planning Proposal, through consistency with an adopted strategy with community input.

Wollongong Design Review Panel

On 20 November 2018, the Wollongong Design Review Panel reviewed the draft residential design controls of the draft Urban Design Framework and proposed amendments to the Wollongong LEP 2009 and Wollongong DCP 2009.

The Panel was generally supportive of the direction and proposal.

Since 2019, the draft UDF was exhibited and adopted, and a draft Planning Strategy prepared, which has resulted in some changes to the proposed amendments presented to the Panel.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 Goal 2 2 'We have an innovative and sustainable community' and Goal 3 'Wollongong is a creative and vibrant city'. It specifically delivers on the following:



Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21 Operational Plan Actions	
Strategy	4 Year Action		
2.1.2 Grow the national competitiveness of Metro Wollongong to drive economic growth, employment and diversification of the region's economy	2.1.2.2 Progress implementation of a City for People and its accompanying Implementation Plan	Undertake the City Centre Planning Review and Design Review arising from the Wollongong City Centre – Public Spaces Public Life Implementation Plan	

Illawarra Shoalhaven Regional Plan (2016)

The Illawarra Shoalhaven Regional Plan (2016) introduced the concept of Metro Wollongong (the broader district that includes the City Centre, Hospital, University and Innovation Campus), as a key economic driver for the region.

The plan includes the following directions and actions, relevant to the draft Planning Strategy:

Direction 1.1 Grow the national competitiveness of Metro Wollongong to provide jobs and housing

Action 1.1.1 Create new and innovative opportunities for commercial development in the commercial core by making it more attractive for investment and business

Action 1.1.2 Increase the residential population of Metro Wollongong by making it a more attractive place to live, work and play

Action 1.1.3 Improve the productivity and liveability of Metro Wollongong by connecting and integrating the individual precincts

Action 1.1.4 Revitalise west Crown Street by enhancing the amenity and investment opportunities between the health precinct and the commercial core

The draft Wollongong City Centre - Planning Strategy is consistent with the direction and actions.

Draft Illawarra Shoalhaven Regional Plan 2041 (2020)

The Draft Illawarra Shoalhaven Regional Plan 2041 is currently on exhibition until 17 December 2020. The draft Regional Plan acknowledges the importance of both Metro Wollongong as well as the City Centre.

The draft Plan includes the following objective, strategies, actions and activities relevant to the City Centre:

Objective 1: Strengthen Metro Wollongong as a connected, innovative and progressive City.

Strategy 1.1: Strengthen Metro Wollongong in local strategic planning and local plans by:

- creating a permeable and connected pedestrian network.
- encouraging a diversity of housing including affordable housing and student housing around commercial priority areas.
- elevating the importance of design quality and design excellence outcomes.
- utilising green infrastructure to create a green network of open spaces.
- activating public domain to encourage investment and renewal.

Action 1: Develop a Metro Wollongong Health Precinct Strategy,

Strategy 1.2: Strengthen Metro Wollongong's Commercial Core in local strategic planning and local plans by:



- prioritising jobs growth and a resilient Commercial Core by safeguarding land for commercial, job-generating development.
- strengthening and simplifying planning controls to promote a diversity of buildings that respond to people and place, define the city's skyline and create streets that are scaled for people.
- developing active city streets that retain local character and support flexibility to the changing retail environment.
- encouraging the temporary use of vacant properties to help with activation.

Strategy 1.3: Revitalise and activate the Sports and Entertainment Precinct and foreshore in local strategic planning and local plans by:

- improving the visual and physical access to the foreshore, including improving the pedestrian interface with the WEC, WIN Stadium, the beach and Lang Park.
- encouraging broader uses of the Precinct during times outside of events.
- improving access to public and active transport networks including links to Wollongong Train Station and event transport.
- embracing the location's environmental setting by protecting key views, improving and activating public spaces and managing exposure to climate hazards.

Collaboration Activity 1: Work with Venues NSW, Wollongong City Council and Department of Regional NSW on the revitalisation and activation of the Metro Wollongong Sports and Entertainment Precinct and foreshore.

Strategy 1.4: Review opportunities to better utilise the WEC and WIN Stadium.

Strategy 1.5: Expand the education, innovation and research capabilities of Metro Wollongong in local strategic planning by:

- encouraging collaboration between education and research institutions to foster knowledge sharing and innovation.
- encouraging the attraction of an additional university presence in the Commercial Core or Commercial Frame.
- fostering opportunities to develop and enable smart city approaches throughout Metro Wollongong.

Strategy 1.6: Strengthen connectivity in Metro Wollongong in local strategic planning and local plans by:

- activating entrances to Wollongong Train Station and improving place-making at Lowden Square and on Crown Street.
- balancing the needs of pedestrians and vehicle traffic through the West Crown and Keira Street corridor to create a vibrant and iconic intersection.
- promoting walking and cycling through enhancements such as better wayfinding.
- strengthening the feasibility of redevelopment and increased densities within walking distance to Wollongong Train Station.
- integrating bus services with other modes including park and ride facilities, and opportunities for car, bike and scooter sharing services.
- considering opportunities for innovative mobility changes including electric vehicles and autonomous bus systems.

Collaboration Activity 2: Work with Wollongong City Council on its Access and Movement for People.



Collaboration Activity 3 Work with Transport for NSW on the development of a Wollongong Place-based Transport Plan.

The draft Wollongong City Centre - Planning Strategy is consistent with the objective and strategies.

Wollongong Local Strategic Planning Statement (2020)

On 29 June 2020 Council adopted the Wollongong Local Strategic Planning Statement (LSPS). The LSPS details the 20 year land use planning vision for the LGA. The draft LSPS was exhibited after Council's endorsement of the draft Wollongong City Centre Urban Design Framework for exhibition, and acknowledges the importance of the City centre to the regional economy, employment opportunities, housing market, social, recreation and entertainment activities. The LSPS notes that following the exhibition of the UDF, Council will be preparing a draft Planning Strategy, including a draft Planning Proposal and draft DCP chapter for exhibition.

Economic Development Strategy (2019-2029)

On 23 September 2019, Council adopted an Economic Development Strategy following its exhibition. The recommendations of the draft Planning Strategy are consistent with the aspirations of the Economic Development Strategy. Importantly, the recommended changes to planning controls to prioritise commercial development in the City Centre directly support the jobs target and the transition to a higher order, knowledge-based economy.

Draft Wollongong City Centre Access and Movement for People Strategy

The draft Wollongong City Centre Access and Movement for People Strategy is currently under preparation. This project will develop a future transport network for Wollongong City Centre that supports the vision described in *A City for People*. Initial community input was sought in parallel with the exhibition of the draft UDF and Economic Analysis. Transport and parking related modelling is underway. The draft Access and Movement for People Strategy will be reported and exhibited separately.

Other related projects

The UDF has been informed by a number of other projects, including the Urban Greening Strategy 2017-2037, Creative Wollongong 2019-2024, Disability Inclusion Action Plan 2020–2025, Wollongong Cycling Strategy 2030, Sustainable Wollongong 2030: A Climate Healthy City Strategy and Climate Change Mitigation Action Plan.

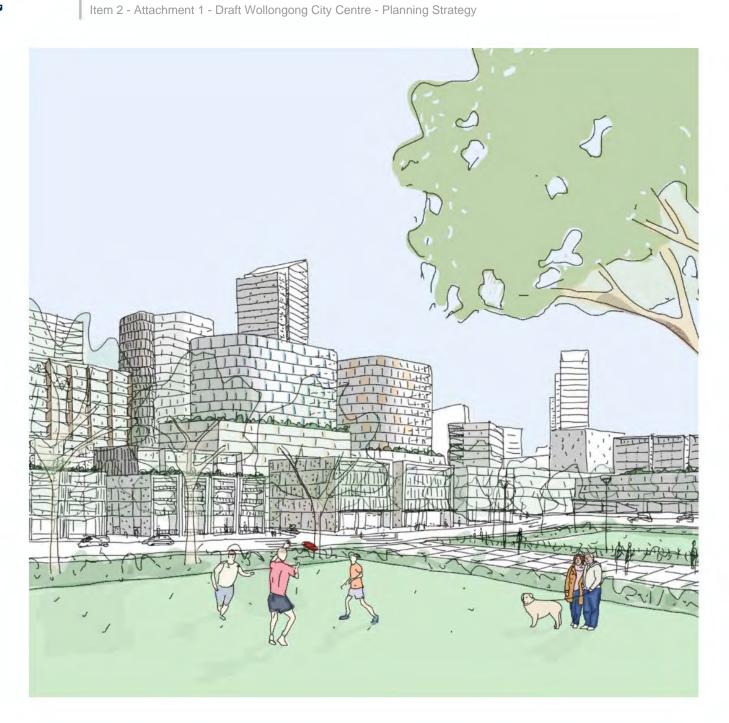
CONCLUSION

On 21 September 2020 Council endorsed the Urban Design Framework to guide the preparation of a draft Planning Strategy, including amendments to the Wollongong Local Environmental Plan 2009 and Wollongong Development Control Plan 2020.

The draft Wollongong City Centre Planning Strategy, draft Wollongong City Centre Planning Proposal and draft Wollongong DCP 2009 – Chapter D13 Wollongong City Centre have now been prepared. The documents will implement the new vision and directions for the City Centre.

It is recommended that the draft documents be endorsed for exhibition, noting that the draft Planning Proposal requires a Gateway determination from the NSW Department of Planning, Industry and Environment before the formal exhibition can commence.







Wollongong City Centre Planning Strategy



Wollongong City Council would like to show its respect and acknowledge the Traditional Custodians of the Land to which this Strategy applies, of Elders past and present, and extend that respect to other Aboriginal and Torres Strait Islander people.

Project and report	Wollongong City Centre Planning Strategy	
Version and date issued	November 2020 - Draft for Council Report	



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01 Overview

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Making our City Centre A City for People

In 2014 Wollongong City Council partnered with Gehl Architects to deliver a renewed and reframed Vision for the Wollongong City Centre.

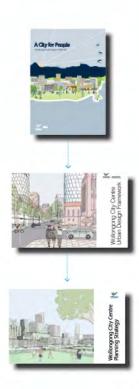
This work shifted the focus and approach to City Planning to the importance of people. It gave priority to the delivery of high-quality streets, buildings and public spaces to support 'public life' and deliver an extraordinary city.

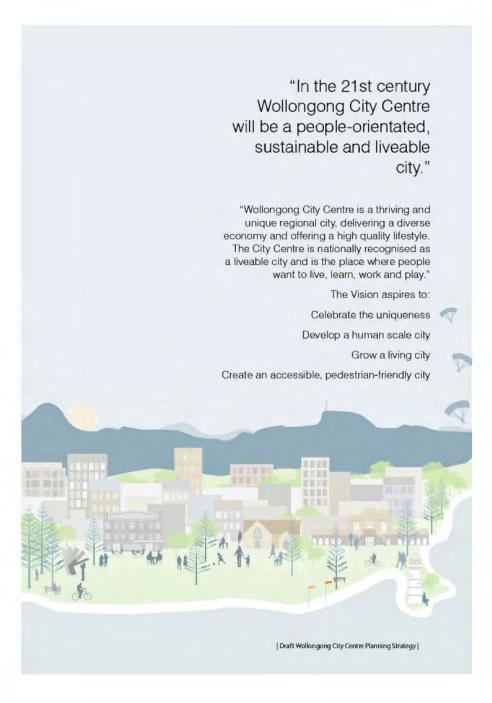
A City for People was the result of detailed, observationbased analysis of the way our city centre was working. It involved intensive community engagement and resulted in a clear vision for the future of our city. The Vision was adopted by Council in 2016.

Key to the delivery of this Vision is our planning framework. A City for People identified a disconnect between our current City Centre planning controls and the Vision. A key action of the Vision was to undertake a review of the existing Wollongong City Centre planning policies.

The Wollongong City Centre Urban Design Framework was completed and adopted in 2020. This work included detailed planning, urban design and economic analysis to examine planning controls and processes impacting the built environment in our City Centre. A clear set of Directions and Strategies were identified to inform detailed policy change. These Directions were the subject of a public exhibition, which reinforced the community's desire to see the Vision of A City for People implemented.

The Wollongong City Centre Planning Strategy expands on the Directions of the UDF by introducing a suite of clear and consistent planning controls. These controls will work to facilitate better design outcomes and realise our growth potential in the Wollongong City Centre.







The Urban Design Framework

The analysis and recommendations of the Urban Design Framework were themed under:

- Land Use
- Built form
- Public Domain & Connections

The Key Findings, Objectives, Directions and Strategies are shown summarised here

	Land Use	Built Form	Public Domain and Connections
Key Findings	Current land use controls could result in a City filled with residential development, compromising long term employment growth the character and historic qualities of pla		The City lacks clear physical and visual connections to key places which makes wayfinding difficult and discourages walking.
	The retail core is spread out too far, which results in empty shopfronts and creates mactive streets	The planning controls do not provide clear guidance for development to deliver the intended built outcomes for the City	Arrival into the City Centre is confusing and provides an underwhelming first impression of Wollongong
	The City's cultural identity is diversifying to support City life	The City's development controls do not promote development that defines a city skyline or enhances the unique natural setting	Public open spaces are valued but do not yet real se their full potential
		Developments favour maximising building development controls over design quality, producing a less attractive City	Key public spaces are at itsk of overshadowin by surrounding buildings Tree canopy cover in the City Centre is inadequate
Precincts	0 0 0	0 0	a a o
	Rail Arrival III MacCabe Western Cro Southern District Park Keira Stre		Firstoric Eastern Crown Street Foreshold Spine & Art's Precinct
Objectives	A vibrant and growing Regional City Planning controls promote a diversity of uses to encourage a vibrant City Centre, day and night Jobs and housing growth supports Wellongong's tole as a Regional City. Wolfongong is an attractive place to live, work, visit and invest	An attractive and diverse city in a unique natural and historic setting Clear planning controls preserve the unique historic character of Wollongong's precincts. Henewal at all scales is encouraged and this creates an interesting but tablot. Bull form variety creates a recognisable only skyline, celebrates the natural setting and is human scale.	A green and walkable city The city street grid is clear and facilitates walking. Revitatised public spaces are a catalyst for growth and support an active, healthy community. A dignificant increase to the City's tree canopy contributes to a green and systamable city.
Directions	Prioritise jobs growth and establish a resilient commercial core Develop active commercial streets that respond to character Plan for a variety of housing to support a lively	Grow a legible city that supports a distinctive and evolving character Strengthen and smplify planning controls to promote built form diversity in response to people and place	7 Strengthen the structure of the City through a permeable grid that prioritises pedestrians 8 Create a green network of open spaces for a sustainable, healthly and attractive only 9 Protect sunlight to key public spaces
Strategies	and inclusive city	Elevate the importance of design qualify in the City Centre	0 0 0



Key directions to underpin change

The Wollongong City Centre Planning Strategy puts forward a planning policy framework to shape positive change. This change is underpinned by the directions of the Urban Design Framework and includes proposed amendments to various planning policies, processes and initiatives. These are summarised below:

Local Environmental Plan

- Zoning and Land Use
- Heights
- Floor Space Ratio
- Bullding separation
- Minimum lot wldths
- Solar Access Planes
- Design Excellence
- Key Sites

Development Control Plan

- Precinct and Key Site statements and objectives
- Site Analysis
- Street wall heights
- Setbacks
- Floor-plate sizes
- Car parking provisions
- Landscaping

Development Assessment

- Design Excellence
- Design Review Panels
- Competitive Design Processes
- Development Application requirements

Development Contributions

- City Centre Development contributions



Prioritising jobs and establishing a resilient commercial core

Wollongong City Centre has a growing economy with significant investment underway. The City is expanding to accommodate jobs with a focus on knowledge intensive, high value and highly skilled sectors.

Planning policy will prioritise job generating development in the commercial core by:

- Removing the zoning objective promoting highdensity residential in the commercial core
- Preserving the existing supply of commercial floorspace, as a minimum, while encouraging additional floorspace
- Allowing mixed-use development in parts of the Commercial Core with a limitation on the proportion of residential floorspace
- Defining commercial only areas for larger office buildings and aligning height and floor space controls to promote tall buildings with generous floorplates
- Incentivising commercial only office buildings by waiving the additional 1% development contribution
- Improving feasibility for commercial office development in the commercial core by reducing requirements for car parking



Develop active commercial streets that respond to character

Wollongong City Centre delivers high quality, active streets day and night. Successful precincts make the most of their distinctive characters and contribute to high quality public spaces by having active street frontages, high amenity streetscapes and retaining the character of traditional high streets.

Planning policy will facilitate a vibrant network of commercial streets by:

- Only requiring non-residential uses on the ground floor on key commercial streets where there is good pedestrian traffic and access to public transport
- Protecting the character and role of historic retail streets and precincts while promoting commercial diversity
- Supporting a balance between night-time economy and residential city living



3 Planning for a variety of housing to support a lively and inclusive city

Wollongong City Centre offers a balance of living, working and recreational activities. Well-designed and located residential development supports the vitality and resilience of the City Centre and offers choice to residents.

Planning policy will guide the location and proportion of residential development by:

- Expanding the Mixed Use Zone
- Promoting a diversity of uses including 100% residential apartment buildings in the Mixed Use Zone
- Allowing limited residential throughout the Commercial Core to activate the City and lever commercial outcomes
- Introducing an Affordable Housing Contributions
 Scheme to help meet the diverse housing needs of our community
- Unlocking narrow sites for residential apartment development (with detailed design review)



4&5

Clearly guiding development to respond to context

- Grow a legible city that supports a distinctive and evolving character
- Strengthen and simplify planning controls to promote built form diversity in response to people and place

Wollongong City Centre celebrates its unique character and natural setting through a place-based design approach. Development considers the city's unique qualities at a street, precinct and city scale.

Planning policy will clearly guide development to be right for place by ensuring building envelope controls:

- Responding to the City Centre's natural setting
- Supporting the desired character of City Centre Precincts
- Prioritising the amenity and functionality of the public domain
- Protecting key views to coast and escarpment
- Respecting and responding to Aboriginal and post-colonial heritage and cultural significance



Elevating the importance of a welldesigned City Centre

Wolkongong City Centre embraces exceptional design which achieves functional, attractive and sustainable solutions for our community. The design culture of the city is established and growing.

Planning policy will strengthen quality design outcomes by:

- Clearly articulating the expectations for place-based design through detailed precinct planning and amendments to the planning controls
- Replacing a 'one-size-fits-all' approach to design excellence with a calibrated approach which is appropriate to the impact and complexity of different development outcomes
- Reviewing Development Application processes and In-house design capability for a collaborative approach to design quality



7

Strengthen the structure of the City through a permeable grid that prioritises pedestrians

Wollongong City Centre has a network of green and walkable streets. Active and public transport are prioritised. Vehicle movement and parking is efficient and logical.

Planning policy facilitates a strong transport network by:

- Defining the role and function of streets in the City Centre
- Creating a walkable city grid for pedestrians with additional pedestrian and shared connections*
- Delivering active transport infrastructure including bike lanes and footpaths*
- Helping people make the shift from cars to public and active transport by making them a more attractive option than driving and parking*
- Maintaining and reinforcing movement corridors for public and private vehicles*
- * Dellvery of these priorities will be further developed through the Wollongong City Centre Access and Movement for People Study. Policy shifts under this strategy retain the flexibility to accommodate outcomes from that Study.



8 & 9

Delivering high amenity public places

- Create a green network of open spaces for a sustainable, healthy and attractive city
- Protect sunlight to key public spaces

Wollongong City Centre is an enjoyable and enriching place to spend time. High quality public parks, streets and community facilities support a healthy community and attract investment.

Planning policy facilitates the creation and improvement of high amenity public places by:

- Planning for building envelopes that protect sunlight to key public spaces, preserve views to natural and built assets and facilitate street tree planting
- Reinforcing the character of key streets and precincts with appropriate tree planting
- Identifying and prioritising public domain and community facility projects to promote renewal and encourage investment in the City*
- * Delivery of these priorities will be further developed alongside the ongoing work the Wollongong Social Infrastructure Planning Framework 2018-2028

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02 Policy Framework

The Policy Framework builds on the Directions and Strategies of the Urban Design Framework and Introduces the detailed changes being proposed to planning controls for the City

Theme



Land Use

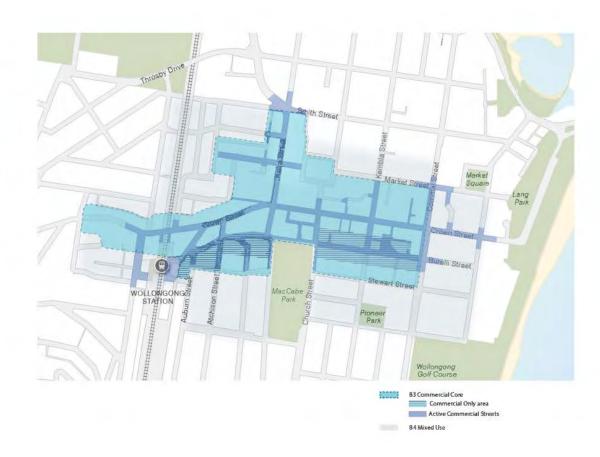
Objective

A vibrant and growing Regional City

Planning controls promote a diversity of uses to encourage a vibrant City Centre, day and night. Jobs and housing growth supports Wollongong's role as a Regional City. Wollongong is an attractive place to live, work, visit and Invest.

Directions

- Prioritise jobs growth and establish a resilient commercial core
- 2 Develop active commercial streets that respond to character
- 3 Plan for a variety of housing to support a lively and inclusive city







Direction: Prioritise jobs growth and establish a resilient commercial core

The analysis has found that the current land use strategy is compromising diversity and long term commercial growth opportunities due to a lack of distinction between land use zones. Supporting the growth and function of higher-grade commercial uses, with a range of complementary mixed uses, is an important part of Wollongong's role as a National

The City Centre supports a range of non-residential outcomes including professional services, tourism, education, cultural facilities, retail, and entertainment uses.

The commercial core promotes a diversity of office needs, including small, medium and large office sites across the different City character precincts. City life is promoted around the Commercial Core, with a 'City Support' or a mixed use area established which allows more flexibility in delivering a resident development including residential flat buildings and mixed use buildings.

This Direction aims to ensure that the City Centre has adequate zoned land for commercial uses into the future. The direction also aims to ensure that sites are attractive to commercial tenancies, which aligns with Council's Economic Development Strategy 2019 - 2029.

No land use changes are proposed for areas outside the B3 and B4 zones of the Wollongong City Centre.

STRATEGY 1.1

Define and strengthen the role of the B3 Commercial Core for employment

A concentrated commercial core with a focus on delivering

The Commercial Core zone (B3) is condensed and redefined with a renewed focus on delivering jobs. Aligned with the boundary adjustments, the key zone objective for high density residential is removed to bring clarity that the commercial core is the place to establish business.

Preserve the existing supply of Commercial floorspace

Sites across the Commercial Core are required to retain the existing supply of commercial floor space established on site. This will ensure that the City is able to grow its commercial offering from the base supply of commercial floor space as sites renew.

Lever Commercial outcomes from residential

A clear shift is made in the way we control the delivery of commercial floor space in mixed use developments. Current policy quarantines only the ground level for commercial uses. New controls will require mixed use development in the Commercial Core zone to include a minimum of 30% commercial floor space. Where the existing area of commercial floorspace on a site is greater than 30% of the proposed development, the existing quantum of commercial floorspace must be incorporated into the new development.



Amendments to Planning Controls

A Amend the boundaries of the B3 and B4 zones for the City Centre based on the structure shown in the adjoining 'Recommended land use zoning' map



Recommended land use zoning

- B Amend the objectives of the B3 Commercial to focus on employment and not high-density residential
- C Introduce a minimum non-residential FSR across the B3 Commercial core zone lands - focused around key active commercial streets.
- D Introduce a provision to retain the existing quantum of commercial floorspace upon redevelopment to protect existing commercial supply





STRATEGY 1.2

Define where large format A-Grade office buildings can be clustered as a commercial destination

Aligned with the Economic Vision for the City Centre, it is important to identify where large A-Grade office towers can be accommodated in a cluster within the City Centre. A-Grade offices are prestigious and highly sought after as a high end business addresses. The creation of an A-Grade office cluster is expected to invite increased rental returns, and therefore improve commercial feasibility in the long-term.

There are a series of principles to inform the best location for clustered A-Grade office towers. When overlayed, Burelli Street is revealed as the opportunity to establish a concentration of these important City defining buildings, creating a destination for business within the Commercial Core.

While it is acknowledged that A-Grade office buildings are encouraged across the City Centre and can come in many forms, the Burelli St area is focussed on A-Grade office towers with large floor plates of at least 800m²(GFA). These towers need to be established on large sites, and present the opportunity to create a new City character.

Planning controls will holistically reflect the role of these sites, restricting residential development, while supporting generous height and floor space controls to allow for tall towers which create a spine of height running through the City.

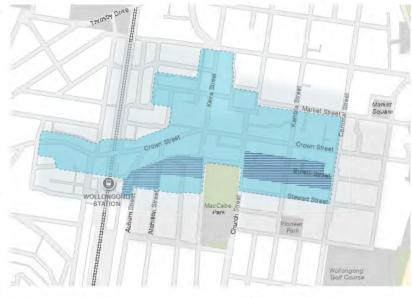
It is important to note that although the objective is to encourage large office buildings, a range of commercial outcomes will still be permitted on these sites including (but not limited to): commercial premises; community facilities; educational establishments; entertainment facilities and hotels.

Principles informing commercial-only areas for A-Grade Office Towers

- 1. Part of a condensed commercial core with the ability to co-locate large-scale commercial
- 2. In close proximity to clusters of existing established A-Grade, large commercial buildings
- 3. Sites large enough to support large format tower typology
- 4. Located on exclusively commercial sites
- 5. Away from areas of small scale, established character and not interrupting key views and connections
- 6. Located close to public transport
- 7. Located close to Crown Street Mall (to ensure accessibility to retail, hospitality and other services for workers)
- 8. Located close to City assets of public open space e.g. MacCabe Park, Foreshore and/or waterfront
- 9. With access to key views
- 10. Away from areas of environmental sensitivity (e.g. flood areas south of Burelli Street)



Overlaying Principles reveals Burelli as the best location to support a cluster of A-Grade Office Towers



City Centre Commercial land use diagram

Amendments to Planning Controls

- A Introduce a defined area along Burelli St where residential development is not permitted.
- B Align height and floorspace controls in this area to facilitate large format commercial office outcomes.

B3 Commercial Core Burelli Street - Commercial Only **B4 Mixed Use**



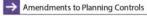


Pursue incentives for commercial development

Commercial development will be prioritised in the B3 Commercial Core through a number of changes to planning controls. In addition to this, it will be important to further incentivise key job generating commercial development to improve its feasibility.

Areas for action include:

- Reducing parking requirements in Commercial Only Developments in the B3 commercial core (excluding retail)
- Reducing development contribution rates for Commercial Only Developments in the B3 commercial core (excluding retail)



A Reduce the requirement for carparking in commercial office and business developments in the B3 Commercial Core to a minimum of 1 space per 120sqm (from 1 space per 60sqm)



B Apply a discount of 1% on Development Contributions for Commercial Only Developments In the B3 commercial core (reduced from 2%)

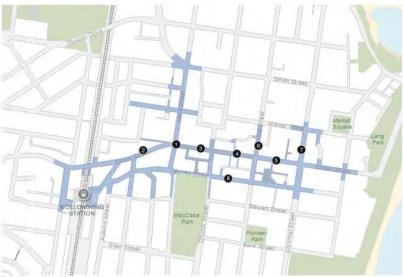


Direction: Develop active commercial streets that respond to character

The analysis has found that active uses are dispersed across the City Centre and that the retail offering is not concentrated. Important historic mainstreets present an opportunity to be adapted and re-purposed for a variety of commercial uses.

Recognising the evolving role of the City's traditional high-streets of Crown and Keira, the direction aims to conserve the character of these historic fine-grain retall streetscapes while unlocking their potential to evolve and deliver alternate City Centre functions. While the uses inside buildings evolve over time, it is important to ensure that they are designed to activate and bring energy to this important network of streets in the City Centre.

A series of activity clusters existing across our commercial streets and these become key focal points of the City Centre. Each have Individual characteristics which add to the vibrancy of the city, and host some of Wollongong's favourite offers both during the day and



Active Streets Strategy Diagram



Artist impression show active laneways and streets throughout the City Centre

Supporting thriving City Centre Streets

- The junction of Keira and Crown Streets supports large format shopping centres. Keira Street supports evening activities with its existing collection of quality restaurants which are destination attractors for the City Centre.
- Western Crown Street offers a mix of high end and affordable, alternative retail, late night trading and emerging businesses.
 - Crown Street Mall is a key public space delivering events and community activities including markets and festivals.
- The Upper Mall (west) offers a mix of large format and street level retail.
- The Lower Mall (east) evolves as a business and professional services hub. Professional suites, banking and office studios fill adapted historic and character buildings with the traditional highstreet streetscape a celebrated point of difference. This emerging professional services hub closely aligns with the Burelli Street and Lower Crown commercial building clusters.
- 6 Lower Crown supports a range of Government Agencies, bars, cafés and restaurants. This area supports a vibrant evening economy.
- 6 Kembla Street offers a food, beverage and entertainment cluster closely linked to Burelli Street commercial and civic uses.
- O Corrimal Street is vibrant day and night with exciting range of food and entertainment,
- Burelli Street is emerging to support large format office towers. The street supports impressive foyers.



STRATEGY 2.1

Promote commercial diversity in buildings while protecting the character of historic retail streets and precincts

Implement built form strategies to protect the fine grain character, function, streetscape and solar access to what is the existing retail heart of the City. Built form controls should promote the adaptive reuse of existing character buildings, allowing renewal set back from the street.

Implementation of this strategy should define the retail areas through the active frontage control in the LEP and the character precincts in the DCP. Controls should encourage focus on large format retail at the intersection of Keira and Crown, and a high street character with a focus on fine grain on Crown, Keira and Kembla Streets.

It should be clear that even large format retail must address and activate any street frontages.

The desired future character for these key retail streets and precincts has informed the built form controls and Heritage Listings recommended in Direction 4.

STRATEGY 2.2

Only require non-residential ground floors on key active City Centre streets

Allow a diverse mix of uses which supports and balances the need for commercial, retail and residential growth in the centre today and in the future.

Currently the WLEP requires development within the B4 Mixed Use zone and B3 Commercial Core zone to provide a non-residential ground floor use. It is recommended that this approach is replaced with an identification of key retail streets on an 'active frontage map' for the City Centre, requiring a non-residential

ground floor use that activates the street in these locations. This should be supported by examples of well-designed active frontages in the DCP or design guidelines.

The strategy will ensure that non-residential uses are appropriately located and support an active commercial street, rather than being dispersed across the City.

Amendments to Planning Controls

A Include an Active Street Frontages map for the City Centre area in the WLEP clause 7.19 as per Recommended land use zoning with Active Frontages Map adjoining (will override clause 7.13).

STRATEGY 2.3

Develop planning controls that support a balance between night-time economy and residential city living

In alignment with the Wollongong CBD Night Time Economy Council Policy provide clear planning controls to guide night time activity and assist in mitigation of real and perceived conflicts between residents and city noise.

→ Amendments to Planning Controls

- A Update the DCP to reflect the Wollongong CBD Night Time Economy Council Policy.
- B Include provision in the DCP to guide the appropriate design of residential living in areas with active evening economies



Recommended land use zoning with active frontages







Direction: Plan for a variety of housing to support a lively and inclusive City

Well designed residential uses in mixed use areas support the vitality and resilience of a city. When balanced with other uses, housing in the City can bring vibrancy, support local businesses and create an urban lifestyle desired by a diverse population.

Increasing the City's residential population will bring significant benefits; a more diverse night-time economy; increased pedestrian activity; passive surveillance; and greater demand for population serving industries.

It is critical that housing in the City Centre does not inhibit commercial growth. Housing must be in the right location, and provide the right mix to meet the needs of a growing population. Variety in dwelling type, size and location will support a diverse community

Key objectives of designing residential for the City Centre should be the activation of key city streets and management of land use conflicts.

STRATEGY 3.1

Guide residential development in the right

Define a Mixed Use area which operates as a City Support. This area promote a diverse mix of uses which support and balance the need for commercial, retail and residential growth in the Centre today and in the future. Residential and commercial development will be permitted throughout this zone, delivering a true mixed use outcome. Horizontal mix of uses will see residential and commercial buildings side by side, and vertical mix of uses will see a range of land uses in the one building.

In nominated areas, residential uses are permitted at ground floor level, to stop the unnecessary sprawl of vacant retail tenancies. Ground floor residential needs to be appropriately designed to provide privacy for residents as well as ensure streetscape amenity.



Amendments to Planning Controls

- A Allow for residential flat buildings to be delivered in the 84 Mixed Use zone where there is no active frontage control.
- B Introduce a new section in the Wollongong City Centre DCP to address the design of residential uses at ground. This should be clearly separated from the requirements of the active frontage control under the LEP and consider the appearance of buildings, contribution to the streetscape, activation of the public domain, privacy and gardens.



Mixed Use land use strategy diagram

City Support - 84 Mixed Use zone



Artist impression of George Street delivering medium and high density housing to support the City Centre





Leverage opportunities for public benefit improvements through development

The strength of the residential market is a key opportunity to leverage significant public benefits for the City Centre, including local infrastructure such as affordable housing, new parks, walking and cycling connections, and new community facilities.



Amendments to Planning Controls

- A Support the ongoing improvement of the liveability of the City Centre through using development contributions from the City Centre Development Contribution Plan to fund key public domain and Infrastructure improvements.
- B Expand the additional 1% City Centre Development Contribution area which applies to the area of the current B3 zone, to include the extent of the amended B3 and B4 zones.



Other initiatives

C Update Actions in the City Centre Development Contributions Plan based on the recommendation of this document to guide future development and Inform Planning Agreements when accessed.



STRATEGY 3.3

Encourage a diversity of housing including Affordable Rental Housing and Student

The City Centre is well serviced and well placed to assist in the delivery of housing offers.

Affordable rental housing for low and very low income residents has been identified as a key need. Offering a range of housing in the City Centre, and leveraging contributions for the delivery of affordable housing, will improve housing outcomes in our Local Government Area.

The City has a young population, and high proportion of small households, but there is a lack of student housing in the City Centre. Only 5% of student housing is located in the City Centre. Providing more student housing in the City Centre would bring more students into the City, helping to create a more diverse resident population.



Other initiatives

- A Prepare an Affordable Rental Housing Contribution Scheme for the City Centre
- B Engage with student housing providers to identify and implement incentives for development in the city.



Theme



Built Form

Objective

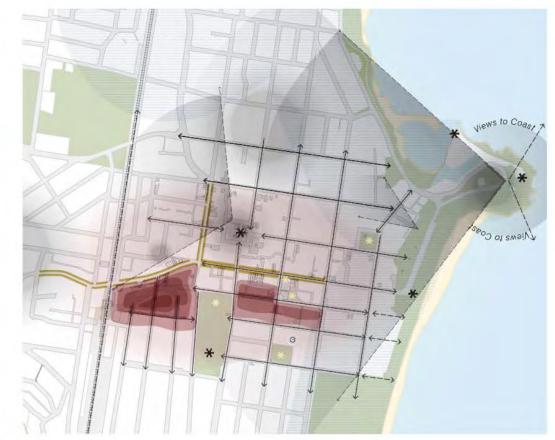
An attractive and diverse city in a unique natural and historic setting

Clear planning controls preserve the unique historic character of Wollongong's precincts. Renewal at all scales is encouraged and this creates an interesting built fabric. Built form variety creates a recognisable city skyline, celebrates

Directions

- Grow a legible city that supports a distinctive and evolving character
- Strengthen and simplify planning controls to promote built form diversity in response to people and place
- 6 Elevate the importance of design quality in the City Centre









STRATEGY 4.1

Plan for diversity in form and renewal at all scales

Floor Space Ratio (FSR) is recognised as an important regulator for development. To grow a legible city that supports the character of Wollongong, the floor space ratio controls should be revised to:

Map maximum FSR controls across the City Centre that respond to 'place'

Through detailed precinct planning, building envelope testing and an appreciation of local character, a series of floor space ratio controls have developed to respond to place. This marks a significant shift in the FSR strategy for the City Centre.

Protect and incentivise commercial capacity

Generous FSR controls should be maintained in selected commercial areas, and be allgned with appropriate height controls. This is to incentivise development, particularly in the proposed new A-grade commercial precinct to emerge along Burelli Street, where the urban structure supports taller buildings with larger floorplates.

Unlock development potential on narrow sites to allow renewal when high quality design outcomes can be demonstrated

Narrow Sites – site frontage less than 20 metres: Nearly half of sites across the City Centre have narrow frontages (frontages of less than 20m). Under the current controls these sites must be amalgamated in order to access height and floor space controls for redevelopment. This has key implications on delivering change and promoting smaller scale renewal.

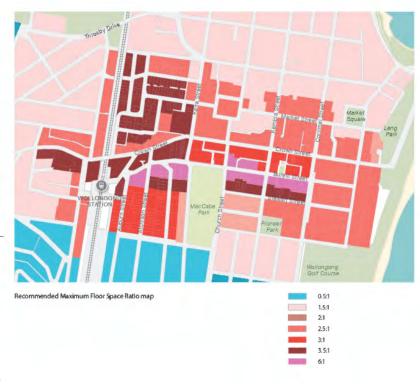
While site amalgamations are still appropriate in some areas, it is recommended that narrow sites be 'unlocked' to allow for redevelopment where it can be demonstrated that a high quality design can be achieved and key amenity criteria can be meet for the site and its neighbours.

Residential flat buildings on narrow sites – site frontage less than 24 metres

Testing demonstrated that residential flat buildings in the urban city context can be delivered on sites less than 24m site width. A series of built form envelopes identified potential small site renewal for residential on sites as narrow as 14 metres. Delivering residential on sites less than 24 metre site widths is challenging. In some instances, site orientation and site context will make it unachievable. Residential developments on narrow site will require review by the Design Review Panel (DRP).

Amendments to Planning Controls

- A Revise the floor space ratio map for the City Centre based on the adjacent Recommended maximum Floor Space Ratio Map.
- **B** Revise WLEP Clause 4.4A to represent the FSR outcomes set out in this strategy.
- C Review WLEP Clause 7.14 in its application to residential development on narrow lots in the Wollongong City Centre.
- D Update the DCP to give guidance for narrow residential sites.
- E Update the DCP to reflect a precinct-based approach that supports design excellence. The DCP should provide desired future character statements that will inform the design excellence process and determination of applications.





STRATEGY 4.2

Plan for building envelopes that preserve amenity and support the desired future character

Protect the amenity of key public places

Introduce new solar access planes to inform reduced street wall heights and increased setbacks above street wall on Crown Street Mall, and reduced heights in the Arts Precinct.

Limit residential capacity in flood prone areas

Proposed changes to land use permissibility (allowing residential at ground) will result in an increase to residential floor space permitted in flood affected areas. This is not encouraged under Section 9.1 Ministerial Direction for flood prone land. Building Heights may need to be reduced in these areas to limit any increase in residential capacity, in alignment with the Ministerial Direction.

Create a legible city skyline that concentrates height around the office core

Introduce an east-west spine of height along Burelli Street, between the station, MacCabe Park and the Arts Precinct, denoting the commercial and civic core of the city. Ensure heights on the City Centre fringes step down to maintain views to key natural features and transition to low scale areas.

Ensure heights reflect character of predncts

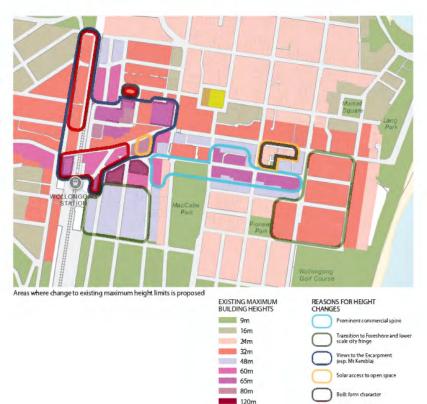
Define appropriate street wall heights and tower depths on Crown Street and Keira Street to protect the fine grain, human scale character.

Ensure consistency across the Market Street commercial services precinct where some existing sites have controls permitting significantly taller heights than those in-keeping with the character of the smaller office buildings in this area.

Align heights with the desired future character of Burelli St A-Grade commercial precinct, which is suitable for larger footprint, taller office towers.

Align heights to development potential

Ensure height controls on sites around the station are better aligned with the achievable development envelope. This will ensure the controls better reflect likely development outcomes.





Recommendations for implementation

A Revise the height of buildings map for the City Centre based on the adjacent recommended maximum heights map.





STRATEGY 4.3

Preserve buildings and places of significant character values for the enjoyment of future generations

Improve planning controls to respond to place and celebrate the character of Wollongong

Wollongong has many character buildings and places that provide an interesting streetscape, rich fabric and host many of our community's local businesses and civic functions. It's important to strengthen planning controls to protect these places and facilitate good design outcomes in and around them for the future.

Protect significant buildings and places

The identification and management of historic places is an essential part of ensuring we continue to 'celebrate the uniqueness' of the built environment and character of Wollongong City Centre.

Ensure significant buildings are listed and managed in alignment with community values and legislative direction. The Heritage Schedule and Heritage Map in the Wollongong LEP 2009 should be updated to include relevant additional buildings.



A Prepare a Wollongong City Centre Heritage Study to Identify additional items for inclusion in the LEP







Examples of unlisted buildings and archaeology with Heritage value in the City Centre



STRATEGY 4.4

Preserve views to the escarpment, ocean, natural and built heritage.

Views towards the escarpment and ocean are what give Wollongong its unique character and appreciation of its natural setting. Views also help people using the City orient themselves, and connect with the City surrounds.

Many views towards the escarpment and ocean have already been obscured by development, or are difficult to achieve in low-lying areas of the Clty Centre. Views along streets can be more easily preserved. Care should be taken when developing at the end of streets (T-Intersections), to preserve views to significant landscape beyond.

Ensure the form of development in the city centre preserves views to the escarpment from the foreshore

Maximise continuous views to the ridge-line of the escarpment from Flagstaff Hill.

Preserve views along street corridors

Give access to potential new views that may be made available with redevelopment. This is particularly relevant to the WIN stadium and WIN Entertainment Centre, with the potential opportunity to extend Burelli and Stewart Street view corridors to reveal a visual connection to the foreshore.

Ensure built form controls create a permeable skyline

Amend built form controls including side setbacks and setbacks above street wall to preserve views between buildings to significant natural landscape and built form.



Improve views to St Michael's spire and Courthouse

Preserve views to St Michaels Cathedral and Courthouse and its silhouette against the sky. Ensure structures within Crown Street Mall and Church street assist with opening up views towards St Michael's spire. Amendments to Planning Controls

- A Update the Wollongong City Centre DCP with the adjacent map of recommended key views.
- B Amend LEP and DCP built form controls to maintain key views.





STRATEGY 5.1

Develop controls that ensure slender tower forms, appropriate separation and consistent setbacks

Achieve an attractive city skyline sympathetic to the topography, natural setting and character

Minimise building profiles to maximise the opportunity for shared amenity and views to the sky and as specified in key views map.

Preserve and open up public views of significant built form, open spaces and natural features available from and around the site.

Promote tower slenderness

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Provide a consistent control for maximum floor plate sizes above street wall height:

- Retain existing maximum floor plate sizes for commercial (1,200m² GFA) but increase maximum building depth to 30m to allow for greater variety of tower forms.
- Decrease maximum floor plate size for residential development to 750m² GFA to ensure tower slenderness. Increase maximum building depth to 21m to allow for a typical residential apartment layout.

The maximum floorplate may not be achievable where design needs to respond to specific character areas.

Where the unique circumstances of a site demonstrates that a more skilful design can achieve improved outcomes for public domain, views and amenity, variation from strict application of this control, where appropriately justified, may be possible.

Achieve attractive and diverse tower forms

To avoid stepped building forms, a single setback should be provided above street wall. For taller buildings this means the greatest side and rear setbacks should be applied from street wall height.

Building forms impacted by sun access planes may need to vary this requirement.

Ensure well separated towers

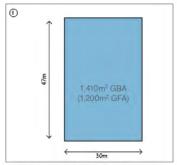
Building separation as per Apartment Design Guide for residential and a minimum 6m from side and rear boundaries for commercial uses above street wall height in the commercial core.

Apartments blocks with habitable spaces directly opposite each other should be avoided and increased separation be provided where possible.

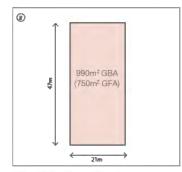
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Amendments to Planning Controls

- A Update the Wollongong DCP with the adjacent recommended minimum side and rear setbacks table
- B Update the Wollongong DCP to include the amended maximum floor plates and building depths.
- C Update the Wollongong LEP to remove the minimum building separation distances for residential development (deferring to the ADG) and to remove the requirement for 0m separation below street wall in the 83 Commercial Core.



Example of max floor plate and depth for commercial development (assuming GFA efficiency is 85% of GBA)



Example of max floor plate and depth for residential development (assuming GFA efficiency is 75% of GBA)



		Minimum Side Setback from boundary (m)	Minimum Rear setback from boundary (m)
Commercial Uses			
Up to Street Frontage Height	In area east of Corrimal St and In area bound by Church St, Stewart St, Corrimal St and Bank St. (noted as Precinct 003 in the WLEP)	3 Zero side boundary setback is noτ permitted in any circumstance	0
	In other areas	0 or 3rn either side of street frontages over 55m in length or as appropriate to provide a pedestrian laneway or publicly accessible space	0
Above street frontage height and less than 45m	In Commercial Core	6	6
	In other zones	-	12
Above street frontage height and over 45m	In other zones	12	12
Residential Uses (subject to ADG be	uilding separation requirements)		
Up to 4 storeys (approx 12m)	In area east of Corrimal St and In area bound by Church St, Stewart St, Corrimal St and Bank St (noted as Precinct 003 in the WLEP)	3 Zero side boundary setback is not permitted in any circumstance	4.5
Up to 12m (4 storeys)	In other areas	0 or 3m either side of street frontages over 55m in length	4.5
12 - 25m (5-8 storeys)	in all areas	4.5	4.5
Over 25m (9+ storeys)	in all areas	6	6

Recommended minimum side and rear set backs table

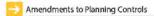




Develop controls for floor to ceiling heights that ensure good amenity and adaptability

It is recommended that ground and first floor residential uses be designed as split level apartments with individual entries to the street. Entries should be landscaped to provide privacy and amenity at ground and elevated for visual privacy. Ground floor setbacks of at least 3m apply in areas where residential is permitted at ground to provide space for quality landscaping.

Residential dwellings at ground in B4 zones should have generous floor to floor heights to allow for future adaptation to commercial uses.



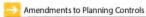
- A Update the Wollongong DCP to include following recommended minimum floor-to-celling heights to achieve a high level of internal and external amenity:
- Ground: minimum 4m for all ground floor uses in active frontage areas. 3.3m for all other areas. As per ADG for residential.
- Level 1 and above: 3.3m for commercial. As per ADG for residential.



Develop controls that provide guidance on site amalgamation and isolation.

Isolation of sites should be discouraged in cases where amalgamation presents a superior public domain and built form outcome. This is particularly the case for Key Sites.

Where a site will unavoidably be isolated, joined basements and appropriate setbacks and building separation should be provided to allow the neighbour to develop to an appropriate potential under the controls.



B Ensure the Wollongong LEP and DCP provides flexibility to allow for the development of isolated sites.

STRATEGY 5.4

Develop controls for fine grain frontages to ensure human-scale development.

Wollongong has an established fine grain bullt form character along its pedestrian spine of Crown Street Mall and Crown Street and Keira Street. The traditional shop-front pattern of 6-12m should be maintained and enhanced. New developments should relate to the existing fine grain of shop-fronts, even where the typology may include taller buildings.

Amendments to Planning Controls

C Update the Wollongong City Centre DCP to include detailed controls for Street Walls and Active Frontages, especially in existing fine grain areas.





Develop ground setback controls that provide attractive interfaces and functional streetscapes.

Promote walk-able urban retail streets

Retain zero setbacks for active frontages on key streets, where awnings can be provided. For key large sites which are able to achieve greater setbacks and currently have narrow footpaths, an additional setback is recommended.

Protect views

Ensure that views along streets to the city's natural setting can be maintained. (Refer to views section for more detail).

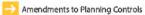
Set the tone for prestigious commercial precincts

Provide a generous dedicated setback on the southern side of Burelli Street between the station and Corrimal Street to allow for a significant public domain and planting zone, and wider setbacks on the northern side of the street to allow for tree planting.

Provide wider setbacks along Market Street West to allow for greater public domain space and street tree planting on this key street of the urban services precinct.

Get the mixed use Interface right

Require 3m ground and basement setback in mixed use zones. This will allow for flexibility in ground floor uses whether it be commercial or retail uses with space for outdoor seating, or residential requiring a transition zone with landscaping and amenity for residents.



A Update the Wollongong DCP with the adjacent map of Recommended ground setbacks.





2m setback for footpath access on laneways

STRATEGY 5.6

Develop street wall controls that respond to character and human scale.

Protect and enhance the character and heritage quality of Crown Street Mall, Crown Street and Keira Street

- Establish a 2 storey street wall height, which aligns with prevailing heritage parapet heights.
- At Crown Street Mall establish a 2 storey street wall height with a generous setback above the street wall. Doing this will improve solar access to the mall from the north, allow for appreciation of the heritage buildings of the precinct, and allow the fine grain character of the street frontages to be read. The setbacks are equal on both northern and southern sides to ensure generous views to the sky from the mall.
- On Crown Street (between Darling and Keira and Kembla and Corrimal Streets) and Keira Street (north of Crown Street) establish 6m setbacks above street wall to protect the heritage and fine grain character of the streets.

Promote the civic character of the Burelli Street commercial spine

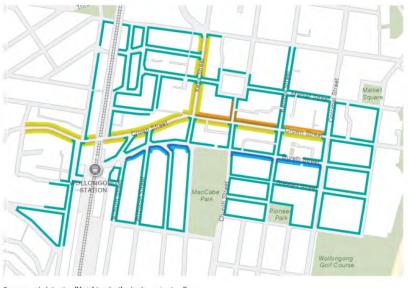
Establish street wall heights of 6 storeys along Burelli Street. Permit a variety of setback typologies including tower to ground.

Ensure a human-scale interface with MacCabe Park and a transition to low scale areas.

Provide a consistent treatment of park edges where land uses change through consistent 4 storey street wall height and 4m podium setbacks. Transition street wall heights from the core to the city fringe where they interface with low density residential.

Deliver strong and well articulated street walls

- Permit continuous street walls along Crown Street Mall, Crown Street and Keira Street to retain existing shop-front character.
- In all other areas require a maximum street wall length of no more than 55m (approximately mid-block) before which an articulation break is required to ensure human scale development and physical relief in the streetscape.
- Amendments to Planning Controls
- A Update the Wollongong LEP and DCP with the recommended street wall height and setbacks above street wall map.
- B Include Design Excellence provisions for development that exceeds Street Wall height
- C Update the Wollongong DCP to Include a maximum continuous street wall length of 55m in all areas apart from Crown Street Mall, Crown Street and



Recommended street wall height and setbacks above street wall

6 storey street wall (22m) with 4m setback above street wall. Towers to ground may be considered with increased ground floor setbacks where improved public domain outcomes are demonstrated Maximum 4 storey (15m) street wall with 4m setback above

street wall

2 storey (8.5 m) continuous street wall to align with prevailing heritage parapet with 10m setback above

2 storey (9m) continuous street wall to align with prevailing heritage parapet

with 10m setback above street wall

2 storey (9m) continuous street wall to align with prevailing heritage parapet with 6m setback above street wall



Direction: Elevate the importance of design quality in the City Centre

A key direction of the Urban Design Framework is to elevate the Importance of design quality in the City Centre, by (amongst other things) strengthening commitment to design excellence and through a strong assessment process.

Development consent currently cannot be granted to any development in the Wollongong City Centre unless design excellence is exhibited in accordance with Clause 7.18 of the LEP. Currently, for developments over 35m or on Key Sites, a design review panel must be involved in the review of the development against the design excellence criteria. This two option approach does not facilitate processes which tailor to a range of scales and impact.

New controls will facilitate a tailored approach to design excellence that acknowledges the development's potential impact and significance.

STRATEGY 6.1

Strengthen the commitment to design excellence

All development in the City Centre and on Key Sites will continue to be required to demonstrate design excellence as defined in the LEP in order to achieve development consent.

New requirements and design review processes will be introduced for specific site or development types that require a more rigorous evaluation of design quality.

New process requirements will encourage the use of design testing and options development through masterplanning and/or built form massing prior to the lodgement of Planning Proposals and Development Applications.

Review by the DRP will involve a minimum two stage review process for high impact developments. This is to ensure masterplanning and built form massing is resolved prior to detailed design.

For selected developments, the first stage will involve the review of a Site Specific Development Control Plan (or alternatively a Concept DA). The second stage will involve the review of the detailed pre-lodgement design.

Amendments to Planning Controls

- A Update the LEP Design Excellence Clauses to:
- Include additional Key Sites as shown in the Recommended Key Sites Map
- Consider relevant requirements of applicable development control plans
- Increase emphasis on Landscape and streetscape outcomes.
- **B** Pre-lodgement review by the Design Review Panel is available to all applicants. It is required for:
- Residential development on narrow sites (less than 24m wide). This will ensure that developments on these challenging sites are appropriately reviewed and evaluated at an early stage.
- Development on a Key Site having a capital value or \$1,000,000 or more.
- Development with a building height that exceeds the maximum Street Wall Height.
- Development on a site of 2,500 m² or more.
- C Developments subject to a requirement for a Site Specific Development Control Plan (or alternatively a Concept DA) include:
- Development on a Key Site having a capital value or \$1,000,000 or more.
- Development on a site of 2,500 m² or more.



Proposed Additional Key Sites



STRATEGY 6.2

Encourage innovation and design quality in the local design and development industry

Competitive design processes promote innovation and design excellence.

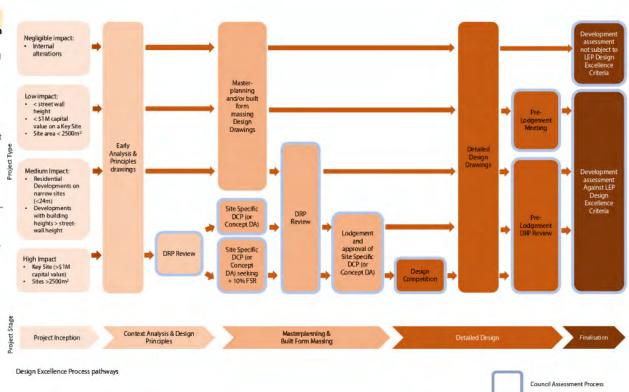
Design competitions will be an optional component in the design excellence processes in the LEP.

An FSR bonus of up to 10% will be available to developments on the above site types who undertake a design competition in line with the NSW Government Architects Design Excellence Competition Guidelines. The additional 10% FSR will be assessed through the Site Specific DCP process, prior to the Design Competition.

Recommendations for implementation

A Design Competition is recommended for the following:

- A Development on a Key Site having a capital value or \$1,000,000 or more.
- **B** Development on a site of 2,500 m² or more.







Provide clarity and improve outcomes through a strong assessment process

Continue to develop the design capability of Council's assessment teams.

Require development applications to provide clear site analysis and explicit explanation of how the proposed design outcomes respond to the site analysis.

Incorporate a requirement in the development application assessment process to provide wall sections and detailed elevations to clearly indicate materiality and key details. Incorporate adherence to these details as a condition of consent, to avoid the dilution of architectural concepts and materiality as projects progress through documentation.

- Amendments to Planning Controls
- A Update the City Centre DCP Chapter to include relevant Site Analysis requirements
- Other Initiatives
- B Trial and evaluate Design Advisory roles for Architects and/or Urban Designers within the Development Assessment Team
- C Strengthen requirements to adhere to approved materials and finishes in DA consent conditions.

STRATEGY 6.4

Prepare design guidelines that communicate better design outcomes

Develop design guidelines to improve the design quality of typologies that are developed most frequently. For example guidelines for shop top housing, designing in the vicinity of heritage structures, incorporation of fine grain retail, and ground floor residential.

Guidelines should make a more tangible link between existing character, desired future character and how architectural design can achieve it. Guidelines could leverage the design quality policies prepared by Government Architects NSW, either by adapting the guidelines to make them specific to Wollongong City Centre or incorporating them in the guidance offered to developers.

- Amendments to Planning Controls
- A Incorporate more design guidance into the City Centre DCP Chapter
- Other initiatives
- B Consult with Architects, Urban Designers and Landscape Architects working within Wollongong City Centre to discern the need for and perceived benefits of specific quidelines.
- C Develop specific guidelines in consultation with industry, as appropriate

STRATEGY 6.5

Develop specific design guidelines that demonstrate better built form outcomes on flood prone lands

Develop a series of built form controls in the Development Control Plan that promote good design outcomes for the City in flood prone areas. This includes integrated resistance and impermanence for both residential and commercial/retail situations.

For residential developments, design principles should include:

- Retaining walls and landscaping
- Promote surveillance of the street from ground floor apartments
- Raised ground floor levels for privacy
- Provide individual residential entries to ground floor apartments
- Locate access stairs perpendicular to the footpath
- Locate ramps behind low scale walls and/or planting to (imit their visual impact and extent of blank walls and balustrades.

For retail and commercial developments it is critical to ensure that finished floor levels are as close to street level as possible. This will ensure that streets are active and that commercial tenancies are visible. This may result in a level of flooding that can be managed in some part of commercial tenancies where appropriate, and subject to Council requirements. Design principles should include:

- Include an upper level transition and circulation zone for activation along the street and easy access
- Enable the capacity to link circulation zones between property to potentially contribute to a wider circulation network above flood level

- Split the overall change in level between indoor and outdoor to maintain human scale
- Include active temporary uses such as outdoor dining at lower levels to reinforce street life.
- Finished floor levels should not be determined by basement parking levels.
- Other initiatives
- A Prepare design guidelines, including good design outcomes in relation to flooding as part of the Wollongong City Floodplain Risk Management Study and Plan



Theme



Public Domain & Connections

Objective

A green and walkable City

A significant increase to the City's tree canopy contributes to a green, walk able and sustainable city. Attractive and revitalised public spaces support an active and healthy community and are a catalyst for economic growth in the city. The city grid is clear and permeable and facilitates walkability

Directions

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- 7 Strengthen the structure of the City through a permeable grid that prioritises pedestrians
- 8 Create a green network of open spaces for a sustainable, healthy and attractive city
- 9 Protect sunlight to key public spaces







Direction Strengthen the structure of the City through a permeable grid that prioritises pedestrians

This section sets out the strategies required to reinforce the grid and structure of the City, increase permeability, and contribute to precinct character.

These strategies are being reinforced and tested through the development of the Access and Movement for People Strategy for the City Centre, utilising the Movement and Place framework in keeping with the quidelines under the Future Transport 2056.



Define the role and function of streets in the City

A defined street hierarchy that reinforces precinct character and the role of each street should be implemented. The strategy for key streets is:

- Burelli Street: Civic and premier A-Grade office street defined by tall towers, key cultural destinations, large trees and generous public domain.
- Market Street West: Secondary office street with street tree planting and wide footpaths.
- Crown Street Mall: pedestrian street with commercial and retail, high quality public domain connected via a series of laneways.
- Crown and Keira Streets: Secondary retail & commercial high streets. These streets have increased pedestrian amenity through landscaping and footpaths.
- Keira and Kembla Streets; Established after-hours dining streets with outdoor seating.

STRATEGY 7.2

Create a permeable city grid for pedestrians

- Investigate the opportunity for a new east-west street connection between the station and MacCabe Park to break down blocks, provide new connections and improve legibility and accessibility between key destinations in the centre.
- Improve legibility of the arrival experience into Wollongong, with pedestrian connections to the centre through upgrades to Lowden Square; Crown Street and the hospital through a new station forecourt over the railway to Crown Street.
- Reinforce the laneway network with additional mid-block connections.
- Consider formalising the public/private threshold between Lang Park and the adjacent private properties by linking the disconnected streets along the park's western edge.
- Consider how Marine Drive could be modified to improve the connection between Lang Park and the foreshore for people. Include the removal of the roundabout and relocation of the bus layover in this work.
- Investigate slowing down vehicular speed limits within the City on low traffic streets.
- Continue the Blue Mile link along the foreshore south to Bank Street. Work with Venues NSW to ensure public domain is activated increasing public access, safety and enjoyment of the beach. Discuss the opportunity of additional east-west pedestrian links through the venues to connect the foreshore to the City via Burelli and Stewart Streets.



Deliver active transport infrastructure

Provide the infrastructure for safe active transport by delivering the proposed cycle network and complete the city loop from the station by considering new routes:

- Along the new east-west connection in the rall arrival and southern precinct, through MacCabe Park and continuing along Stewart Street to connect to the extended Blue Mile link.
- Provide a safe active link north from the station along Railway Parade through the Commercial Services precinct to connect to Smith Street.



Enable the mode shift from cars to public transport

- Prioritise bus movements at the station to provide a more efficient service for passengers and promote public transport over cars.
- Collaborate with State Government and Federal Agencies to deliver significant public transport improvements to Wollongong City Centre.
- Improve existing public transport to deliver more frequent servicing from outside the City Centre
- Link public and active transport to improve their attractiveness to users
- Consider dis-incentivising car parking in the City



Identify roads for vehicular traffic and servicing

- Throsby Drive / Denison Street by-pass provides the opportunity to direct through-traffic around the centre, calming traffic and discouraging cars in the
- Corrimal Street is a key north-south connector through the centre and subject to existing road widening conditions.
- Burelli Street is an important vehicular and bus street providing the primary east - west connection through the Centre, and will need to manage pedestrian priority with traffic needs.
- Manage vehicular movements to prioritise pedestrians by limiting driveways, vehicular and service access to key pedestrian streets including Crown Street, Burelli Street and Keira Street.



Amendments to Planning Controls

- A Update DCP with recommended through site links as shown on Recommended streets and movement strategy map.
- B Update DCP to restrict driveway access on key streets with active frontages - as shown on Recommended streets and movement strategy map.

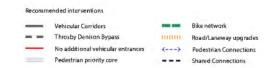


Other InItiatives

- C Progress with preparing the Access and Movement for People Strategy, which addresses the aforementioned strategies and prioritises:
- Developing a Movement & Place Framework and road classification strategy
- Implementation plan for the proposed Denison-Throsby by-pass.
- Carparking strategy and link to proposed commercial incentives as set out in Strategy 1.3.
- Implementation plan for the proposed new shared
- Implementation plan for the cycle network to create a city loop.
- Improved servicing of existing public transport
- Provision of new public transport infrastructure
- Continue discussions with Venues NSW, about improving accessibility, safety and activity to the Foreshore.



Recommended streets and movement strategy





Direction: Create a green network of open spaces for a sustainable, healthy and attractive city

Street Tree Planting

Urban tree canopy is important to control urban heat, support cleaner air and water and provide local habitat. Analysis has found that tree canopy in the City is below target levels. Narrow road reserves and extensive underground services in streets present design and technical challenges to maximising planting

This section sets out the actions required to increase greening in the City and thereby improve sustainability, comfort and character.

STRATEGY 8.1

Reinforce the character of key streets and precincts with appropriate tree planting

- Improve the visual and physical amenity of streets with a consistent street tree canopy providing shade and visual continuity
- Encourage trees, shrubs and grasses for their inherent value to support coastal identity and for the environmental and ecological benefits that tree canopy offers.
- Key streets are identified for street tree planting within lot boundary set-backs- a green boulevard along Burelli Street and Market Street and Crown Street south.

STRATEGY 8.2

Increase urban canopy in the City Centre

 Ensure that tree stocking rates through the City Centre are consistent with achieving the desired canopy targets as defined in the Urban Greening Strategy.

STRATEGY 8.3

Prepare a City Centre Street Tree Masterplan

- Inform planting program and renewal
- Specify technical standards and species
- Identify appropriate locations for urban greening including street trees and green walls / roofs.
- Identify key locations and opportunities for statements planting to assist with the legibility and walkability of the City Centre.
- Include strategies for education in greening within private lands and in dense urban environments such as green walls, terraces, planter boxes and roofs consistent with Urban Greening Technical Guidelines. Align with Water Sensitive Urban Design objectives to ensure 'green', 'blue' and 'grey' infrastructure are complementary and co-designed.
- Align with the desired canopy targets in the UGS.

STRATEGY 8.4

Establish a tree-centric approach to deliver greening in response to existing constraints

Review street services conditions in relation to tree planting. Provide the opportunity for greater tree planting along key pedestrian streets in the Centre, through either ground setbacks or blister parking and

- Identify services locations in the street which prevent tee planting.
- Where services in streets prevent street tree planting, the front building set-back has been increased to allow for tree planting
- Where there are services in streets as well as a distinct existing street wall typology and heritage character, and where road width permits, trees are proposed in blisters between parking bays in the outside lanes of streets.
- Provide space, soil and water for canopy trees.



STRATEGY 8.5

Leverage new development to offset the cost of greening

Redevelopment can be leveraged to deliver new greening, but can also impact on existing greening. The strategy is to:

- Use the opportunity that redevelopment presents to deliver new planting on public and private land
- Consider introducing Tree Amenity Valuation to accurately inform the replacement cost of public



Other initiatives

- A Prepare a Street Tree Masterplan for the City Centre.
- B Consider preparing a tree amenity valuation framework and linking replacement with development consents
- C Prepare a detailed, consolidated services map to identify locations available for tree planting on public land within the City and plan for more flexible service infrastructure in the future.

Urban public open spaces

Create a green network of open spaces for a sustainable, healthy and attractive city

Open space

Open space is a key element of social infrastructure for our community. As the residential and worker populations densify in the City Centre, the need for additional open space increases. This is the case for all types of social infrastructure.

Analysis has found that parts of the City Centre are blessed with generous public open spaces, but that many are in need of renewal, and that other part of the City will need new green space as the City densifies.

Currently many of our open spaces also provide important community spaces, such as the Youth Centre in MacCabe Park. The Wollongong Social Infrastructure Planning Framework 2018 - 2020 identified that Population growth projected for the City Centre makes it unlikely that existing social infrastructure will have capacity to accommodate future needs. Further studies into this capacity have confirmed this, especially in relation to Local level facilities.

The creation and renewal of public open spaces in our City Centre presents an opportunity to consider the relationship between these spaces and our community facilities of the future.

This section sets out the actions required to achieve the open space required to support the vision for A City for People.



Identify and prioritise public domain projects to catalyse renewal and encourage investment in the city

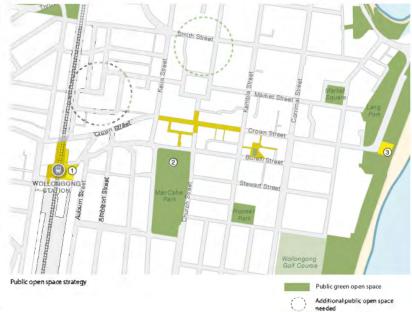
Public open spaces provide for a wide variety of opportunities for recreational, social and cultural activities and facilities, as well as promoting healthy lifestyle and opportunities for casual and formal interaction.

The strategy is to:

- Renew the City with accessible parks and open spaces to make it attractive, safe and liveable to its residents, workers and visitors.
- Link Key Sites to public domain delivery.
- Plan for future additional open space needs by engaging with key asset owners to identify opportunities, nominate land in appropriate locations and source funding.
- Consider the co-location of community facilities and open spaces in future planning.
- Prioritise the following 3 catalyst projects:
 - Station Upgrade including Lowden Square
 - MacCabe Park
 - Foreshore Plaza



- A Consider additional open space needs for the City Centre in future strategic planning and investment.
- B Prioritise the following 3 catalyst projects in future public domain investment:
- Station Upgrade including Lowden Square
- MacCabe Park
- Foreshore Plaza







Direction: Protect sunlight to key public spaces

Solar access

Good solar access is a key contributor to the amenity of public spaces and streets, and the life of our trees and other vegetation, particularly during winter. Solar access controls ensure sufficient sunlight to key public spaces throughout the year.

Solar access is the ability to receive sun light to a space. Provisions are put in place to assure exposure of public spaces to the sun during a desired period of the year.

Sun access planes (SAP) are an arrangement of projected planes that are set at the same angle as the sun at specific dates and times. The SAP defines an upper building height for the land surrounding a sun access protected space.

'No Additional Overshadowing' controls protect the existing sunlight to public places already surrounded by tall development. In contrast to Sun Access Planes, 'No Additional Overshadowing' controls preserve sunlight that passes through gaps between buildings to reach public spaces.

Analysis has shown that existing solar controls protect some key public open spaces within the City Centre. However, some of the existing controls do not take into account overshadowing from all relevant sites and need to be refined. There is also a need to define new controls for unprotected spaces including:

- Crown Street Mall
- Arts Precinct
- Lang Park
- · St Michael's Cathedral
- · Osborne Park
- · the Foreshore (east of and including the Blue Mile)

STRATEGY 9.1

Protect solar access to key public spaces to maximise amenity

Clear sun access controls should be in place for key open spaces. Controls should relate to key times of the day when spaces are most used by the public. This will differ for different spaces.

The cumulative overshadowing impact of multiple developments should be prevented through built form controls and considered design response to where a building is placed in the City Centre.

Consideration should also be given to the extent to which sunlight is protected along the City Centre foreshore and beach area.



Amendments to Planning Controls

Update the solar access controls in the LEP as per the adjacent map of Recommended solar access protects spaces to ensure: The existing solar access planes to MacCabe Park, Pioneer Park, Market Square and Civic Square are retained and amended to reflect best practice methodology.

- A New solar access controls are provided in the Wollongong LEP to define solar access planes for:
- Arts Precinct: 9am 3pm
- Crown Street Mall: 12am 2pm
- Church St (Mall): 11am 1pm
- B New no additional overshadowing controls are provided in the Wollongong LEP for:
- Lang Park: 9am 4pm
- St Michael's Church site: 9am 4pm
- Osborne Park: 9am 4pm
- Foreshore: 9am 4pm



Recommended solar access protected spaces

Update the Wollongong DCP to:

- C Introduce controls to guide the protection of solar access to new public spaces.
- D Require solar access testing as part of the site analysis and development proposal for all City Centre Development Applications.
- E Introduce controls to guide the protection of solar access to communal open spaces in commercial developments.

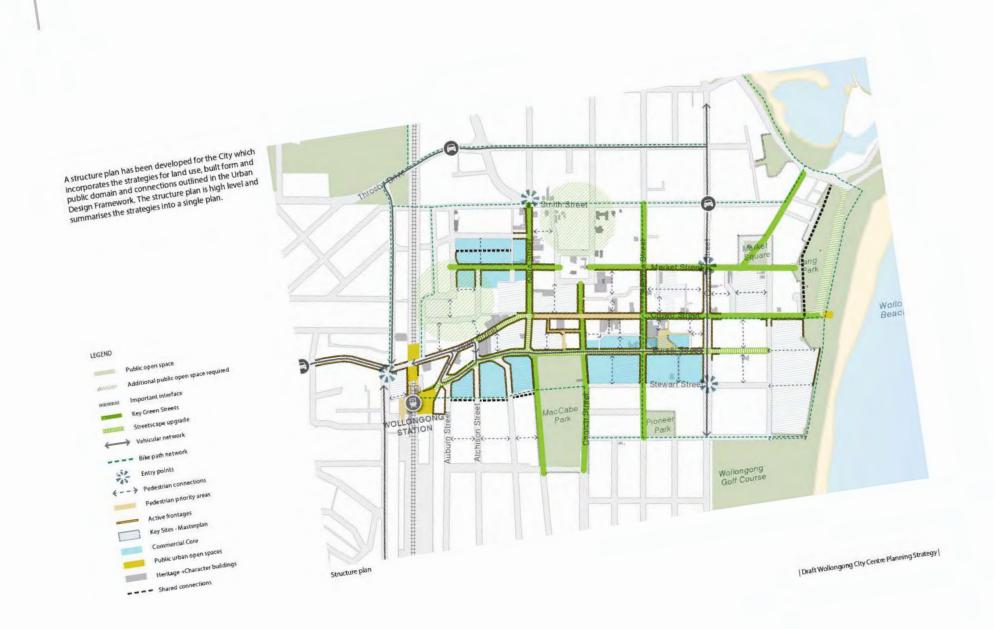






03 City Structure & Precincts







The structure plan for the City Centre is further developed at precinct scale, with a series of precinct character statements and objectives established to inform the desired future character of buildings and public spaces as they relate to place.



KEY

Rail Arrival and Southern Precinct

MacCabe Park Precinct

Western Crown and Keira Precinct

Market Street West Precinct

Crown Street Mall Precinct

Market Street to Harbour Precinct

Eastern Crown Street & Arts Precinct

Foreshore Precinct

Health Precinct*

"The Precinct Vision for the Health Precinct sits outside of the Study Area Boundary. It is recognised that this is a critical part of the City Centre, and that a collaborative process is required to develop a Health Precinct Vision in collaboration with NSW Health, the Private Hospital and other local stakeholders. This will be pursued subsequent to the Planning Strategy process.



Rail Arrival and Southern District Precinct

Future Character

This precinct is the western entrance to the City Centre and development supports the City's role as a vibrant and growing Regional City. The precinct is an inviting, high quality and well connected transport hub, with strong pedestrian links to the commercial core, MacCabe Park, the coast and hospital.

Buildings and public domain along Burelli Street and interfacing the Rail Corridor support this precinct by providing high-quality urban design outcomes that contribute to a positive first impression of Wollongong. Burelli Street is the City's premier location for A-grade office development, showcasing the highest quality, new office buildings in a well connected and high amenity location.

A new east-west laneway improves permeability connecting the Station to MacCabe Park and providing a buffer between the new office core and the supporting southern district. The provision of additional connections breaks up long east-west blocks offering high levels of accessibility to both pedestrians and vehicles.

Moving away from Burelli St, the precinct offers an eclectic mix of uses and scales. The diversity of the existing bull form is maintained and complemented by new development. New buildings transition sympathetically from the taller, large scale commercial office towers along Burelli Street to lower scale, mixed uses.

Objectives

- Improve pedestrian experience by increasing permeability from Station through to MacCabe Park and the commercial core.
- Provide a high quality public domain
- Integrate vegetation into both the public and private domain to increase canopy cover and amenity and add colour to the streets.
- Ensure excellent solar access to Lowden Square
- Promote 'A-grade' office development along Burelli Street to support Wollongong City Centre's role as a the core of the Region's commercial activity.
- Create a positive first impression of Wollongong with high quality urban and architectural design
- Promote and retain diversity of land uses and built form throughout the area west of MacCabe Park
- Open up views from the station through to MacCabe Park
- Retain views to the escarpment, including along the Rail Corridor





1. Lowden Square and the new street connection provide a strong connection, and a sense of arrival into the City Centre





2. Mixed use buildings activate Atchison Street and ground floor setbacks and greening improve amenity for pedestrians

Summary of Changes

LEP

- 100% commercial facing Burelli St (south side)
- 100% residential possible in B4 zone
- Heights transition down from up to 120m on Burelli St to 48m facing Ellen Street
- Floor Space Ratio defined at 6:1 throughout the commercial only areas and transitioning down to 3:1, 2.5:1 and 2:1 to the south and west. Narrow sites (>24m) can access mapped FSR.

DCP

- East-West shared connections
- Maximum Street Wall height of 4 storeys in the 84 mixed use zone and 6 storeys facing Burelli St
- Ground setback of 3m in the B3 mixed use zone and 6m on Burelli St





MacCabe Park Precinct

Future Character

MacCabe Park is approximately 5.6 hectares in size and is bounded by Burelli Street to the north, Ellen street to the south, Keira Street to the west and Church Street to the east. MacCabe Park has been a formal city park since 1929 and has played host to a range of utility, sporting and recreational uses since that time.

Since the 1970s Council has been gradually acquiring properties along Keira Street and Ellen Street to expand the Park.

MacCabe Park is the City Centre's premier park. It is a significant green open space which is integrated with the commercial and retail core, and surrounding residential areas through a network of high-quality streets and lanes. The Park is a focal point for everyday outdoor activity, active and passive recreation, festivals and informal occasions.

MacCabe Park is a sustainable landscape acting as a green filter for the city. Development surrounding the park provides a strong urban identity built on the quality of the streets and building facades. It provides passive surveillance, good public transport, facilities and services. The Park is framed by low and medium density buildings to the south, slowly stepping up to the high-rise commercial towers of Burelli Street.

The establishment of a new street connects MacCabe Park to the Station in the west, a key transport hub. Integrated transport routes along Burelli Street facilitate a hive of activity, helping to establish a series of exciting, comfortable and activated places for meeting and socialising.

Objectives

- Ensure MacCabe Park is welcoming, accessible and functional for all city users providing breakout areas for office workers, spaces for reflection, urban sports opportunities, and infrastructure that supports events, festivals and activities.
- Renew connections and enhance sightlines to the Park
- Maintain and open up views from the Park to the escarpment and foreshore
- Prioritise the amenity of the Park and its users by maintaining solar access in alignment with the sun access plane provisions.
- Maintain views to the sky from the Park by creating a transition in height away from the park edges.
- Create a green network by linking tree-lined streets to the Park and other open spaces
- Residential and Commercial development around the Park provides a strong and active interface day and night, creating a safe and welcoming space.
- Any redesign of the Park retains the heritage listed Canary Date Palms and respond to their existing definition of space and role as landmarks.
- Stormwater is captured and filtered through the Park's landscaping.
- Pedestrian paths trace key pedestrian desire lines.
- Views and connections within the Park are clear and open.
- Significant heritage structures are retained and interpreted through the Park's landscape including: Canary Island Date Palms (Item 6587), Monument & Memorial Arch (Item 6324)





1. MacCabe Park will be a focal point for the City on the Burelli Commercial Spine linking rail to foreshore





2. The mixed use area surrounding the park will transition down in scale and include landscaped setbacks

Summary of Changes

LEP

- 100% commercial facing Burelli St (south side)
- 100% residential possible in 84 zone
- Height limit increase to 65m facing Burelli Street. Height limits applied to Pioneer Park and MacCabe Park (9m). Height limit east of Pioneer Park reduced (from 48m to 32m)
- Floor Space Ratio of up to 3:1 in B4 and 6:1 in B3
- Removal of properties acquired from the Land Acquisition Map

DCP

- Defined street wall of 6 storeys on Burelli Street and maximum 4 Storeys elsewhere
- Strengthened Solar Access Controls
- Ground setback of 4m from property boundary



Western Crown & Keira Street Precinct

Future Character

Western Crown and Keira Streets contribute to a regionally significant retail and entertainment precinct.

This precinct hosts a range of small and medium offers, including selected late night food and beverage offers.

The built character of the street is a result of the small lot subdivision patterns from 1800s. Clusters of fine-grain heritage and character buildings in the form of one and two-storey interwar buildings, line Crown and Keira Streets. Grand buildings of up to 3 storeys articulate key corners such the former Crown Hotel, former Marcus Clark Building, The Illawarra Hotel and former National Mutual Building.

Detailing of the existing buildings utilise traditional materials such tiles and brickwork with moulding and contrasting paint schemes to vertically articulate the facades and bring the buildings down to a human scale.

Pedestrian movement and amenity is prioritised with wide footpaths, additional through-site links, integrated seating, continuous awnings and accessible at-grade entrances, creating a pleasant walking experience linking the City to the Station and Hospital.

Objectives

- Reinforce and emphasise the historical street proportions and street wall of main street shop typologies along Keira Street. New development preserves and responds to the existing rhythm typical of a traditional retail high-street including low scale street walls, continuous awnings, generous shopfront glazing, narrow frontages and multiple entrances at-grade.
- Continuous built edges and generous setbacks frame views north-west to the escarpment and create a street open to the sky.

- New development complements the existing landmark on the northeast corner of Market and Keira Streets (formerly the National Mutual Life Association Building).
- Shopfronts are to be expressed at a maximum width of 6m wide to retain fine grain character of the Precinct.
- The heritage listed row of early federation shops is conserved and informs the character of the surrounding precinct.
- Traditional shop facades are conserved and adapted including paintwork and possible restoration of classical detailing.
- Small tenancies continue to host local offers that are valued by the community and contribute to the vibrancy of Wollongong. Encourage further agglomeration of active uses (day and night) such as boutique restaurants, speciality shops, grocery stores, clubs and pubs (that characterise land north and south of Victoria Street).
- Shopfronts are active and clean with strong and simple signage, clear glazing and open-able facades. Over-scaled and inappropriate signs are not permitted.
- Integrate vegetation into both the public and private domain to increase canopy cover and amenity and add colour to the streets.
- Maintain the amenity of the street by maximising solar access and minimising wind effects from taller buildings.
- Preserve the curvature of Crown Street to the point where it connects to West Crown Street.



Western Crown Street will be a walkable and active high street with mixed use development set back behind fine grain retail street walks

Summary of Changes

LEP

- Floor Space Ratio between 1.5:1 and 3.5:1 with 30% non-residential uses required
- Existing 80 and 120m height limits reduced.
- Sun Access Plane extends to all properties with potential to impact overshadowing of MacCabe Park

DCP

- Fine grain active frontage controls
- Street Wall height of 2 storeys to Crown and Keira (north of Crown)
- 6m setback above Street Wall
- Flexible approach to on-site car parking requirements for commercial only development
- Additional Pedestrian Linkages proposed





Market Street West Precinct

Future Character

The precinct is an important place of local commerce and thrives as a supplementary commercial precinct. High density residential on the top of the hill supports this precinct by bringing a flow of people day and night. Small and interesting food and beverage offers are integrated into the commercial fabric of the precinct, and connect up to the night-time hub of small bars and eateries on Keira Street.

New public open spaces are integrated into the neighbourhood, which together with tree-lined, landscaped streets provide amenity and connectivity throughout, and contribute positively to streetscape character. Multiple pedestrians paths break up the long blocks, connecting people with new open spaces and through to upgraded station connections off Crown Street.

Mid-scale office development addresses the street providing a continuous built edge with awnings. A strong street wall of up to four storeys responds to the landmark developments at the intersection of Keira and Market

Views to the escarpment and to the St Michael's Cathedral Spire from this precinct are retained and accentuated due to their significance.

Objectives

- New development includes small to medium offices buildings to complement and support the mixed use employment functions of the area.
- High density residential apartment buildings maintain slender tower forms to retain significant public views west to the escarpment.
- Generous setbacks along the northern side of Market Street allow for wider footpaths and increased street tree planting.
- Long blocks are made more permeable by new pedestrian through-site links.



Market Street will continue to develop as a vibrant commercial services precinct with new open space and improved public domain

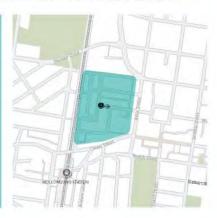
Summary of Changes

LEP

- Floor Space Ratio of up to 3.5:1 with 30% non-residential uses required
- Consistent height limit of 32m applied along both sides of Market St West
- Some heights reduced from 80m to 65m to prevent further loss of views to the Escarpment.

DCP

- Street Wall height of 4 storeys (15m) maximum with a 6m setback above street wall
- Ground setback generally 3m for private domain. Market St (north side) to provide 2m setback for public domain.
- View corridor west to the escarpment protected
- Additional Pedestrian Linkages proposed



Crown Street Mall Precinct

Future Character

Crown St has been the City's high street for over a century and remains a significant contributor to the commercial and social life of the City. Crown St Mall is an urban event space, and supports activity day and night through a complementary mix of leisure, entertainment, education, arts and music.

The Mall is the pedestrian spine of the City with laneways running north-south to connect to surrounding streets. Views from the Mall to the Foreshore and Escarpment are key to orientation and appreciation of the natural landscape.

East of Church Street, clusters of two storey character buildings promote a fine grain, human scale. A variety of ornamented parapets provide visual interest and tell the story of Crown Street's commercial history. A defined street wall of up to two-storeys, continuous built edges and generous setbacks above street wall frame views and create a street that is open to the sky.

West of Church Street larger retailers provide open and active facades which offer multiple entry points and promote pedestrian activity on their edges and through larger sites.

The materiality of the street is varied and colourful, ranging from the sandstone of the Wesley Uniting Church and seating elements throughout the mall, through decorative tiled, rendered and painted shopfronts to clean and crisp commercial office lobbies.

Objectives

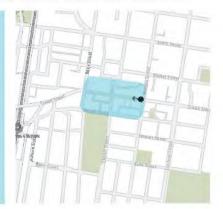
- Views to the escarpment and foreshore are
- Views of St Michael's Square are maintained from Church Street and the mall looking north.
- Solar access to the Mall is protected in alignment with the sun access plane provisions in the WLEP.
- The Mall is prioritised as an active urban event
- Large format retail buildings are redeveloped to respond to the fine grain context.
- Small infill development is encouraged and all new development responds to the established heritage scale, fine grain character
- The materiality of new developments responds to the vibrant materiality, colour and facade treatment of the historic buildings and contemporary
- Commercial and retail uses are prioritised.
- Residential uses are setback from the street wall.
- Service and vehicle entries are consolidated on rear laneways.



New development on Crown Street will be set back to protect the fine grain character of Crown Street Mall, and preserve solar access

Summary of Changes

- Floor Space Ratio between 2:1 and 3:1 with 30% non-residential uses required
- Increase to building heights facing Burelli St (from 48m to 65m)
- New sun access plane applied to Crown St Mall DCP
- Street Wall height of 2 storeys
- 10m setback above Street Wall on northern side, 6m setback on southern side
- Flexible approach to on-site car parking requirements for commercial only development
- Additional Pedestrian Linkages proposed





Market Street east to Harbour Precinct

Future Character

This precinct reflects the city's first town plan of 1834. The plan integrated topography, street layout, public buildings and places and lot subdivision into one cohesive design. The layout connected Crown Street to Wollongong Harbour via an orthogonal street grid centred on Market Street and punctuated by St Michael's Cathedral Square.

A network of heritage items are connected visually and physically across the precinct. Each item retains critical significance for the identity and character of Wollongong City, both individually and in connection with the other sites.

Market Square's formal presentation and relationship with surrounding residential buildings is unique in the city centre. Views and pedestrian connections from the Square down to the Harbour and Breakwater Lighthouse connect the city centre with its economic history.

Objectives

- Maintain the established moderate scale and civic nature of developments surrounding St Michael's Square, Wollongong Courthouse and Wollongong Public School.
- Preserve the significant view looking West along Market Street to St Michael's Cathedral and east along Market Street towards the coast.
- Maintain the courthouse clock tower and Cathedral steeples as the highest structures on the hill.
- Retain the established residential character and moderate scale of development on land surrounding Market Square.
- Solar access to Market Square is protected in alignment with the sun access plane provisions
- Enhance Market Street through public domain improvements that build upon the notable existing landscaping and mature vegetation
- Improve active transport links on Smith and Kembla Streets
- Pedestrian permeability is to be improved through the provision of new through block links.
- The historic, visual and physical link provided by Harbour Street between Market Square and Wollongong Harbour should be preserved and reinforced.
- To conserve and manage the archaeological resources that are likely to remain throughout this precinct, which provide evidence of the earliest period of colonial invasion and occupation in the illawarra and the beginnings of the Township of Wollongong.



Market Street is the spine of the historic city, connecting key civic uses with the harbour

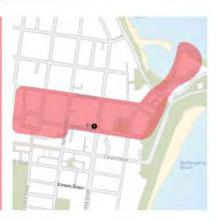
Summary of Changes

LEP

- Floor Space Ratio between 1.5:1 and 2.5:1
- 30% non-residential uses required in B3 zone
- 100% residential permissible in B4 zone
- Heights limit applied to St Michael's Cathedral site (12/20m) and Market Square (9m)
- No Additional Overshadowing control applied to St Michael's Cathedral Site and Lang Park

DCP

- Street Wall height of 4 storeys along Market St
 Ground setback of 4m on Market St to allow for
- Ground setback of 4m on Market St to allow for landscaping and view retention
- Flexible approach to on-site car parking requirements for commercial only development





Eastern Crown Street & Arts Precinct

Future Character

This precinct is the City's cosmopolitan civic and office core. The Arts Precinct is a welcoming and active city plaza with high amenity and a range of offers for city workers, residents and visitors. Venues including bars, live performance venues and restaurants activate the area at night.

Interconnected laneways, and streets and buildings, celebrate art, music and culture through the installation of public art. The Arts Precinct lawn provides a key passive recreation and event space, activated by surrounding cultural institutions such as the Town Hall, Gallery and IPAC.

Lower Crown Street is defined by clusters of heritage listed civic and commercial buildings. The high quality form and materiality of the building facades is complemented by the amenity of the public domain.

Mature trees line Burelli and Crown Streets and the Arts Precinct, and are integral to its public character.

Burelli Street will provide a prestigious front door to the commercial core of the city. A-grade commercial buildings define the City's commercial core and support the economy of the Regional City. Burelli Street is a key green street with generous ground setbacks, mature canopy trees and streetscape upgrades that prioritise pedestrian and active transport movement over vehicles. Generous foyers and forecourts at ground are an integral part of the commercial feel of the street, incorporating internal portions of public domain and offering opportunities to meet and interact.

Towers are slender and distributed to maximise solar access, preserve key view corridors and encourage view sharing. Canopy and vegetation cover is increased with efforts on both private and public land to achieve canopy targets. Tree-lined streets with ground setbacks frame views along streets, generous well-lit footpaths create safe and pleasant walking routes in this precinct.

Objectives

- Art and Culture are celebrated in the public domain
- Buildings addressing Burelli Street have a high quality commercial or civic character.
- Building envelopes maximise winter solar access to the public domain
- Building envelopes sensitively transition to heritage and character items.
- Alleviate undesirable wind action on prominent public and private open spaces
- Restore and activate existing Heritage and character buildings along east Crown Street between Kembla and Corrimal Streets.
- Ground and first floor frontages of new buildings along East Crown Street from Kembla Street to Corrimal Street are sympathetic to the late 19th Century Victorian and Italianate shop front styles without creating repetition of such styles.
- The appearance of building external finishes and colour promotes a sense of unity and character that consolidates the heritage environment.
- Shop signage and lighting is sympathetic to the heritage context and is not installed above awning height.

Summary of Changes

LEP

- Residential no longer permissible along selected areas facing Burelli St
- Height limit increase from 48 to 65m in Commercial Only area on south side of Burelli
- New Solar Access Plane applied to lots surrounding the Arts Precinct Lawn
- Height limit of area surrounding Arts Precinct (north and west) reduced from 48m to 24m to maximise solar access and response to Heritage character





1. A series of active lanes and public spaces connect business, cultural and civic uses





2. Burelli Street will provide a prestigious front door to the commercial core of the city - key green street with generous ground setbacks, mature canopy trees and streetscape upgrades that prioritise pedestrian and active transport movement over vehicles.

 Floor Space Ratio of up to 6:1 for commercial only and 3:1 for mixed use

DCP

- Tall street Wall height of 4-6 storeys along Burelli
- Reduced street wall height of 2 storeys with generous setbacks along Crown St
- Ground setback of 4-6m from property boundary to building line along Burelli
- Flexible approach to on-site car parking requirements for commercial floorspace





Foreshore Precinct

Future Character

The foreshore precinct is characterised by its natural setting. The continuous coastal edge and sand dune environment are complemented by the high quality landscape design of Lang Park and connective public domain of the adjacent, heavily treed streets.

Active transport networks are well maintained and used. Public transport links the precinct to other key City areas. Pedestrians are prioritised throughout the precinct, especially at the foreshore edge.

Entertainment and sporting venues are integrated with Lang Park and provide flexible venues for play, training, festivals and relaxation.

The locality has a residential, leafy character with generous side setbacks and landscaping. Residential development in this precinct is high quality and of slender proportions, preserving views in both directions to the escarpment and ocean. Mixed civic, education and retail uses create a mixed use precinct which serves residents and visitors allive.

Long views north to Flagstaff Hill, south to the steel works and Port Kembla and west to the escarpment, are significant to the identity and character of the Precinct.

Objectives

- Development responds to and enhances the natural setting
- Views to the escarpment, foreshore and significant places are preserved
- Buildings have a landscape setting with appropriate side setbacks to allow view sharing for other buildings and pedestrians
- Tourism, recreational and cultural uses and activities are provided in appropriate locations
- Redevelopment of large format facilities opens up views and pedestrian links to the foreshore
- Large city blocks are made more permeable for pedestrians with new through block links
- Architectural diversity is increased through smaller site development
- The established Norfolk Pines along Lang Park are retained as landmarks
- Development along the foreshore is small footprint and low impact, reflecting the area's sensitive coastal and flood prone environment



The foreshore will become an important gathering place with a variety of active and passive uses

Summary of Changes

LEP

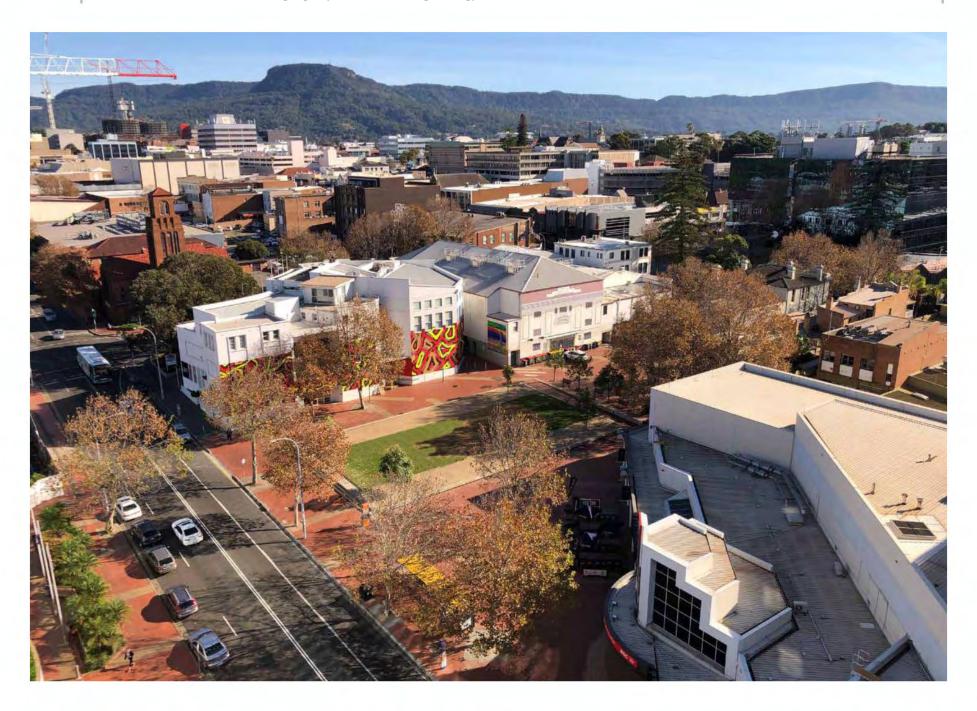
- 100% residential permissible in B4 zone (where not active frontage control applies)
- Active frontages connect the Mall with the Foreshore at key corners
- 48m Height limit reduced to 32m
- Floor Space Ratio of up to 2.5:1
- New no additional overshadowing Control applied to Lang Park and the foreshore (east of the Blue Mile)

DCP

- Maximum Street Wall height of 4 storeys
- Ground setback of 3-4m from property boundary
- View controls protect & open up ocean views









Where to from here?

To implement the Planning Strategy a draft Planning Proposal has been prepared to introduce changes to the Wollongong Local Environmental Plan (LEP). This will be submitted to and approved by NSW State Government, subject to the engagement received through public exhibition. A draft Development Control Plan (DCP) has also been prepared to support the LEP with more detail. The DCP is approved and implemented through Council processes and will also form part of the public exhibition.

How can I find out more?

Council staff welcome inquiries and are open to have conversations with community, businesses and landowners about the draft Planning Policies.

Please call (02) 4227 7111 to organise a meeting or keep an eye out on the Join the Conversation page for public events.

To view the draft documents and register to receive updates visit; https://our.wollongong.nsw.gov.au/city-centre-planning-strategy





WOLLONGONG CITY CENTRE - DRAFT PLANNING PROPOSAL



November 2020

Z20/224136





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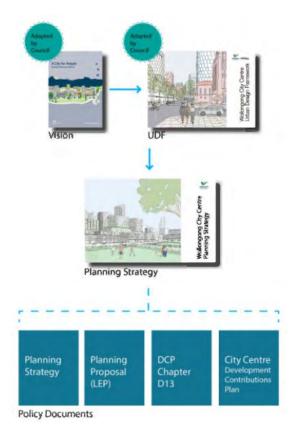


1. INTRODUCTION

On 30 May 2016 Wollongong City Council endorsed a new Vision for the Wollongong City Centre – A City for People, Wollongong Public Spaces Public Life (2015). This Vision set a long term aspiration for a liveable and vibrant City Centre. In 2018 Council commenced the Wollongong City Centre Planning and Design Review: Urban Design Framework (UDF) and Economic Analysis as the next step in implementing A City for People, Wollongong Public Spaces Public Life (2015).

Commencing in 2017, a comprehensive urban design, planning and economic review tested built form controls to understand how policy can better guide development in the City Centre to align with its Vision. On 24 February 2020 Council endorsed the draft *Wollongong City Centre Urban Design Framework* (UDF) and Economic Analysis for exhibition. The draft UDF provides a comprehensive urban design, planning and economic review, testing built form controls to understand how policy can better guide development in the City Centre to align with its Vision. The draft documents were exhibited from 25 February to 27 April 2020. On 21 September 2020 Council adopted the *Wollongong City Centre Urban Design Framework* (UDF) to guide the preparation of a draft Planning Strategy to implement changes to planning controls for the Wollongong City Centre.

The draft Wollongong City Centre Planning Strategy progresses the Urban Design Strategy is the overarching document that summarises the proposed changes to the Wollongong Local Environmental Plan 2009 (LEP), Wollongong Development Control Plan 2009 and the Wollongong City-wide Development Contributions Plan 2020.





The purpose of this draft Planning Proposal is to seek amendment to the *Wollongong Local Environmental Plan 2009* based on the recommendations of the draft Planning Strategy, UDF and supporting documentation. It relates to sites within the Wollongong City Centre, presenting a number of key changes to land use, built form and city structure planning controls.

The draft Planning Proposal has been prepared in accordance with the Department of Planning's *Guide to Preparing Planning Proposals* and the obligations under the *Environmental Planning and Assessment Act 1979*. It demonstrates strategic merit for amendments proposed, outlines changes to planning controls and considers planning implications of these changes.

On 7 December 2020 Council resolved to exhibit the draft Wollongong City Centre Planning Strategy, draft Wollongong City Centre Planning Proposal, draft DCP chapter D13 – Wollongong City Centre and draft Development Contributions amendments for comment. The formal exhibition will commence following the issuing of a Gateway determination by the NSW Department of Planning, Industry and Environment. The following process is possible:

- Council decision to prepare and exhibit draft Wollongong City Centre Planning Strategy, draft Wollongong City Centre Planning Proposal, draft DCP chapter D13 – Wollongong City Centre and draft Development Contributions amendments
- 2. NSW Department of Planning, Industry and Environment issue Gateway Determination to enable the formal exhibition of draft Planning Proposal
- 3. Exhibition of draft documents, and submissions made
- 4. Review of issues raised in submissions
- 5. Preparation of report on submissions to Council
- 6. Council determines whether to progress or amend the exhibited documents. If endorsed:
 - a. The Planning Proposal will require further review by NSW Department of Planning, Industry and Environment and the preparation and making of an LEP amendment to the Wollongong LEP 2009
 - b. The DCP chapter D13 Wollongong City Centre can be adopted by Council, but will rely on the notification of the LEP amendment before it can fully commence
 - The amendments to the Wollongong City Wide Development Contributions Plan can commence.



2. BACKGROUND

2.1 The economic role of Wollongong City Centre

The City of Wollongong is the regional capital of the Illawarra-Shoalhaven region, and the Wollongong City Centre is its civic and economic heart. The City Centre currently supports around 22,000 jobs, which accounts for 27 per cent of all jobs in the Wollongong local government area and 16 per cent of all jobs in the region.

Between 2006 and 2016, there was an increase of 2,200 jobs in the City Centre and employment is forecast to grow by around 7,000 jobs by 2036, with job growth being focussed on population-serving and knowledge-based industries such as health and education. The Wollongong Economic Development Strategy (2019) commits Council to re-focussing jobs growth in the City Centre on higher paid professional services jobs across a range of employment categories.

The City Centre has key assets that offer significant potential to stimulate economic growth and its proximity to Sydney provides employment opportunities for residents and connections for local businesses. As Wollongong grows as a regional city and transitions to a higher order knowledge-based centre, there is a need to prioritise office and commercial jobs in the City Centre. Although the City Centre has all the foundations for a successful regional city, these need to be better leveraged to attract commercial investment and employment.

A key issue for jobs growth in the City Centre is significant job leakage with residents commuting to Sydney for highly skilled jobs. Self-containment (the proportion of people workers that live and work in Wollongong) has declined from 74 per cent in 2011 to 71 per cent in 2016.

Although the City Centre continues to play a strong role as the administrative and civic centre for the Illawarra-Shoalhaven region, the trends above underline the need for the role of the City Centre to be clearly articulated, particularly its economic role and function. The Economic Development Strategy has highlighted this need and there is significant work being completed through the work of the Invest Wollongong partnership to incentivise investment in the City Centre. Action is required to attract commercial investment and grow strategic employment as well as population-serving industries.

To attract investment and create jobs it is important to strengthen the role of the City Centre as an attractive and vibrant place to work, live, run a business and visit. Key to the City Centre's success is a framework of local planning controls that respond to and balance the needs of people, promote quality places and buildings, and ensure that there will be appropriate locations for office development.

2.2 The dominance of residential development in Wollongong City Centre

Residential is the most active property market in the Wollongong City Centre. Where both residential and commercial development are allowed, this has the potential to constrain future commercial development, particularly if a majority of sites are developed as residential strata with multiple owners (which makes acquisition and redevelopment difficult) or if residential development 'prices' out commercial development.

There are over 20,000 people living within the suburb of Wollongong which largely reflects area of the Wollongong City Centre - as defined by Wollongong Local Environmental Plan 2009. This is forecast to increase to over 25,000 by 2036 – an increase of 16 percent.



The significant increase in residential activity risks detracting from the character of the Wollongong City Centre as a business area, making it difficult to attract commercial activity. This further highlights the need for the role of the Wollongong City Centre to be clearly articulated to maintain its economic role and function.

2.3 Development Capacity

There is significant floor space capacity for development based on the existing planning controls in Wollongong Local Environmental Plan 2009 (LEP), but only a small proportion of this capacity is feasible based in the current market. The planning controls in Wollongong LEP 2009 allow for a built form which is much greater than the current market is delivering. Capacity is determined overwhelmingly by floor space ratio (FSR) controls; however maximum building height controls are often in excess of this level by another significant margin.

Although planning controls are not a constraint on capacity; commercial development is only marginally feasible, requiring cross subsidisation with residential development to be feasible. Economic analysis suggests that for a commercial development project to progress in the City Centre, approximately 70 per cent of floor area needs to comprise residential use.

2.4 The commercial role and character of the Wollongong City Centre needs to be protected

Competition between commercial and residential development is a significant issue. Land values have potentially been inflated by the permissibility of residential development making straight commercial development unfeasible. These trends warrant consideration of a commercial core zone in which residential development is prohibited or restricted.

The likely mostly residential development outcome could result in a net loss of 45,000 square metres of commercial floor space by 2036. This is a significant issue as commercial floor space is required to support the economic role of the Wollongong City Centre. If planning controls remain unchanged and residential development continues to outperform commercial development, we will see further erosion of commercial land uses in the City Centre. This will result in lost productivity to Wollongong and negatively impact the economy of the Illawarra-Shoalhaven Region.

2.5 Wollongong City Centre planning controls require a refresh

The economic role of the Wollongong City Centre is too important to allow short-term imperatives driven by market cycles to undermine the economic potential of the City Centre. The main challenges are to ensure that sites in the City Centre provide for longer term employment outcomes, and a critical mass for commercial or office employment activity, while allowing for market responsive outcomes.

Configuring planning controls and implementing a long term economic development strategy is key to managing this issue.

The historical approach has been to establish commercial only (or non-residential employment) zones to ensure an employment outcome, which although may lead to the underutilisation of land in the short term, it ultimately promotes sustainable economic development. This thinking underpins a number of the proposed changes to Wollongong LEP 2009.



2.6 Prioritising opportunities for employment growth via planning controls

This planning proposal aims to update the planning controls for the City Centre to prioritise commercial development in the commercial and retail core, while still providing significant opportunities for residential development in appropriate locations within the City Centre.

The proposed new controls are based on a comprehensive analysis of built form and development feasibility. Proposed changes to zoning, height, floor space ratio and sun access controls interact to make the City Centre a more attractive place for employment and investment, with better places for people and high quality building design.

To achieve this, the following summary outlines changes proposed to Wollongong Local Environmental Plan 2009:

- 1 Revise the boundary of the Wollongong City Centre to condense the boundary to the B3 Commercial Core zone and B4 Mixed Use zone
- 2 Remove shop-top housing and other residential uses from the B3 Commercial Core Land Use Table (i.e. prohibit residential development in certain parts of the commercial core), but permit the uses in parts of the City Centre through an Additional Uses clause
- 3 Cap residential floor space at 70 per cent of all floor space within developments that are located in a defined area of the commercial core or require the retention of the existing quantum of commercial floorspace on site, which ever is the greater
- 4 Aligning building height and floor space ratio controls
- 5 Strengthen design excellence provisions to ensure a high level of design quality
- 6 Require the preparation of a site-specific development control plans or concept DAs for certain development
- 7 Update and expand sun protection plane controls to protect additional key public places in the Wollongong City Centre.
- 8 Make other minor amendments to improve the operation of the LEP or to clarify the intent of clauses
- 9 Make consequential minor amendments.

Proposed controls will increase certainty by providing a more coherent planning control framework for the City Centre. By simplifying and aligning key development standards such as FSR and building height, controls are able to respond better to the projected demand for commercial floor space, while still providing generous capacity for population growth. These changes are further supported by land use and design excellence provisions that prioritise employment uses and invigorate the City Centre.

2.7 Key changes proposed to Wollongong Local Environmental Plan 2009

The changes in this planning proposal that will have the most significant positive impact on jobs and City revitalisation are:

- 1 Redefine the boundary of the Wollongong City Centre (as defined by the LEP) to be a more compact area.
- 2 Redefine the boundaries of the B3 Commercial Core and B4 Mixed Use zones to clarify the purpose and intent of each zone.
- 3 The introduction of a designated commercial-only area where residential development is prohibited. Commercial uses include retail, office premises, business premises and tourism accommodation. This will ensure that development is more strongly aligned with the intended objectives of B3 Commercial



- Core Zone providing opportunities for higher grade office space in a precinct designated for commercial land uses only.
- 4 Requiring that a minimum percentage of non-residential floor space is allocated to development in the City Centre retail core; that is a minimum of 30% of the gross floor area of new development must be a non-residential use, or that the quantum of non-residential floor space currently on a site is retained, whichever is the greater.
- 5 Strengthening commitment to design excellence by revising design requirements to ensure that development is subject to more rigorous design review; site-specific development controls plans are required for development on sites exceeding 2,500 square metres; and a requirement that development proposals go through a competitive design process on sites exceeding 5,000 square metres.

This planning proposal is the outcome of detailed economic and urban design analysis in the following supporting documents:

A City for People, Wollongong Public Spaces Public Life (2016)

In 2014, Council commenced a review of the *Revitalising Wollongong City Centre Strategy (2007)* and its associated suite of planning controls. To inform the review of the Revitalisation Strategy, Council engaged Gehl Architects and McGregor Coxall to partner in the preparation of A City for People - Public Spaces and Public Life Study (2016). The resulting Study set a City-wide vision for the future - a people-oriented, sustainable and liveable city. A City for People has a clear focus on people, experience of the public domain, and design quality.

Wollongong City Centre Urban Design Framework (Architectus and Andrew Burns Architecture 2020)

An Urban Design Framework (UDF) was prepared by Architectus and Andrew Burns Architecture, as the next step in implementing *A City far Peaple*. The framework provides a detailed analysis of the current state of the city and recommends strategies to facilitate:

"...a thriving cammercial care that attracts investment and maintains Wollongong's role as a regional city; vibrant retail streets supported by housing in the right places; and an improved human scale and public spaces that will invite people to stay."

On 24 February 2020 Council endorsed the draft UDF for exhibition. The draft UDF was exhibited from 25 February to 27 April 2020. On 21 September 2020 Council adopted the *Wollongong City Centre Urban Design Framework* (UDF) to guide the preparation of a draft Planning Strategy to implement changes to planning controls for the Wollongong City Centre.

Wollongong City Centre Planning Review: Economic Analysis (SGS 2019)

The UDF was underpinned by detailed economic analysis that found there is a clear need for change, particularly to mitigate the impact of residential development on sites that are better suited to commercial uses. The key finding by SGS is that development feasibility is a major barrier to growth of commercial floor space within Wollongong City Centre because residential projects provide the highest return in the current market.

The key recommendation made by SGS in relation to land use in the Wollongong City Centre is to introduce a commercial core where residential development is prohibited in close proximity to Wollongong railway station, Crown Street Mall and public open space.



Specifically SGS recommends to:

"Exclude residential development within a portion of the B3 Commercial Core zone. Given the long term aspirations which Council has for the Wollongong City Centre, it will be important not to lose this land to residential development. There is also likely to be sufficient capacity for residential development across the rest of Wollongong, and more broadly Wollongong LGA. This would provide a clear commercial address which will increase the market for commercial development. It will also likely place downward pressure on land values which will increase the feasibility of development."

and

"Restrict residential development within a portion of the B3 Commercial Core Zone with a requirement that a threshold amount of non-residential floorspace be achieved before residential development can be included in the development proposition."

The Economic Analysis was exhibited with the draft UDF in 2020.

Draft Wallangang City Centre Planning Strategy (2020)

The draft Planning Strategy Planning Strategy recommends detailed changes to planning controls, based on the strategies outlines in the UDF. This will ensure that the Wollongong City Centre will maintain its role as the centre of economic activity in the Illawarra-Shoalhaven region and builds upon its strengths, by fine tuning planning controls that already are working well. It revises those that are have demonstrated to promote poor planning outcomes or that restrict opportunities for the economic growth of the City Centre, the Wollongong local government area and the region.

The draft Planning Strategy is based on the UDF sets clear policy recommendations to guide development in the City Centre aligned with its Vision.

a Land Use Strategy: A vibrant and grawing Regional City

Planning controls promote land use diversity to encourage a vibrant mix of offers throughout the City Centre, day and night. Jobs and population growth support Wollongong's role as a Regional City. Wollongong is an attractive place to live, work, visit and invest. The directions are:

- 1 Prioritise jobs growth and establish a resilient commercial core
- 2 Define active commercial streets that respond to character
- 3 Plan for a variety of housing to support a lively and inclusive city.

b Built Farm Strategy - An attractive and diverse city in a unique natural setting

Clear planning controls preserve the unique character of Wollongong's precincts. Renewal at all scales is encouraged and this creates an interesting built fabric. Built form variety creates a recognisable city skyline that celebrates the natural setting and responds to human scale.

- 4 Grow a legible city that supports a distinctive and evolving character
- 5 Strengthen and simplify planning controls to promote built form diversity in response to people and place.

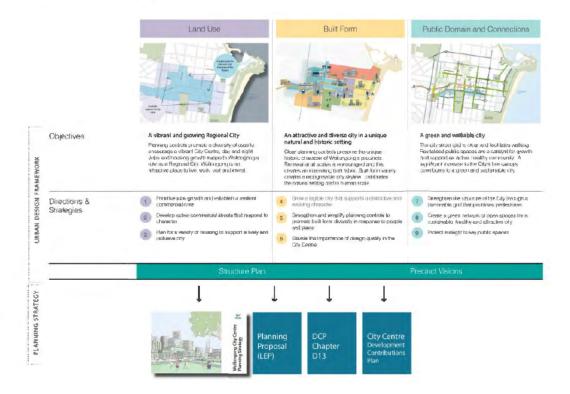


6 Elevate the importance of design quality in the City Centre

c The Public Domain and connections Strategy - A green and walkable city

A significant increase to the City's tree canopy contributes to a green, walkable and sustainable city. Attractive and revitalised public spaces support an active and healthy community and are a catalyst for growth in the city. The city grid is clear and permeable and facilitates walkability.

- 7 Strengthen the structure of the City through a permeable grid that prioritises pedestrians
- 8 Create a green network of open spaces for a sustainable, healthy and attractive city
- 9 Protect sunlight to key public places.



On 7 December 2020 Council endorsed the Draft Wollongong City Centre Planning Strategy for exhibition.



3. SITE IDENTIFICATION

The draft Planning Proposal primarily relates to the area within the Wollongong Local Environmental Plan 2009 City Centre Boundary, which acknowledges the symbolic and operational boundaries of the City Centre including the foreshore to the east and the Wollongong Hospital to the west.

The focus of the majority of planning control changes sought by this planning proposal is the shaded study area in Figure 1 below which comprises largely of the B3 Commercial Core and B4 Mixed Use zones. However, some of the proposed changes have implications beyond the City Centre.

The City Centre is the specific boundary as described by Wollongong Local Environmental Plan 2009. It is noted that this draft Planning Proposal seeks to amend this boundary so that it generally aligns with the study area boundary.

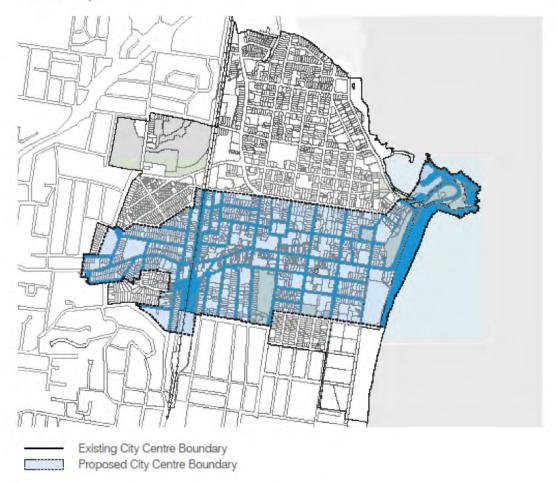


Figure 1 The Wollongong City Centre and Study Area Boundary



4. THE PLANNING PROPOSAL

PART 1: OBJECTIVES OR INTENDED OUTCOMES

The objectives of this Planning Proposal are:

- Ensure that there is a simple, clear and consistent planning control framework that promotes high quality built form that is balanced with sustainable economic development of the Wollongong City Centre.
- Prioritise opportunities for the growth of employment floor space in the Wollongong City Centre.
- Limit the replacement of employment floor space by residential development in appropriate parts of the Wollongong City Centre.
- Provide better differentiation between intended land use outcomes in the B3 Commercial Core and B4 Mixed Use Zones.
- Ensure that employment and other non-residential uses continue to be the predominant land uses in the B3 Commercial Core Zone by redefining its boundaries and managing land uses within this boundary.
- Ensure the ongoing provision of employment and other non-residential floor space to meet Wollongong's employment needs, as necessary to maintain its economic role in the Illawarra-Shoalhaven Region.
- Require a minimum proportion of commercial and floor space within buildings in certain parts of the B3 Commercial Core Zone.
- Ensure that key development standards respond to place and promote the desired character of the Wollongong City Centre.
- Ensure that key public parks and places have sun access throughout the year to safeguard public enjoyment of this land.
- Ensure diversity and flexibility of built form and a diversity of uses in the Wollongong City Centre.

The intended outcomes of this Planning Proposal are:

- A strengthened role for the Wollongong City Centre as the regional business, employment, retail and cultural centre of the Illawarra Shoalhaven Region.
- Design excellence is integral to the development process for all scales and types of development.
- A more compact Wollongong City Centre that with a more focussed commercial core.
- There is sufficient capacity for a diversity of employment uses in the Wollongong City Centre to meet demand over the next 20 years and beyond.



- The Wollongong City Centre continues to have generous capacity to meet demand for residential floor space over the next 20 years and beyond.
- · Key public spaces will be protected from overshadowing.
- Strengthen the commitment to design excellence.
- Stronger and simpler planning controls that promote high quality buildings.
- A legible city that supports a distinctive and evolving character.
- Height and Floor Space Ratio controls are better aligned so that development better responds to street character and function.
- Increased certainty for landowners and developers seeking to develop land in Wollongong City Centre.



PART 2: EXPLANATION OF THE PROVISIONS

Detailed explanation of proposed amendments to Wollongong Local Environmental Plan 2009

The proposed amendments to Wollongong Local Environmental Plan 2009 (LEP) are sought to facilitate the Objectives and Intended Outcomes in Part 1 of this Planning Proposal.

The Objectives and Intended Outcomes align with the key recommendations in the *draft Planning Strategy* and *Urban Design Framework* that seek to effect changes to land use controls, and the *Wollongong City Centre Planning Review: Economic Analysis*, which provides the economic context for the proposed changes. The economic analysis gives consideration to the Wollongong City Centre's floor space capacity, feasibility of and the forecast growth of commercial and residential floor space over the next 20 years.

The draft Planning Strategy recommends a range of changes to land use controls in the Wollongong City Centre to accommodate forecast growth in commercial, retail and residential floor space and to ensure (amongst other things) that development is appropriately located, that there is alignment between heights and building density, and that the design quality of buildings is a key consideration in development assessment. The draft Planning Strategy recommends a shift in the distribution and organisation of land uses across the Wollongong City Centre, largely through the refinement of height and floor space ratio controls, and also through the redefinition of the B3 Commercial Core Zone to reinforce the employment role of the Wollongong City Centre.

New controls are a matter of priority, as is necessary to ensure the protection and growth in employment floor space, and to ensure that this growth is balanced with good built form outcomes that preserve the amenity of the Wollongong City Centre's streets and public places.

The proposed controls focus on land use, built form and the public domain. In addition, there are a number of minor miscellaneous changes proposed to the City Centre controls in Wollongong LEP 2009 that are largely of a "housekeeping" nature.

Strategic Merit

The Planning Proposal is deemed to have strategic merit, based on:

i Consistency with the Illawarra Shoalhaven Regional Plan (2016)

As defined by the Illawarra Shoalhaven Regional Plan, Wollongong City Centre is the economic and cultural heart of the Illawarra, and is Australia's tenth largest city. In accordance with the Regional Plan, much of the future prosperity of the Region will be built on the potential to generate jobs from the integration of education, health care, business and tourism precincts in Metro Wollongong. The City Centre is key to achieving this.

The current land use strategy for the Wollongong City Centre embedded in Wollongong LEP 2009 compromises diversity and long term commercial growth opportunities. There is a lack of distinction between business zones in the City Centre, with objectives and permissible land uses in the B3 Commercial Core and B4 Mixed Use Zones being broadly the same. Planning controls that better promote and protect the growth of commercial development are necessary to strengthen Wollongong's economic role within the Illawarra Shoalhaven region.



Competition between commercial and residential development is a significant issue. The significant increase in residential activity detracts from the role of the Wollongong City Centre as a business area, making it more difficult to attract commercial activity. The proposed controls will ensure that opportunities for the continued growth of commercial floor space, while at the same time maintaining opportunities for new residential development in appropriate locations.

ii Keeping Policy Relevant

Current controls in the City Centre were established in 2007. Over 10 years have passed, and it is important to revisit the merit of these controls and update them to reflect current market trends, correct anomalies, and reflect the evolving needs of the City.

iii Consistency with endorsed Plans

Wollongong City Council endorsed a new Vision for the Wollongong City Centre in May 2016 – A City for People. This Vision set a long term aspiration for a liveable and vibrant City Centre. In 2018 Council commissioned the Urban Design Framework (UDF) and Wollongong City Centre Planning Review: Economic Analysis as the next step in implementing A City for People.

On 21 September 2020 Council adopted the Wollongong City Centre Urban Design Framework (2020). The UDF and accompanying Economic Analysis demonstrate strategic merit for policy change. This comprehensive urban design and planning policy test built form controls and identify key issues where policy is misaligned with the strategic objectives for the City.

On 7 December 2020 Council endorsed the Draft Wollongong City Centre Planning Strategy for exhibition.

iv Wollongong Local Planning Panel Review

On 14 June 2019, the Wollongong Local Planning Panel reviewed the draft Urban Design Framework and proposed amendments to the Wollongong LEP 2009. The Panel recommended that the following advice be provided to Council as part of a report on the draft Planning Proposal:

The Wollongong Local Planning Panel has reviewed and supports the proposed Planning Proposal for the Wollongong City Centre. The Planning Proposal has strategic merit as it is supported by an Urban Design Framework, an Economic Study, a 3D model and thorough analysis, and implements Council's 2016 Vision for the City.

Appendix 1 contains a copy of the Panel's advice and comments on the proposed LEP amendments presented to the Panel.

Since 2019, the draft UDF was exhibited and adopted, and a draft Planning Strategy prepared, which has resulted in some changes to the proposed amendments presented to the Panel.



A LAND USE STRATEGY

Summary of proposed amendments to land use controls in Wollongong Local Environmental Plan 2009

- · Amend the boundary of the Wollongong City Centre
- Amend the boundaries of the B3 Commercial Core and B4 Mixed use zones
- Amend provisions for the B3 Commercial Core Zone to promote commercial land uses as follows:
 - Amend B3 Commercial Core Zone objectives
 - o Amend the boundary of the B3 Commercial Core Zone
 - Remove or restrict permissibility of shop-top housing and other residential uses in parts of the B3
 Commercial Core Zone.
- Cap residential development to 70% of the gross floor area in certain parts of the Wollongong City
 Centre that have an active commercial street character
- Replace Clauses 7.13 with clause 7.19 and an Active Street Frontages Map to ensure that activity is focussed on key active commercial streets

A1 Amend the boundary of the Wollongong City Centre

The boundary of the Wollongong City Centre as defined by Wollongong LEP 2009 covers an area of 400 hectares and includes almost 3,000 properties. A large proportion of this land is currently zoned R1 General Residential Zone. Figure 2 below shows the current boundary of Wollongong City Centre as defined by Wollongong LEP 2009.

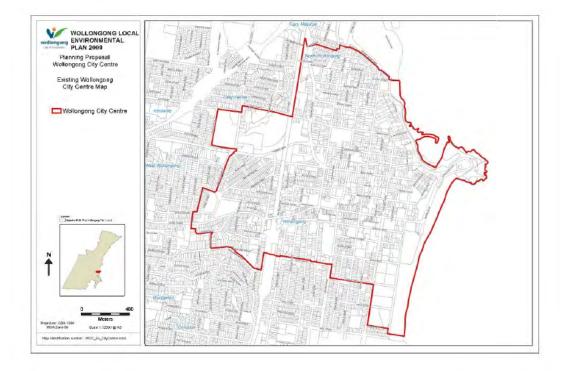


Figure 2 The Wollongong City Centre as currently defined in Wollongong LEP 2009



Strategic Merit/Justification

The boundary of the Wollongong City Centre is inconsistent with the predominantly commercial uses and functions normally associated with a City Centre. It is appropriate to amend the boundary of the Wollongong City Centre to better align with the non-residential zones within the true City Centre of Wollongong which comprises largely of the B3 Commercial Core Zone, the B4 Mixed Use Zone, and complementary RE1 Public Recreation Zone.

Proposed amendments to Wollongong LEP 2009

Revise the boundary of the Wollongong City Centre to better articulate the City Centre's role as strategic employment centre.

Suggested drafting Instructions

Replace the Wollongong City Centre Map with an updated Wollongong City Centre Map reflecting the boundary as outlined in Figure 3 below.

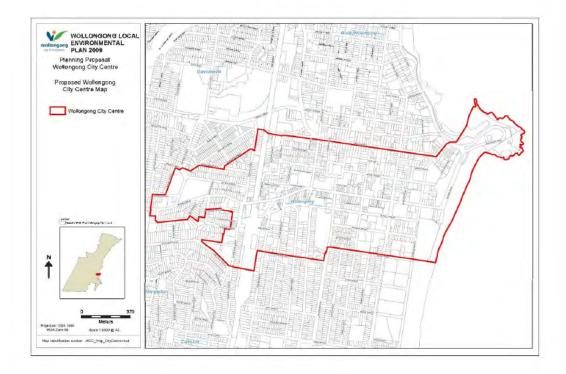


Figure 3 Proposed Wollongong City Centre boundary

A2 Amend provisions relating to the B3 commercial Core Zone

Within the Wollongong City Centre, the B3 Commercial Core zone applies to some 577 lots and an area of 48.5 hectares. The extent of the zone is a consequence of the merger of the former Wollongong LEP 1990 zones 3(c) Regional Business and 3(a) General Business by the Wollongong City Centre LEP 2007.

This section comprises of three parts:



- 2(a) Amend the B3 Commercial Core zone objectives
- 2(b) Amend the boundary of the B3 Commercial Core and B4 Mixed Use zones
- 2(c) Prioritise commercial development in the B3 Commercial Core zone by prohibiting and limiting shop-top housing and other residential uses as permissible uses certain areas.

A2(a) AMEND THE B3 COMMERCIAL CORE ZONE OBJECTIVES

The current objectives of the B3 Commercial Core zone are:

- To provide a wide range of retail, business, office, entertainment, community and other suitable land uses that serve the needs of the local and wider community.
- To encourage appropriate employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.
- To strengthen the role of the Wollongong city centre as the regional business, retail and cultural centre
 of the Illawarra region.
- To provide for high density residential development within a mixed use development if it—
 - is in a location that is accessible to public transport, employment, retail, commercial and service facilities, and
 - (b) contributes to the vitality of the Wollongong city centre.

Strategic Justification/Merit

The fifth objectives for the B3 Commercial Core Zone make special provision for high density residential development. Although this objective promotes a blend of residential and non-residential floor space within mixed use development, it has resulted in development within the zone that does not align with the intent of the B3 Commercial Core. Development of shop-top housing is permitted in this zone, resulting in buildings that mainly comprise of residential dwellings located above one or two floors of commercial floor space, rather than a mix of retail, business, office, entertainment, community land uses.

It is proposed to remove this fifth objective from the B3 Commercial Core zone because residential development in the commercial core is increasingly compromising the commercial character of the Wollongong City Centre. The removal of this objective sends the message that commercial development is a priority in the B3 Commercial Core Zone and that land use outcomes are clearly different to the B4 Mixed Use Zone; that is the B3 zone predominantly focussed on commercial development, not residential.

This will also bring the objectives of the B3 Commercial Core Zone in line with the recommended objectives in the *Standard Instrument—Principal Local Environmental Plan* (Standard Instrument) and consistent with B3 Commercial Core Zone objectives in other local environmental plans in key Sydney metropolitan and NSW regional commercial centres such as Parramatta and Newcastle.

The objective to be removed appears to be inconsistent with Direction 1 of the Standard Instrument which states that "Additional objectives may be included in a zone at the end of the listed objectives to reflect particular local objectives of development, but only if they are consistent with the core objectives for development in the zone as set out in the Land Use Table."



Proposed amendments to Wollongong Local Environmental Plan 2009

It is proposed to delete the objective relating to residential development from the B3 Commercial Core Zone.

The proposed objective changes also affect land zoned B3 Commercial Core outside the Wollongong City; including land in the Dapto and Warrawong Town Centres. The removal of the objective will not affect residential development in those other centres, as residential land uses will remain permissible.

Suggested Drafting

The following objective be removed from the B3 Commercial Core Zone:

- . To provide for high density residential development within a mixed use development if it:
 - (a) is in a location that is accessible to public transport, employment, retail, commercial and service facilities, and
 - (b) contributes to the vitality of the Wollongong City Centre.

A2(b) - AMEND THE BOUNDARY OF THE B3 COMMERCIAL CORE AND B4 MIXED USE ZONES

The B3 Commercial Core zone applies to some 577 lots and an area of 48.5 hectares (excluding roads). The B4 Mixed Use zone applies to some 273 lots and an area of 27 hectares (excluding roads), as shown in Figure 4.

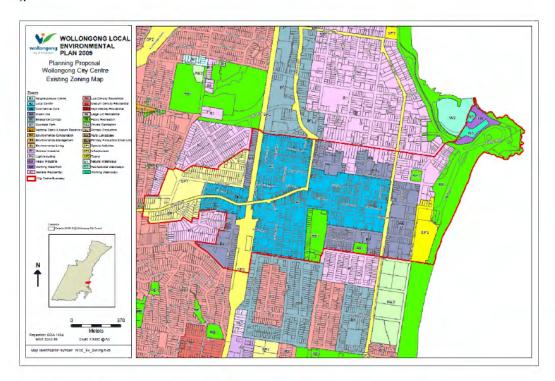


Figure 4 Existing Land Zoning Map



Strategic Justification/Merit

The existing B3 Commercial Core zone in Wollongong City Centre is too large, lacks definition and does not provide sufficient protection or incentives for commercial land. To facilitate a focused commercial core while allowing a range of development outcomes in the broader city, it is appropriate to amend the boundary of the B3 Commercial Core Zone and revise controls that will facilitate opportunities for commercial development, including placing limitations on residential uses in locations where employment uses are more important.

The reduction in the B3 Commercial Core zone, will result in a corresponding increase to the B4 Mixed Use zone.

Proposed amendments to Wollongong LEP 2009

To amend the zone boundaries, the Land Zoning Map needs to be amended as shown in Figure 5 below.

It is proposed that 181 lots be rezoned from B3 Commercial Core to B4 Mixed Use, an area of 20.7 hectares.

It is proposed that 20 lots along the eastern side of Keira Street, north of Market Street and west of Thomas Street, and St Michaels Square (2 lots) be rezoned from B4 Mixed Use to B3 Commercial Core, in recognition of the properties being part of the commercial core and part of the main retail precinct.



Figure 5 Proposed Land Use Zoning changes



Suggested drafting Instructions

Amend the Land Zoning Map to reflect the boundary as outlined in red in Figure 6 below.

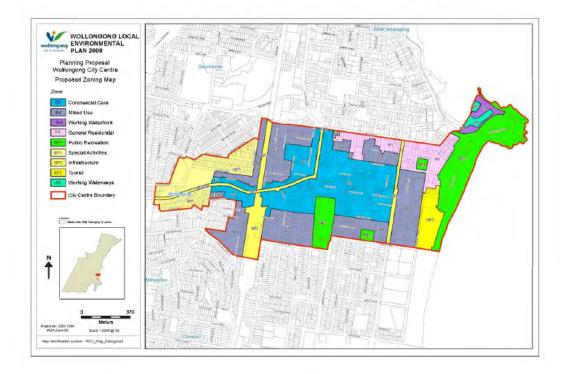


Figure 6 Proposed Land Use Zoning

A2(c) - PRIOTISING COMMERCIAL DEVELOPMENT IN THE B3 COMMERCIAL CORE ZONE

The B3 Commercial Core Zone currently permits a range of commercial uses (retail, business and office premises) and residential uses including shop top housing. Residential Flat Buildings (RFBs) are not permitted, but in effect the permissibility of shop-top housing largely mimics RFBs. As a result of the permissibility of shop-top housing, there is a high proportion of residential development in the City Centre and there is little distinction between development within the B3 Commercial Core Zone and the B4 Mixed Use Zone.

Strategic Merit/Justification

Residential development is currently permissible as shop-top housing within the B3 Commercial Core, and as a result there is a high proportion of residential development activity within the core. If this activity continues at current rates it poses a significant threat to long term employment growth and the role of the Wollongong City Centre as a focus of economic activity and it's potential to compete with other regional Cities NSW.

Shop-top housing was introduced into the B3 Commercial Core zone to increase the vitality and safety of the City Centre. However as there has been intense short term pressure for residential development shop top housing has is increasingly squeezing out commercial potential. Demand for dwellings within the area is currently high, given its proximity to services, transport, employment, recreation and entertainment. Significant development has been taking place, with major projects at the eastern side of the City Centre and



around Rawson Street, adding a significant supply of dwellings. This is in addition to the development of residential flat buildings in a dispersed pattern throughout the R1 General Residential Zone to the north of the City Centre.

The prevalence of shop top housing throughout the City Centre is jeopardises the availability of commercial space in the future. This is demonstrated in the findings of SGS' economic analysis, where commercial development in the City Centre was found to be only marginally feasible in comparison to residential, requiring significant cross subsidisation with residential development.

In response to this, SGS' recommends to:

"Exclude residential development within a portion of the B3 Commercial Core zone. Given the long term aspirations which Council has for the Wollongong City Centre, it will be important not to lose this land to residential development. There is also likely to be sufficient capacity for residential development across the rest of Wollongong, and more broadly Wollongong LGA. This would provide a clear commercial address which will increase the market for commercial development. It will also likely place downward pressure on land values which will increase the feasibility of development."

SGS have identified the following benefits of taking an approach where a defined commercial area where residential development is prohibited:

- The identification of a commercial only areas in the core reflects the role of the Wollongong City Centre and provides a clear signal to the market
- Provides a clear commercial address which will increase the market for commercial development;
- Provide policy consistency
- Provides certainty to developers around controls
- · Puts downward pressure on land values which may increase feasibility of development
- Ensures there is adequate land to accommodate growth in employment in the long term and provide for changes in the market
- The existing commercial core lacks definition and does not provide sufficient protection or incentives for
 commercial land. In particular, the permissibility and feasibility of residential shop-top development
 throughout the commercial core threatens its role. To facilitate a focused commercial core while allowing
 a range of development outcomes in the broader city, it is appropriate to quarantine certain areas within
 the commercial core from residential development
- This approach to land use will better articulate Wollongong City Centre's focus on economic activity and
 employment and mitigate the degradation of the commercial function of the city. Protecting the
 commercial office core in specific parts of the city will result in office areas that do not compete with
 residential shop-top housing uses and are more suitable for higher grade offices.

Proposed amendments to Wollongong Local Environmental Plan 2009

It is proposed to amend Wollongong LEP 2009 to quarantine the Burrelli Street precinct of the B3 Commercial Core zone from residential land uses; that is – residential accommodation will be prohibited in one part of the B3 Commercial Core Zone.

The Burelli Street precinct is intended to attract A grade office towers with large footprints, a premium street address, proximity to the train station, and access to MacCabe Park and Crown Street Mall. The creation of dedicated commercial areas is a signal to the market that the City remains a business core.



The boundary of the precinct is based on current character and desired future character in the precinct analysis undertaken in Architectus' Urban Design Framework, as well as giving consideration to recommendations in SGS' economic analysis to exclude residential development within a portion of the B3 Commercial Core. In addition, a number of submissions during the exhibition of the draft UDF commented on the proposed commercial only precinct. The draft UDF also proposed a second commercial only precinct along Market Street (west) which is not being proposed.

This condensed commercial core should be located in areas where office buildings are best located; that is in proximity to Wollongong railway station to ensure accessibility to public transport; in proximity to Crown Street Mall to ensure accessibility to retail, hospitality and other services for workers; and in proximity to public open space.

Suggested Drafting

The mechanism to prevent residential uses where it is not desired will be to amend the zoning table in Wollongong LEP 2009 for the B3 Commercial Core Area by removing the following uses as being "Permitted With Consent" from the B3 Commercial Core Zone, noting that none of these uses are mandated by the Standard Instrument:

- Boarding houses
- Seniors housing
- Shop top housing.

These residential uses will remain permissible in the B3 Commercial Core zone, outside the Burelli Street precinct, through an Additional Use clause:

- 27 Residential development on certain B3 Commercial Core zone land within Wallangong City Centre
- (1) This clause applies to land identified as the Residential Cap Area in the Wollongong City Centre Precinct Map
- (2) Development for the purposes of a boarding house, seniors housing or shop top housing is permitted with development consent if:
 - the gross floor area of a site that is currently used for purposes other than a boarding house, seniors housing or residential component of shop top housing is retained and used for another purpose as permitted by the Land Use Table; or
 - ii. no more than 70% of the gross floor area of development is used for purposes of a boarding house, seniors housing or residential component of a shop top housing development;

whichever is the greater.

The option of further reducing the B3 Commercial Core zone to just to apply to the office-only precinct along Burelli Street, and expanding the B4 Mixed Use zone to apply to the rest of the City was considered but not supported, as it would not signal where the commercial and retail priorities of the City are located.

This change will also affect B3 Commercial Core Zone land at Dapto and Warrawong. An additional use provision is proposed to be included to enable residential development in these areas and parts of the City Centre to continue to be permitted.



28 Residential development on B3 Commercial Care zone land at Dapta and Warrawang

- (1) This clause applies to land B3 Commercial Core zone at Dapto and Warrawong
- (2) Development for the purposes of a boarding house, seniors housing and shop top housing is permitted with development consent as part of a mixed use development.

A3 Cap Residential Development in certain parts of the Wollongong City Centre Strategic Justification/Merit

Economic analysis has found that Wollongong City Centre floor space ratio controls are not a constraint on floor space capacity; however opportunities for commercial development are limited because residential development will almost always be more feasible. For a commercial project to be feasible, there is often a need for significant cross subsidisation with residential uses; that is — a significant proportion of residential floor space is required in a development project for it to progress. SGS' economic analysis estimates that approximately 70% of total floor space is residential before a mixed use project is feasible in the Wollongong City Centre.

Under current market conditions, the amount of commercial floorspace which can be feasibly delivered on sites is likely to be small and not meet projected demand. SGS' modelling has found that under the existing planning controls and existing market conditions, that in a best case scenario there will be a shortfall of 86,000 sqm of commercial floorspace by 2036. However the most likely outcome (under the "maximum capital yield" scenario) SGS project that there will be an undersupply of 165,000 sqm of commercial floor space.

With feasibility of development being a major barrier to growth within Wollongong City Centre, it will be important that any future opportunities for the growth of all types of commercial floor space are protected and encouraged. This includes A Grade office floor space as well as other grades of commercial floor space. This provides a diversity of commercial opportunities for different market segments, and means that B and C grade commercial floor space can be co-located in residential developments where a higher status commercial address is not a key locational factor.

Proposed amendments to Wollongong Local Environmental Plan 2009

To further support the objective of strengthening the commercial core, it is proposed to that new developments must have a prescribed minimum of non-residential floor space within the retail core as mapped in Wollongong LEP 2009; that is — a minimum of 30% of the gross floor area of new development must be non-residential; or non-residential floor space currently on a site is retained — whichever is the greater. This area to which this provision will apply is shown in Figure 7 below as the Residential Cap Area.

For clarity, a provision is to be included in Wollongong LEP 2009 that will require development in the retail core to have a minimum proportion of 30% commercial/non-residential floor space; that is – a maximum of 70% of all gross floor area can be used for residential purposes. If the quantum of commercial floor space on the site already exceeds this proportion, then the existing amount of commercial floor space is to be retained in a future development.

The cap will limit the floor space used for residential purposes to 70% of the sum of:

Floor space permitted by the Floor Space Ratio Map



 Additional floor space that may be achieved via a competitive design process or other design excellence process, as proposed elsewhere in this planning proposal.

The clause is to apply all development within the mapped precinct including change of use, alterations and additions. No upper limit will be placed on the proportion of permissible floor space that can be used on a site for employment-based purposes.

Suggested Drafting

This will require that Schedule 1 - Additional uses in Wollongong LEP 2009 is amended so that boarding houses, seniors housing and shop top housing are included as additional permitted uses in *Schedule 1 Additional Permitted Uses*. It is suggested that the provision be worded as follows:

- 27 Residential development on certain B3 Commercial Core zone land within Wollangong City Centre
- (1) This clause applies to land identified as the Residential Cap Area in the Wollongong City Centre
 Precinct Map
- (2) Development for the purposes of a boarding house, seniors housing or shop top housing is permitted with development consent if:
 - iii. the gross floor area of a site that is currently used for purposes other than a boarding house, seniors housing or residential component of shop top housing is retained and used for another purpose as permitted by the Land Use Table; or
 - iv. no more than 70% of the gross floor area of development is used for purposes of a boarding house, seniors housing or residential component of a shop top housing development;

whichever is the greater.



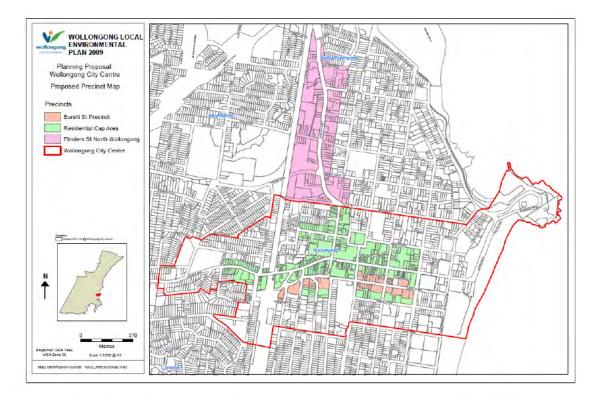


Figure 7 Proposed Precinct Map

A4 Activation of Ground Floor Uses on Active Commercial Streets

Clause 7.13 Certain land within business zones, in Wollongong LEP 2009 requires development within the B4 Mixed Use zone and B3 Commercial Core zone to provide a non-residential ground floor use, to encourage the presence and movement of people (i.e. the clause effectively prohibits residential development unless non-residential active uses are provided at the ground floor).

Clause 7.19 Active street frontages was introduced in 2018 and is an alternate method for encouraging /controlling active street frontages. The clause is linked to the Active Street Frontages Map, which shows the location of required active street frontages.

Strategic Justification/Merit

The objective of this amendment is to focus active uses only on key commercial streets within the City Centre to protect the retail and commercial character of these streets. This change will ensure that non-residential uses are appropriately located and support commercial streets in the City Centre, rather than being dispersed across the City.

The current approach in Clause 7.13 does not discriminate whether development is located within precincts characterised by retail and commercial uses, and as a consequence is eroding the significance and role of the traditional high streets such as Crown and Keira Streets. Under the current approach all street frontages (including lanes) are required to have active street frontages. This is not appropriate in all locations.



Proposed amendments to Wollongong Local Environmental Plan 2009

It is proposed that the provisions of Clause 7.13 Certain land within business zones, be replaced via the mapping of the active street frontages on the Active Street Frontages map under Clause 7.19 Active Street frontages. This will mean that clause 7.13 no longer applies to the revised boundaries of the Wollongong City Centre. Active street frontages will be required where ground floor commercial character is appropriate within the City Centre, and identified on the Active Street Frontages map. It is noted that this approach will continue to require ground floor residential uses outside of mapped areas within the City Centre.

Suggested Drafting

Amend the Active Street Frontages map to include the City Centre area as shown in Figure 8, with reference to Clause 7.19 of Wollongong Local Environmental Plan 2009

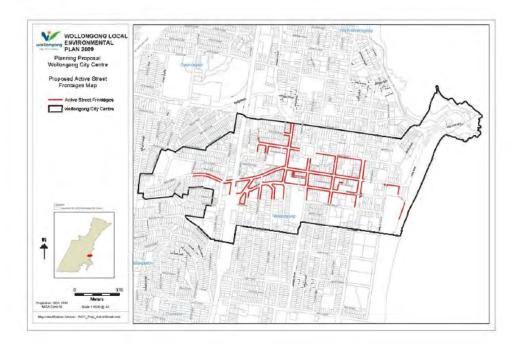


Figure 8 Proposed Active Street Frontages

B BUILT FORM STRATEGY

Summary of proposed amendments to built form controls

- Amend height of building controls to reflect precinct character in the Wollongong City Centre and to better align with floor space ratio controls by amending the Height of Buildings Map.
- Simplify floor space ratio controls by:
 - a Removing the "sliding scale" approach embedded in Clause 4.4A Floor space ratio Wollongong City Centre
 - b Amending the Floor Space Ratio Map



- Amend Clause 7.18 Design excellence in Wollongong City Centre and at key sites to improve design
 quality outcomes and processes in the Wollongong City Centre
- Introduce new provisions requiring the preparation of site-specific development control plans or concept DAs
- Amend clauses 8.4 Minimum building street frontage, and clause 7.14 Minimum site width
- Amend Clause 8.6 to remove building separation controls for residential development.

B1 Amend Height of Buildings Map Strategic Justification/Merit

A key challenge for the Wollongong City Centre is to balance the effects of growth with the need to retain the existing and desired character of its various precincts. To promote better places for people, buildings should respond appropriately to the street character and function. Building height is a one of the key determinants of the quality of place.

There is a need to revise existing height controls to ensure that height and density controls align. This will facilitate the efficient use of land, provide greater certainty about desired built form outcomes and remove unachievable height controls that are artificially inflating land value and in effect creating an impediment to growth.

Although the current built form controls attempt to promote the principle of 'human scale', there implementation across the City Centre has resulted in generally poor building and streetscape outcomes, which fail to respond to precinct character. The amenity of a number of streets are at risk from the development of large and bulky street wall buildings of varying heights. This is particularly true of areas within the B3 Commercial Core zone where a disparate range of street wall heights creates ambiguity and inconsistency of built form across the zone.

Maximum permissible heights vary across the City Centre, ranging from 9m to 120m as follows:

- Tallest permissible heights (60m, 65m, 80m, 120m) generally concentrated in the B3 Commercial Core zone east and south-east and north of Wollongong Railway Station
- Mid-rise permissible heights (32m-48m) are generally located to the north and south of the Crown Street spine in the existing B3 Commercial Core zone
- Lower building heights (20m-24m) are located in other parts of the City Centre, generally in the B4 Mixed Use zone.

Height controls allow for the tallest buildings to concentrate west of Keira Street around the Wollongong Railway Station and are more restrictive in the centre of the City. The tallest buildings are currently permitted on the highest topographic point, impacting views to the escarpment and giving the impression that these buildings are the centre of the City. East of Keira Street the centre has a relatively flat monotonous skyline. The controls result in a 'table top' outcome. Height controls also do not consider and protect the fine grain low scale character of Keira and Crown Streets.

The current heights were introduced by the State through the Wollongong City Centre LEP 2007, and the rationale is unclear, as they do not align with FSR controls, do not promote 'human scale' outcomes, and have generated poor building and streetscape outcomes that fail to respond to local context.



The heights also appear to be inconsistent with recommended heights in *Revitalising Wollongong - City Centre Plan* (2007) which outlines a more balanced height strategy - where building heights respond better to character and natural topography and provide an appropriate transition to lower scale development closer to the foreshore. The heights were not reviewed as part of the transition of controls to the Wollongong LEP 2009.

Permitted building heights (combined with building bulk) allows for development that impacts views to the escarpment and ocean. As a consequence, a number of developments fail to consider their impact on the surrounding natural and urban context, leading to the partial or complete loss of views to either the escarpment or coast from the City Centre.

Revising the height controls provides an opportunity to better plan for a variety of precincts within the City Centre. The proposed controls allow precincts to develop their own unique character and a built form that will provide variety and legibility to the City skyline. The proposed changes to height controls will promote a scale of development which is appropriate to the City Centre's environmental and topographical context and better align with what is feasibly achievable.

Proposed building heights have been informed by the following principles:

1 Create a legible city skyline that concentrates height around the office core

An east-west spine of height along Burelli Street, between the station, MacCabe Park and the Arts Precinct, denotes the commercial and civic core of the city. Heights on the City Centre fringes are reduced to maintain views to key natural features and transition to low scale areas.

2 Protect the amenity key public space

New solar access planes inform reduced street wall heights and increased setbacks above street wall on Crown Street Mall, and reduced heights in the Arts Precinct, and on the block bound by Crown Street, Atchison Street, Burelli Street and Keira Street.

3 Ensure heights reflect character of precincts

Reduced street wall heights on Crown Street and Keira Street protect the fine grain, human scale character. Market Street sites in the Market St West precinct with significantly taller heights have been reduced in-keeping with the character of the smaller office buildings in this area. Heights have been increased along the south side of Burelli Street and in some locations on the north side to denote this as an A-Grade commercial precinct suitable for larger footprint, taller office towers and incentivise commercial development.

4 Limit residential capacity in flood prone areas

Changes to land use permissibility that allow residential uses at ground floor will result in a minor increase to residential floor-space. Heights have been reduced in these areas to limit residential capacity, ensuring alignment with 9.1 Ministerial Direction for Flood Prone Land (formerly section 117c of the EP&A Act).

5 Align heights to development potential.



Excessive height controls on sites around the station have been reduced to align the height controls with the floor-space achievable. This better reflects likely development outcomes and prevents the inflation of land values based on unachievable heights.

Sites need to have a site area of at least 5,000 square metres to enable a 120 metre commercial tower based on maximum achievable FSR (using 1000sqm floorplates). A residential outcome, using 750sqm floorplates, would require an 8,300sqm site to reach the 120m limit. For sites around the station which don't have this base footprint potential, the 120 metre height has been reduced to balance the height with the density achievable.

In testing a series of amenity criteria, including solar access to MacCabe Park, views from key locations and character assessment and in consideration of the City Centre height strategy, it was found that the height of 120 metres across some sites was excessive and that an 80 metre building height control be applied.

Figure 9 provides an overview of the changes that are proposed to height controls in Wollongong LEP 2009 reflecting the abovementioned principles, showing general locations where height will increase and decrease.



Figure 9 Height Strategy for Wollongong City Centre

Building heights have only been reduced from existing controls where:

- 1 The resulting built form will have adverse amenity impacts, such as overshadowing key open space or will block significant views
- 2 Built form needs to provide a sensitive transition to heritage buildings or low scale character areas



- 3 There is a significant mismatch between the building heights and the FSR (i.e. site density) achievable
- 4 Sites are subject to constraints such as flooding.

Summary of Amendments

The Map below identifies sites which will be affected by changes in height controls. The extent of change and rationale is provided in the accompanying table.

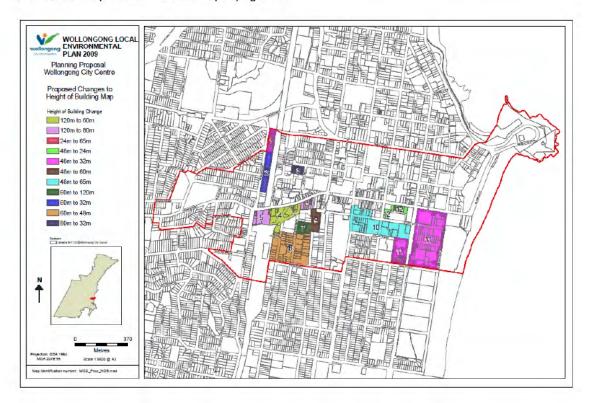


Figure 10 Summary of Height Amendments

	Proposed Building Height Amendment	Comment		
1	Denison Street 48m to 32m (-16m)	Protect Amenity - These sites are important in retaining visual connections to the escarpment. Heights have been reduced to protect important views. Legible City Skyline - Current heights are inconsistent with the height strategy which seeks to focus height in the Commercial only area and provide transition to surrounding lower density.		
		Align heights to development potential - Built form testing resolved that 48 metre height was not aligned with permissible FSR. This area sees more residential outcomes, applying the residential incentive FSR under the current LEP delivers a lower height outcome.		
2	Denison Street 60m to 32m (-28m)	Protect Amenity - These sites are important in retaining visual connections to the escarpment. Heights have been reduced to protect important views.		



Proposed Building Height Amendment	Comment	
	Legible City Skyline - Current heights of 60 metres are inconsistent with the height strategy which seeks to focus height in the Commercial Core.	
	Align heights to development potential - Built form testing resolved that 48 metre height was not aligned with permissible FSR. This area sees more residential outcomes, applying the residential incentive FSR under the current LEP delivers a lower height outcome.	
	This is supported by evidence in recent DAs which have been lodged at 32 metres height.	
Market Street (south) 80m to 32m (-48m)	Ensure heights reflect character of precincts — this site sits in the Market Street West precinct which has key views east to the Cathedral and west to the escarpment The height has been reduced in-keeping with the character of the smaller office buildings in this area and the dominant permissible height	
	Align heights to development potential – the reduction in height better aligns with the FSR for this site.	
Rail Precinct 120m to 60m (-60m)	Align heights to development potential – built form testing identified that a site area of 5,000 square metres is required to achieve a 120 metre tower. These three City Centre blocks have areas less than 5,000 square metres. Therefore it is recommended to reduce the permissible height to align with the proposed FSR.	
	Create a legible City skyline that concentrates height around the office core — to respond to this strategy, heights are proposed to be reduced to 60 metres to support the east-west spine of height along Burelli Street, between the station, MacCabe Park and the Arts Precinct.	
Crown Street – (Piccadilly and Rail) 120m to 65m (-55m)	Align heights to development potential – built form testing has resolved that the Piccadilly site does not have a sufficient site area of 5,000 square metres to deliver a 120 metre tower. Feasibility modelling and urban design testing identified an optimal height of 80 metres. To protect views to Escarpment.	
	Create a legible city skyline that concentrates height around the office core — to respond to this strategy, heights across both the Piccadilly and Rail corridor lands are proposed to be reduced to 80 metres.	
Crown Street – (Atchison Street) 120m to 80m (-40m)	Through testing and review of height controls, it was identified that two sites have excessive height limits of 120 metres and that 80 metres is appropriate within their context. It is understood that the 120 height limit results from the translation of 2007 LEP controls into the current Wollongong LEP 2009 and was not based on detailed design analysis.	
Atchison Street – Kenny Street (north west) 60m to 120m (+60m)	orth west) These sites have been integrated into the commercial only precinct, the early street between the	
Auburn Street - Atchison Street - Kenny Street - South Wollongong 60m to 48m (-12m)	Legible City Skyline - Current heights of 60m are inconsistent with the height strategy which seeks to focus height in the Commercial Core. Reducing heights to 48 metres reinforces the City Centre spine while retaining feasible development outcomes.	
	Height Amendment Market Street (south) 80m to 32m (-48m) Rail Precinct 120m to 60m (-60m) Crown Street — (Piccadilly and Rail) 120m to 65m (-55m) Crown Street) 120m to 80m (-40m) Atchison Street — Kenny Street (north west) 60m to 120m (+60m) Auburn Street — Atchison Street — Kenny Street - South	



	Proposed Building Height Amendment	Comment
		Limit residential capacity in flood prone areas - Changes to land use permissibility (allowing residential at ground) have resulted in an increase to residential floor-space permitted in flood affected areas. Heights have been reduced in these areas to limit residential capacity, in alignment with 9.1 Ministerial Direction for flood prone land
		To provide a transition to lower height precincts to the south.
9	Kenny Street (north east) 48m to 60m (+12m)	Create a legible city skyline that concentrates height around the office core – These sites have been integrated into the commercial only precinct, the eastwest spine of height along Burelli Street, between the station, MacCabe Park and the Arts Precinct. Additional height reflects this status.
		Protect Amenity — Testing of solar access impacts to MacCabe Park have identified that additional height to 60 metres can be supported. Increasing height above this would start to impact solar access to MacCabe Park.
10	Burelli Street – Stewart Street 48m to 65m (+17m)	Create a legible City skyline that concentrates height around the office core — These sites have been integrated into the commercial only precinct, the eastwest spine of height along Burelli Street, between the station, MacCabe Park and the Arts Precinct. Additional height reflects this status and to better align with the proposed FSR.
11	East of Corrimal Street	This area sees more residential outcomes, set in a landscape setting.
	48m to 32m (-16m)	Ensure heights reflect character of precincts - These sites are important in retaining visual connections to the beach and transitioning height down to the foreshore. Heights have been reduced to protect important views and promote a high quality residential outcome.
		It is noted that changes in zoning and FSR both contribute to allowing residential outcomes in this mixed use precinct, including residential to ground.
12	Lower Crown 48m to 32m (-16m)	Protect the amenity key public space – The Arts Precinct is an important public space in the City Centre. Solar access planes have been tested to ensure this public space receives sunlight. Testing revealed that a series of sites north of the Arts Precinct, located along Crown Street, will overshadow the space if built to the current height of 48 metres. A reduction in building height is therefore proposed.
		To reflect the character and heritage significance of the precinct.

Proposed amendments to Wollongong Local Environmental Plan 2009

Update the Height of Buildings Map to show the height of buildings controls.

Suggested drafting Instructions

Amend the Height of Buildings Map to show the height of buildings shown in Figure 10.



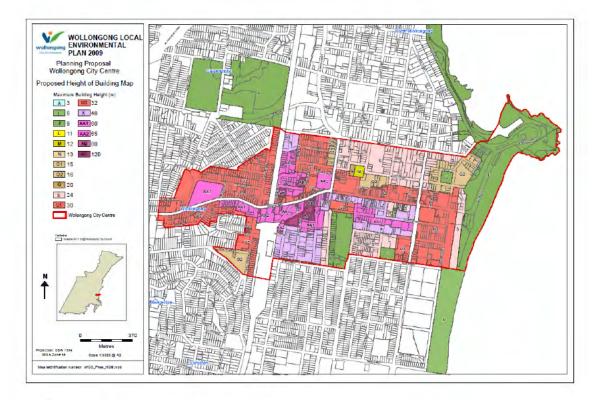


Figure 11 Proposed Height of Building controls

B2 Amend Floor Space Ratio (FSR) controls and Map

Under current controls in Wollongong LEP 2009, the maximum FSR that may be achieved above the "base" (i.e. mapped) FSR control of 1.5:1 is prescribed by Clause 4.4A Floor space ratio—Wollongong City Centre. This maximum may vary on a single site depending on a combination of site characteristics and land use factors. Street frontage width, site size, and the proportion of residential to non-residential uses within a building all can influence the FSR that may be achieved.

This control presents an unclear and confusing measure of FSR across City centre sites.

Strategic Justification/Merit

The UDF identifies the following key problems with the FSR controls in Wollongong LEP 2009:

- The blanket "base" control of FSR 1.5:1 does not correspond to the variety of permissible heights.
- Under clause 4.4A FSR is calculated solely on site area and land use, rather than being spatially distributed with regard to height controls.
- The sliding FSR scale in clause 4.4A does not incentivise development on small sites, which could provide valuable infill opportunities and create fine grain streets.
- FSR is confusing to calculate. The current sliding scale FSR is dependent on land use and site size and favours non-residential uses.
- The incentives for commercial which allow an increased FSR of up to 6:1 are not being taken up regularly
 due to feasibility issues.

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- Controls don't respond to the specific place, context or character within different parts of the City.
- The outcomes permissible under the controls can result in very different buildings, depending on landuse, which results in uncertainty. There are also cases where building envelope controls are in conflict with permissible floor space and not able to be realised, leading to false expectations and inflated land values
- There are inconsistencies between built form controls in the Wollongong LEP 2009 and WDCP2009, particularly in relation to street wall and setback controls in the B4 Mixed Use zone.
- FSRs are not available to small or narrow sites, rendering them undevelopable.

To address these issues, there is a need to simplify FSR controls to better align with height, and to provide greater emphasis on design quality and the character of precincts within the City Centre.

Clouse 4.4A Floor space ratio - Wollangong City Centre

Generally, a maximum FSR of 3.5:1 is available to residential development and maximum FSR of 6:1 to non-residential development across the City Centre – this can only be realised when the building height control is sufficiently high to "contain" the maximum permissible FSR on a site. From the analysis undertaken in the UDF it was demonstrated that height and FSR controls are commonly mismatched, one preventing the other from being realised. Under the proposed controls, maximum FSRs are better aligned with permissible heights, desired land use and building typology.

Under existing controls, large sites and non-residential developments are able to achieve the highest FSRs. As site area increases, the maximum achievable FSR increases proportionately. Similarly, as the proportion of non-residential land-uses increase, the maximum achievable GFA also increases proportionately. Despite this, sites with street frontage widths of less than 20m cannot exceed the base FSR of 1.5:1, despite other site characteristics (such as site depth) that may provide opportunities for additional floor space.

Table 1 – Theoretical Wollongong City Centre FSRs below shows the FSRs that may be achieved under the existing FSR controls in Wollongong LEP 2009 within the B3 Commercial Core and B4 Mixed Use Zones for a number of different scenarios, giving consideration to site size, land use and street frontage factors.

Site Size	Less than 20m street frontage width (B3 & B4)	More than 20m street frontage - Max FSR Residential (B3) (assumes 100%)	More than 20m street frontage - Max FSR Non- Residential (B3) (assumes 100%)	Max FSR Residential (B4) (assumes 100%)	Max FSR Non- Residential (B4) (assumes 100%)
Small (less than 800sqm)	1.5:1	2.1	3.5:1**	2.5:1	3.5:1
Sites 800- 2000 sqm	1.5:1	Sliding scale formula in clause 4.4A	Sliding scale formula in clause 4.4A	2.5:1	3.5:1
Sites larger than 2000sqm	1.5:1	3.5:1**	6:1	2.5:1	3.5:1

Table 1 – Theoretical Wollongong City Centre Floor Space Ratios (Wollongong LEP 2009)

^{**}It is noted that technically 100% residential uses cannot be achieved in the City Centre because Wollongong LEP 2009 requires ground floor non-residential uses. As a result, the maximum percentage of residential uses is most likely to be around 95% will result in a marginal reduction in residential FSRs.



The following observations can be made for the B3 Zone in the City Centre from Table 1 above:

- Sites with a street frontage width of less than 20 metres cannot exceed an FSR of 1.5:1 for any land use
- · A small site comprising wholly of commercial uses may achieve an FSR of 3.5:1, or 2:1 if wholly residential
- All other sites comprising wholly of commercial uses may achieve an FSR of 6:1 or 3.5:1 if wholly residential
- For small sites there is effectively an FSR incentive of 0.5:1 FSR for residential development and 2:1 for non-residential development
- There is a "second tier" FSR bonus above this for all other sites of an additional 1.5:1 for residential development and 2.5:1 for non-residential development.

In the B4 Mixed Use Zone site size does not factor into FSR calculations. FSR is determined by street frontage width and land use mix. That is – the FSR is 1.5:1 for any site with a street frontage of less than 20m, and for all other sites, the maximum FSR achievable is 3:1 for commercial uses and a 2.5:1 for residential uses. Effectively this is a small 0.5:1 incentive for commercial uses.

As a result of the economics of development in the current market, large residential sites are highly desirable from a profitability perspective; that is - current City Centre controls encourage development on larger sites, and effectively serve to "force" site consolidation. Although this can be desirable outcome in terms of the efficient use of land, it also undermines opportunities for finer grain developments.

Proposed amendments to Wollongong Local Environmental Plan 2009

Through detailed precinct planning, building envelope testing and an appreciation of local character, a series of floor space ratio controls have been established to respond to place. This work establishes a clear direction for maximum FSRs to be mapped across the City Centre. A series of FSRs are proposed, between 1.5:1 through to 6:1.

The new controls will prescribe maximum FSRs only, removing the current mapped "base" FSR of 1.5:1 and the "sliding scale" FSR incentive approach embedded in Clause 4.4A Floor space ratio — Wollongong City Centre. Site size/area will no longer be the most influential determinant of the achievable FSR, but FSR controls will better reflect character, context and place.

The changes will create opportunities for more flexible and diverse built form outcomes and a more equitable approach to FSR allocation, particularly on smaller sites.

Protect and Incentivise Commercial Capacity

To encourage commercial development, the existing approach to commercial FSRs will effectively be preserved; that is - a maximum FSR of 6:1 will be maintained in parts of the City Centre where large office buildings are appropriate (i.e. on sites along Burelli Street where residential development will be prohibited).

Unlocking Development Potential of Narrow Sites

Notwithstanding the above, it is proposed to amend Wollongong LEP 2009 to clarify development on sites with narrow street frontage widths (i.e. residential below 24 metres, commercial below 20 metres in width) may not be able to achieve the maximum FSR as a result of the site constraints arising from narrow site width and small lot size. A provision will specify a number of considerations that must be addressed before the



consent authority will permit an FSR above 1.5:1 on these sites, making it clear that the maximum FSR may be difficult to achieve and is not "as of right".

Implications for FSR amendments

To understand the net change in FSR proposed, analysis was undertaken to define the range of FSR permitted on each site in the City Centre. FSR was calculated based on zone, site width, and site area, applying the FSR calculator to ascertain a maximum FSR. Where adjoining sites were identified to be in the same ownership, sites were merged, and calculations were made to determine maximum FSR based on an assumed amalgamation. Three scenarios were tested:

Option 1 – Mixed Use: FSR was calculated for each site based on a series of land use mix options, including - 100% Commercial on areas defined in Commercial Core which prohibit residential, 5% Commercial/ 95% Residential across the mixed use zone, and 30% Commercial/ 70% Residential across the retail core as proposed. These identified land use ratios were used as they best reflect the range of land use outcomes proposed by the UDF and this Planning Proposal.

Option 2-100% Commercial: This scenario assumes full commercial across the commercial core and mixed use sites, and is a comparison with the optimal FSR yield for sites as derived under the current FSR control.

Option 2-95% Residential: This option assumes a 5% Commercial yield across sites. Note that this is not a workable outcome through the Commercial Core as proposed. This Option yields the lowest FSR under the current LEP.

The results demonstrate that:

- Consideration of overall FSR outcomes as they relate to place will result in both an uplift and reduction
 in FSR entitlements across the City Centre. The extent of change is influenced by individual site
 circumstances
- Small sites are 'unlocked' with development potential for both commercial and residential outcomes less than 20 metres, and for residential sites under 24 metres down to 14 metres
- Residential to ground in the mixed use zones allow for a direct comparison with a 95% mixed use outcome. This is generally translating to a neutral outcome, as residential is allowed to ground level
- Commercial Core along Burelli Street sets a 6:1 FSR which is consistent with the maximum commercial outcome. This results in a neutral outcome
- A number of larger sites in the Mixed Use zone will have a reduction in FSR at the 95% residential
 outcomes. This variation needs to be considered in context of the sites achieving residential to ground.
 As such, the yield of these sites is largely unchanged
- Sites west of the railway line, along Denison Street will see a reduction in FSR for residential outcomes.
 This is to reflect a reduction in height and strategic intent to protect character and view lines to the escarpment
- A number of sites will experience a reduction in permissible FSR in the highest yield commercial comparison. Some areas, specifically Crown Street, see a reduction in commercial FSR. This acknowledges that the 6:1 commercial FSR for these sites was inconsistent with the character of place and would result in an overdevelopment of sites.

Suggested drafting Instructions



- 1 Amend Clause 4.4A Floor space ratio—Wollongong City Centre, by adding text in red italics and delete text in red strikethrough as follows:
- (1) This clause applies to land within the Wollongong City Centre, and the B6 Enterprise Corridor zone along Flinders Street, North Wollongong (as shown on the Precincts Map).
- (2) Despite clause 4.4, the maximum floor space ratio for a building on land within a zone specified in Column 1 of the Table to this subclause, on land with a site area and street frontage specified opposite that zone in Column 2 of the Table, is—
 - (a) the amount specified opposite that zone in Column 3 of the Table, if the building is used only for residential purposes, or
 - (b) the amount specified opposite that zone in Column 4 of the Table, if the building is used only for purposes other than residential purposes.

Table

Column 1	Column 2	Column 3	Column 4
Zone B3 Commercial Core	Site area of any size and no street frontage equal to or greater than 20 metres	1.5:1	1.5:1
•	Site area less than 800 square metres and a street frontage equal to or greater than 20 metres	2:1	3,5:1
-	Site area equal to or greater than 800 square metres and less than 2000 square metres and a street frontage equal to or greater than 20 metres	(3)	As set out in subclause (3)
	Site area equal to or greater than 2000 square metres and a street frontage equal to or greater than 20 metres		6:1
Zone B4 Mixed Use	Site area of any size and no street frontage equal to or greater than 20 metres	1.5:1	1.5:1
	Site area of any size and a street frontage equal to or greater than 20 metres	2.5:1	3.5:1
Zone B6 Enterprise Corridor	Site area of any size and no street frontage equal to or greater than 20 metres	1.5:1	1.5:1
	Site area of any size and a street frontage equal to or greater than 20 metres	2.5:1	3:1
Zone SP1 Special Activities	Site area of any size and a street frontage of any size	1.5:1	3:1

For land within Zone B3 Commercial Core with a site area equal to or greater than 800 square metres and less than 2,000 square metres and a street frontage equal to or greater than 20 metres, the maximum floor space ratio for any building on that site is—



```
(a)—(2+1.5X):1 —if the building is used only for residential purposes, or (b)—(3.5+2.5X):1 —if the building is used only for purposes other than residential purposes, where—

X is—(the site in square metres – 800) / 1200 —
```

(4) The maximum floor space ratio for a building on land within a business zone under this Plan, that is to be used for a mixture of residential purposes and other purposes, is—

```
(NRFSR x NR/100) + (RFSR x R/100): 1
```

where-

NR is the percentage of the floor space of the building used for purposes other than residential purposes.

NRFSR is the maximum floor space ratio determined in accordance with this clause if the building was to be used only for purposes other than residential purposes.

R is the percentage of the floor space of the building used for residential purposes.

RFSR is the maximum floor space ratio determined in accordance with this clause if the building was to be used only for residential purposes.

Note-

The following gives an example of how a maximum floor space ratio is to be calculated for a building on land, having a site area equal to or greater than 2,000 square metres and a street frontage equal to or greater than 20 metres, that is within Zone B3 Commercial Core, 30 per cent of which is to be used for purposes other than residential purposes and 70 per cent of which is to be used for residential purposes—

```
(NRFSR \times NR/100) + (RFSR \times R/100): 1

((6 \times 30/100) = (3.5 \times 70/100)): 1

(1.8 + 2.45): 1
```

4.25:1 is the maximum floor space ratio.

- (5) For a building on land within Zone SP1 Special Activities that is to be used for the purposes of hospitals, medical centres or other like uses or a combination of such uses, the maximum floor space ratio is 3:1.
- (6) In this clause
 - residential purposes, in relation to the use of a building, means using the building for the purposes of residential accommodation or serviced apartments or a combination of such uses.





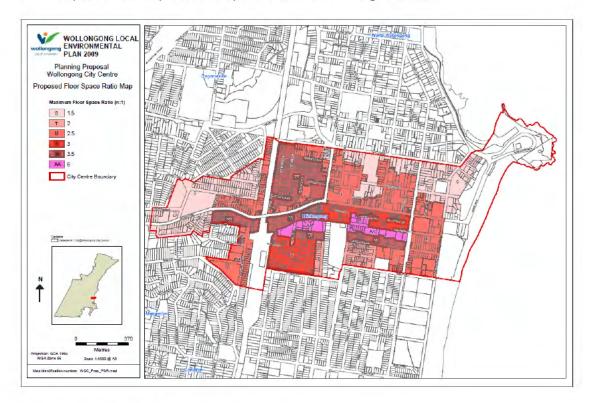


Figure 12 Proposed Floor Space Ratios

B3 Amendments to improve Design Quality Strategic Justification/Merit

A key direction of the Urban Design Framework and draft Planning Strategy is to elevate the importance of design quality in the City Centre, by (amongst other things) strengthening commitment to design excellence and through a strong assessment process.

Development consent currently cannot be granted to any development in the Wollongong City Centre and on key sites unless design excellence is exhibited in accordance with Clause 7.18 Design excellence in Wollongong City Centre and at key sites, where Council must have regard to a range of criteria. Generally, design excellence is determined for more significant developments by Clause 7.18 (5) which requires that that a design review panel reviews the design of development above 35 metres, on key sites or at an applicant's request.

In some cases, the impact of one development is deemed to have more influence than another. This may be due to a number of factors including its location, scale or intended use. In these cases there is a need to apply an increased rigor to the resolution of the design and to strengthen the way that design excellence is taken into account in the development process.



Proposed amendments to Wollongong Local Environmental Plan 2009

It is proposed to update design excellence provisions in Wollongong LEP 2009 to reinforce existing controls and provide new requirements and design review processes for large sites and for key sites that require a more rigorous evaluation of design quality beyond the matters that council must "have regard" to specified in clause 7.18(4).

Several key changes are proposed to improve design quality in the Wollongong City Centre as follows:

- Amend the Clause 7.18 Design excellence in Wollongong City Centre and key sites to ensure that the
 following types of development are subject to more rigorous design review in order to exhibit design
 excellence:
 - development that exceeds the street wall heights in certain areas of the Wollongong City Centre;
 - Residential development on sites with narrow street frontage widths (at the front building line).
 - Development on sites over 2500 square metres
 - Key Sites
- Map additional Key Sites subject to the provisions of clause 7.18 Design excellence in Wollongong City Centre and key sites.
- Require the preparation of a site-specific development control plan (or alternative Concept DA as per EP&A Act section 4.23 (2)) for development on sites with a site-area of 2,500 square metres or more.
- Provide a set of minimum criteria that must be addressed by a site-specific development control plan.
- Provide applicants who are required to complete a site specific DCP with the option to pursue a bonus 10% FSR through a competitive design process, following approval of the DCP (or alternative Concept DA).

Suggested Drafting

1 Amend Clause 7.18 Design excellence in Wollongong City Centre and at key sites, by adding text in red italics and delete text in strikethrough as follows:

7.18 Design excellence in Wollongong City Centre and at key sites

- (1) The objective of this clause is to deliver the highest standard of architectural, and urban, and landscape design.
- (2) This clause applies to development on any of the following land involving the construction of a new building or external alterations to an existing building:
 - (a) land within the Wollongong City Centre,
 - (b) land shown edged heavy black and distinctively coloured on the <u>Key Sites Map</u> (a key site).



- (3) Development consent must not be granted to development to which this clause applies unless, in the opinion of the consent authority, the proposed development exhibits design excellence
- (4) In considering whether development to which this clause applies exhibits design excellence, the consent authority must have regard to the following matters:
 - (a) whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved,
 - (b) whether the form and external appearance of the proposed development will improve the quality and amenity of the public domain,
 - (c) whether the proposed development detrimentally impacts on view corridors,
 - (d) whether the proposed development detrimentally overshadows an area shown distinctively coloured and numbered on the Sun Plane Protection Map,
 - (d) any relevant requirements of applicable development control plans,
 - (e) how the proposed development addresses the following matters:
 - (i) the suitability of the land for development,
 - (ii) existing and proposed uses and use mix,
 - (iii) heritage issues and streetscape constraints, Historic and cultural assets
 - (iv) Streetscape character and function
 - (v) the location of any tower proposed, having regard to the need to achieve an acceptable relationship with other towers (existing or proposed) on the same site or on neighbouring sites in terms of separation, setbacks, amenity and urban form,
 - (vi) bulk, massing and modulation of buildings,
 - (vii) street frontage heights,
 - (viii) environmental impacts such as sustainable design, overshadowing and solar access, visual and acoustic privacy, noise, wind and reflectivity,
 - (ix) the achievement of the principles of ecologically sustainable development,
 - pedestrian, cycle, vehicular and service access, circulation and requirements, including the permeability of any pedestrian network,
 - (xi) impact on, and any proposed improvements to, the public domain,
 - (xii) achieving appropriate interfaces at ground level between the building and the public domain,
 - (xiii) excellence and integration of landscape design.
 - (xiv) the impact on any precinct character area



(xv) the incorporation of high quality public art into the fabric of buildings in the public domain or in other areas to which the public has access

- (5) Development consent must not be granted to the following development to which this clause applies unless a design review panel has reviewed the design of the proposed development prior to lodgement of the development application or development control plan (where applicable):
 - (a) development in respect of a building that is, or will be, greater than 35 metres in height,
 - (a) development having a capital value of more than \$1,000,000 on a key site,
 - (b) development for which a site specific development control plan is required to be prepared,
 - (c) development with a building height that exceeds the Street Wall height shown on the Street Wall Height Map,
 - (d) residential development on a site that has a street frontage width of more than 14 metres and less than 24 metres, or
 - (c)(e) development for which the applicant has chosen to have such a review.
- (6) In this clause:
 - design review panel means a panel of 2 or more persons established by the consent authority for the purposes of this clause.
- 2 Update the Key Sites Map in Wollongong LEP 2009 to include proposed Key Sites as shown on the map below:

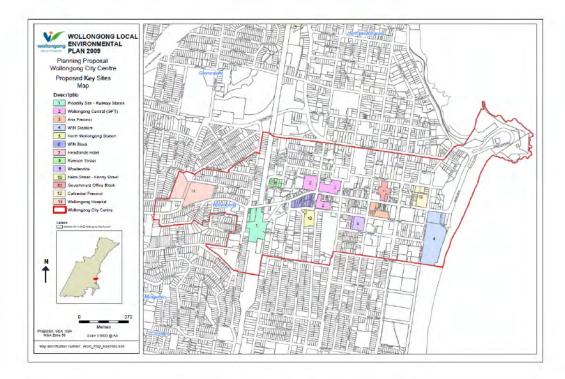




Figure 13 Proposed Key Site Map

3 Add Street Wall Height Map to Wollongong LEP 2009 as shown in Figure 13 below:

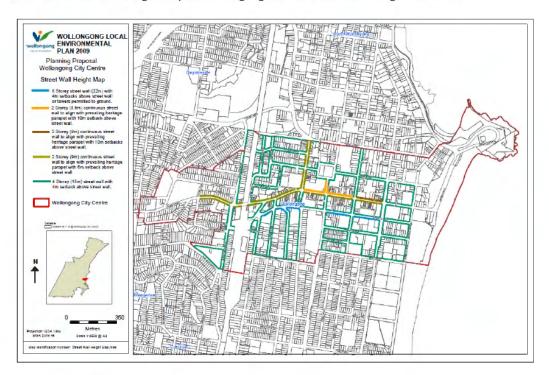


Figure 14 Proposed Street Wall Height Map

- 7.18A Additional provisions relating to certain land at Wollongong City Centre
- (1) Development consent must not be granted to development to which this clause applies on the following land unless a development control plan that provides for the matters in subclause (2) has been prepared for development on the following land:
 - (a) land in the Wollongong City Centre that, if the site area for the development is more than 2,500 square metres or if the development will result in a building with a height greater than 48 metres above ground level (existing),
 - (b) land shown edged heavy black and distinctively coloured on the Key Sites Map (a key site) with a capital investment value of \$1,000,000 or more.
- Section 4.23 (2) of the Environmental Planning and Assessment Act 1979 provides that if an environmental planning instrument requires the preparation of a development control plan before any particular or kind of development is carried out on any land, that obligation may be satisfied by the making and approval of a concept development application in respect of that land.
- (2) The development control plan must provide for all of the following:
 - requirements as to the form and external appearance of proposed development so as to improve the quality and amenity of the public domain,



- (b) requirements to minimise the detrimental impact of proposed development on view corridors,
- (c) requirements to ensure the proposed development does not overshadow an area shown distinctively coloured and numbered on the Sun Plane Protection Map,
- (d) how proposed development addresses the following matters:
- (d) any relevant requirements of applicable development control plans,
- (e) how the proposed development addresses the following matters:
 - (i) the suitability of the land for development,
 - (ii) existing and proposed uses and use mix,
 - (iii) Historic and cultural assets,
 - (iv) Streetscape character and function,
 - (v) the location of any tower proposed, having regard to the need to achieve an acceptable relationship with other towers (existing or proposed) on the same site or on neighbouring sites in terms of separation, setbacks, amenity and urban form,
 - (vi) bulk, massing and modulation of buildings,
 - (vii) street frontage heights,
 - (viii) environmental impacts such as sustainable design, overshadowing and solar access,
 visual and acoustic privacy, noise, wind and reflectivity,
 - (ix) the achievement of the principles of ecologically sustainable development,
 - (x) pedestrian, cycle, vehicular and service access, circulation and requirements, including the permeability of any pedestrian network,
 - (xi) impact on, and any proposed improvements to, the public domain,
 - achieving appropriate interfaces at ground level between the building and the public domain,
 - (xiii) excellence and integration of landscape design.
 - (xiv) the impact on any precinct character area
 - (xv) the incorporation of high quality public art into the fabric of buildings in the public domain or in other areas to which the public has access

7.18B Architectural Design Competition

(1) Development on land required to complete a Development Control Plan under clause 7.18A may chose to complete an Architectural Design Competition to improve the potential design outcome of the development. Development consent must not be granted to the following development in



Wollongong City Centre to which this Plan applies unless a competitive design process (<u>architectural</u> design competition) has been held in relation to the proposed development:

- (2) The consent authority may grant consent to the erection or alteration of a building to which this clause applies that has a floor space ratio of not more than 10% greater than that allowed by clause 4.4 (FSR Map Control) or a height of not more than 10% greater than that allowed by clause 4.3 (Height Map Control), but only if additional floor space has approved as part of the required Development Control Plan (or alternative Concept DA).
- (4) In this clause:

<u>architectural design competition</u> means a competitive process conducted in accordance with the NSW Government Architects Design Excellence Competition Guidelines as updated from time to time (Current version at time of writing: DRAFT May 2018)

<u>capital investment value</u> has the same meaning as in the Environmental Planning and Assessment Regulation 2000.

B4 Amendments to Minimum Building Street Frontage and Minimum Site Width controls

Currently Clause 8.4 Minimum building street frontage, requires that development in the Wollongong City Centre (as currently defined) must have a street frontage width of at least 20 metres; that is – development may not be permitted unless it can meet this standard or if it is "not physically possible" for a building to be erected.

The intent of the control as it is currently written appears to be to primarily promote "efficient" use of land on larger sites, presuming that it will encourage sites to amalgamate to meet the 20 metre street frontage threshold.

Strategic Justification/Merit

Drawing from analysis in the UDF, it was found that within a number of City Centre precincts, sites with a minimum street frontage width of above 14 metres are able accommodate residential buildings with good external and internal amenity, and that can contribute to local character - particularly if supported by robust building envelope controls in Wollongong Development Control Plan 2009.

The exception to this is an area within the City Centre generally east of Kembla Street and south of Burelli Street where a typology of buildings with narrow street frontage widths would conflict with intended character. Buildings in this area are better located within a landscape setting. Building separation is critical in this precinct, where larger lot sizes that can sustain bulkier buildings and site-densities also provide opportunities for visual breaks and better permeability.

From UDF analysis it was found that a 24 metre site width is more suited to achieve this character. It is noted that that this aligns with the requirement in Clause 7.14 Minimum site width which applies to residential buildings throughout the Wollongong local government area

Proposed amendments to Wollongong Local Environmental Plan 2009



It is proposed to amend Clause 8.4 Minimum building street frontage to enable opportunities for finer grain development on small sites within the Wollongong City Centre with the exception of the area generally east of Kembla Street and south of Burelli Street where a higher site width threshold is appropriate.

It is also proposed to amend Clause 7.14 Minimum site width so that it incorporates incidental changes arising from the revision of the boundary of the Wollongong City Centre boundary (i.e. site the B6 Enterprise Corridor Zone will no longer fall within the City Centre) and to eliminate any confusion and inconsistencies regarding the meaning of "minimum building street frontage" and "minimum site width" engendered by Clauses 7.14 and 8.4.

It is understood that in some cases sites may not be able to comply with the provisions of this clause, so provision is provided for variation based on undertaking a design excellence process as discussed earlier in this planning proposal.

Suggested Drafting

- 1 Replace Clause 8.4 Minimum building street frontage with:
- 8.4 Minimum site width at the building line
- (1) The objectives of this clouse ore to:
 - (a) ensure that residential buildings in the Wollongong City Centre are located on sites with a minimum street frontage width to provide for the efficient development of land and design of buildings; and
 - (b) enable opportunities for non-residential buildings on sites with narrow street frontage widths if:
 - the scale and height of proposed buildings is compatible with the character of the locality, and
 - ii. there will be no significant adverse impact on the amenity of any existing nearby development.
- (2) Development consent must not be granted to the erection of a residential building on a site that has a street frontage width of less than:
 - (a) 24 metres within the Burelli Street precinct on the Precinct Map
 - (b) 14 metres anywhere else within the Wollongong City Centre.
- 2 Add wording in red italics and delete wording in strikethrough in Clause 7.14 Minimum Site Width:
- 7.14 Minimum site width at the building line
- (1) Development consent must not be granted for development for the purposes of multi dwelling housing unless the site area on which the development is to be carried out has a dimension site width of at least 18 metres measured of the building line.



- (2) Development consent must not be granted for development for the purposes of a residential flat building unless the site area on which the development is to be carried out has a dimension site width measured at the building line of at least 24 metres.
- (3) Development consent must not be granted for development for any use on land within the B6
 Enterprise Corridor Zone identified as the Flinders Street Precinct on the Precinct Map unless the site
 on which the development is to be carried out has a site width of at least 20 metres measured at the
 building line.

B5 Amendments to Building Separation controls

Clause 8.6 Building separation within zone B3 Commercial Core or zone B4 Mixed Use, aims to ensure sufficient separation of buildings within business zones in the Wollongong City Centre for reasons of visual appearance, privacy, and solar access.

Strategic Merit/Justification

The provisions in the clause relate to both commercial development and residential development (including residential flat buildings and shop top housing). However separation requirements for residential flat buildings and shop top housing have been superseded by State Environmental Planning Policy No 65 - Design Quality of Residential Flat Buildings, which is implemented by the NSW Government's Apartment Design Guide (ADG).

Proposed changes to Wollongong LEP 2009

Remove building separation provisions that apply to residential development Zone B3 Commercial Core and Zone B4 Mixed Use in Wollongong City Centre, as they have been superseded by the Apartment Design Guide.

Remove the requirement for separation at the ground floor as it discourages lanes, will not apply to residential flat buildings in the B4 Mixed Use zone, and will not apply to commercial only towers in the commercial only zone.

Include a note clarifying that separation from "any other building" includes sites adjoining and across a road or laneway. The separation across a road is consistent with the proposed setbacks contained in the draft Wollongong City Centre DCP chapter.

Suggested Drafting

Remove subclause 2(a) and (3) from clause 8.6 Building separation within Zone B3 Commercial Core or Zone B4 Mixed Use. Add a note clarifying the term separation from "any other building".

The clause will still require commercial buildings to be separated above the street wall height.

The proposed changes are indicated by adding text in red italics and delete text in strikethrough as follows:

- 8.6 Building separation within Zone B3 Commercial Core or Zone B4 Mixed Use
- (1) The objective of this clause is to ensure sufficient separation of buildings for reasons of visual appearance, privacy and solar access.
- (2) Buildings on land within Zone B3 Commercial Core or B4 Mixed Use must be erected so that—



- (a) there is no separation between neighbouring buildings up to the street frontage height of the relevant building or up to 24 metres above ground level whichever is the lesser, and
- (b) there is a distance of at least 12 metres from any other building above the street frontage height and less than 45 metres above ground level, and
- (c) there is a distance of at least 28 metres from any other building at 45 metres or higher above ground level.
- (3) Despite subclause (2), if a building contains a dwelling, all habitable parts of the dwelling including any balcony must not be less than—
 - (a) 20 metres from any habitable part of a dwelling contained in any other building, and
 - (b) 16 metres from any other part of any other building.
- (4) For the purposes of this clause, a separate tower or other raised part of the same building is taken to be a separate building.
- (5) In this clause—

street frontage height means the height of that part of a building that is built to the street alignment.

Any other building means any building on any surrounding site, including sites not adjoining the subject site, and including sites located across a road reserve from the subject site

C PUBLIC DOMAIN STRATEGY

Summary of proposed amendments to land use controls in Wollongong Local Environmental Plan 2009

 Introduce a new overshadowing control for Crown Street Mall East and the Arts Precinct Lawn Introduce provisions to manage overshadowing to Crown Street Mall West

C1 Amendments to the Sub Protection Plane

Clause 8.3 Sun plane protection protects a number of specified public open spaces from excessive overshadowing by restricting the height of buildings. Development to which this clause applies is prohibited if it results in a building projecting above a sun access control set out in this clause. Currently this clause protects MacCabe Park, Civic Square, Pioneer Park and Market Square from overshadowing.



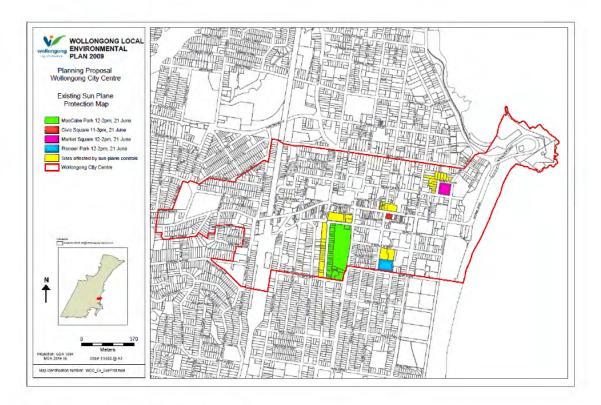


Figure 15 Existing Sun Plan protection map

Strategic Merit/Justification

Good solar access is a key contributor to the amenity of public spaces and streets, particularly during winter. Planning controls should ensure sufficient sunlight access to key public spaces at all times of the year during key times in the day when the spaces are likely to me most utilised such as lunchtime hours.

The cumulative impact of multiple developments on overshadowing should be prevented. Controls should minimise the impact of protection on the strategic development potential of the Wollongong City Centre. As the Wollongong City Centre continues to grow, there is increasing pressure on height limits from new development.

In response to this, the intent and efficacy of the existing Sun Protection Controls to protected parks and places have been reviewed as part of by Architectus. The analysis has shown that existing solar controls aim to protect most public open spaces within the Wollongong City Centre. There are no sun access controls for Crown Street Mall and Arts Precinct (which are key public spaces) and key east west streets (Burelli Street, Crown Street, Market Street).

It is important to retain and strengthen the Sun Protection control framework in Wollongong LEP 2009 to ensure continued enjoyment of important parks and public places in Wollongong City Centre.

Proposed Amendments to Wollongong Local Environmental Plan 2009 (Sun Plane Protection)

It is proposed to amend Clause 8.3 to ensure that:



- Key public open space potentially overshadowed by buildings are protected by sun access planes during critical time periods;
- Sun access plane descriptions in Wollongong LEP 2009 are revised to ensure improved accuracy in determining planar surface heights and the extent of impact; and
- Sun access planes are constructed as a consolidated set of connected planes so that there are no gaps or
 overlaps between separate planes protecting the same space.

The aim of the proposed sun access planes is to define the boundary where built form will affect the overshadowing of a protected site, year round. Due to this, the sun angles used need to account not only for the winter solstice but also for an equinox, and the summer solstice. This ensures that sites are protected all year. This leads to 'tails' at the start and end of some sun access planes, where the sun angles are noticeably steeper.

The proposed changes are summarised below. Reference should be made to the Appendix 3 for a detailed rationale and the technical analysis that informs the amended controls.

Suggested Drafting

Sun Access Planes are to be refined in accordance with the technical data within Appendix 3 of this planning proposal. The diagrams relevant to each protected Park or Place are referenced in below. The descriptions in Wollongong LEP 2009 are to accurately reflect the technical detail and coordinates of the diagrams for each Sun Access Plane.

In summary, this requires that Clauses 8.3(4) to 8.3(11) and the Sun Plane Protection Map are revised to achieve the protection for parks and places as described below:

- MacCabe Park Intended period of protection 12noon 2pm, all year
- Civic Square Intended period of protection 11am-3pm, all year
- · Pioneer Park Intended period of protection 12noon 2pm, all year
- Market Square Intended period of protection 12noon 2pm, all year
- Crown Street Intended period of protection 12noon 2pm, all year
- Church Street Intended period of protection 11am 1pm, all year
- · Arts Lawn Intended period of protection 9am 3pm, all year

This new provision will not be subject to variation under Wollongong LEP 2009 Clause 4.6 - Exceptions to development standards. Accordingly it will be listed in Clause 4.6(8)(ca).

8.3 Sun plane protection

- (1) The objective of this clause is to protect specified public open space from excessive overshadowing by restricting the height of buildings.
- (2) This clause applies to land coloured yellow on the Sun Plane Protection Map.
- (3) Development on land to which this clause applies is prohibited if the development results in any part of a building projecting above a sun access control set out in this clause.



- (4) MacCabe Park The sun access control for any point on land shown coloured yellow on the Sun Plane Protection Map and marked "MacCabe Park—Burelli Street" is—
 - (a) 32 metres above the point, or
 - (b) if the point is within 26.4 metres of the boundary of Burelli Street—16 + (0.6061 × D) —metres above the point.

where D is the shortest distance in metres between the point and the boundary of Burelli Street.

- (a) Intended period of protection 12noon 2pm, all year
- (b) [to be drafted by the Parliamentary Counsel Office based on Appendix 3]
- (5) The sun access control for any point on land shown coloured yellow on the Sun Plane Protection

 Map and marked "MacCabe Park—Keira Street" is—
 - (a) 24 metres above the point, or
 - (b) if the point is within 4.4 metres of the boundary of Keira Street— $^{20+(0.9091 \times D)}$ —metres above the point,

where D is the shortest distance in metres between the point and the boundary of Keira Street.

- (5) Arts Lawn The sun access control for any point on land shown coloured yellow on the Sun Plane
 Protection Map and marked "Arts Lawn" is—
 - (a) Intended period of protection 9am 3pm, all year
 - (b) [to be drafted by the Parliamentary Counsel Office based on Appendix 3]
- (6) **Civic Square** The sun access control for any point on land shown coloured yellow on the Sun Plane Protection Map and marked "Civic Square" is—
 - (a) 32 metres above the point, or
 - (b) if the point is within 30.6 metres of the boundary of Crown Street—12 + (0.6535 × D) —metres above the point,

where D is the shortest distance in metres between the point and the boundary of Crown Street.

- (a) Intended period of protection 11am-3pm, all year
- (b) [to be drafted by the Parliamentary Counsel Office based on Appendix 3]
- (7) **Pioneer Park** The sun access control for any point on land shown coloured yellow on the Sun Plane Protection Map and marked "Pioneer Park" is—
 - (a) 24 metres above the point, or
 - (b) if the point is within 19 metres of the boundary of Pioneer Park— 16 + (0.6154 × (D – 6)) — metres above the point,



where D is the shortest distance in metres between the point and the boundary of Pioneer Park.

- (a) Intended period of protection 12noon 2pm, all year
- (b) [to be drafted by the Parliamentary Counsel Office based on Appendix 3]
- (8) Market Square The sun access control for any point on land shown coloured yellow on the Sun Plane Protection Map and marked "Market Square—North" is—
 - (a) 16 metres above the point, or
 - (b) if the point is within 10.6 metres of the northern boundary of Market Place— 12 + (0.6061 × (D -4)) _metres above the point;

where **D** is the shortest distance in metres between the point and the northern boundary of Market Place.

- (a) Intended period of protection 12noon 2pm, all year
- (b) [to be drafted by the Parliamentary Counsel Office based on Appendix 3]
- (9) The sun access control for any point on land shown coloured yellow on the Sun Plane Protection
 Map and marked "Market Square—West" is—
 - (a) 16 metres above the point, or
 - (b) if the point is within 9.4 metres of the western boundary of Market Place—
 12 + (0.7407 × (D 4)) __metres above the point,

where **D** is the shortest distance in metres between the point and the western boundary of Market Place.

- (9) Crown Street The sun access control for any point on land shown coloured yellow on the Sun Plane Protection Map and marked "Crown Street" is
 - (a) Intended period of protection 12noon 2pm, all year
 - (b) [to be drafted by the Parliamentary Counsel Office based on Appendix 3]
- (10) Church Street The sun access control for any point on land shown coloured yellow on the Sun Plane
 Protection Map and marked "Church Street" is
 - (a) Intended period of protection 11am 1pm, all year
 - (b) [to be drafted by the Parliamentary Counsel Office based on Appendix 3]
- (11) If a calculation for a sun access control for a point gives a figure of zero or less, the sun access control is taken to be at the same height as the point.
- (12) A reference in this clause to a **point on land** means a point at ground level (existing) on the land.
- (13) This clause does not apply to development if it is the refurbishment of a building.



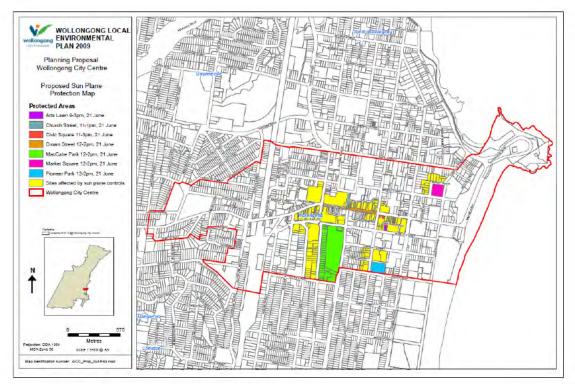


Figure 16 Proposed Sun Plane Protection Map

D MISCELLANEOUS "HOUSEKEEPING" AMENDMENTS

D1 Clause 4.6 Exceptions to Development Standards

Clause 4.6 enables some flexibility or variation to development standards in the assessment of development applications. For example a minor variation to the Height of Buildings or Floor Space Ratio controls. Subclause (8) lists provisions which cannot be varied under clause 4.6, including clauses 4.2A, 5.4, 6.1 and 8.3. Clause 8.3 is the Sun Plane Protection clause that applies to the Wollongong City Centre.

It is proposed to also include the following additional exclusions:

8.3 Sun plane protection

D2 Land Reservation Acquisition Map

The Land Reservation Acquisition Map identifies land intended to be acquired for a public purpose (Figure 17).

Clause 5.1 identifies the agency responsible for the acquisition.

Clause 5.1A limits development on land intended to be acquired for a public purpose, as identified on the Land Reservation Acquisition Map, specified in the table within Clause 5.1A, and that has not yet been acquired by Council.



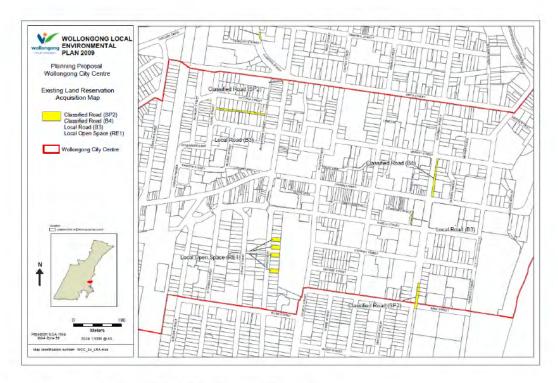


Figure 17 Existing Land Reservation Acquisition Map

The following properties have been acquired within the existing Wollongong City Centre in recent years, and are proposed to be removed from the Land Reservation Acquisition Map. Refer to the Map Book in Appendix 2.

Address	Lot DP	Acquired by
263 Keira Street, Wollongong (MacCabe Park)	Lot 2 DP 153132	Council
275 Keira Street, Wollongong (MacCabe Park)	Lot 1 DP 152048	Council
Widening of Town Hall Place adjacent to 51 Crown Street, Wollongong	Now Road reserve	Council
Widening of Corrimal Street adjacent to: 119 Corrimal Street, Wollongong 121-125 Corrimal Street, Wollongong 17 Market Street, Wollongong	Now Road reserve	Transport for NSW
Widening of Keira Street, Wollongong, adjacent to 100, 102-104, 106-108 Keira Street, Wollongong	Lots 4,5,6 DP 528468	Transport for NSW

Suggested Drafting

The Land Reservation Acquisition Map be amended by removing the land listed in the above table.



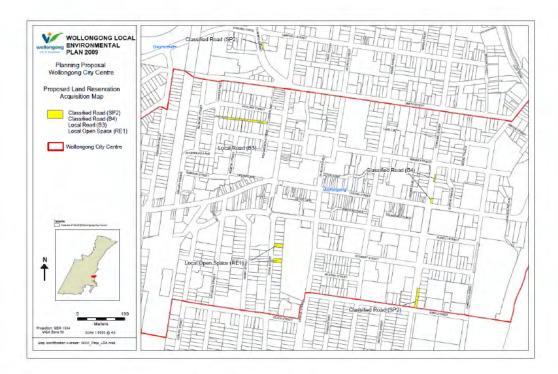


Figure 18 Proposed Land Reservation Acquisition Map

D3 Height of Buildings Map - RE1 Public Recreation and RE2 Private Recreation Zones

The Height of Buildings Map for the current City Centre area, does not contain any height limits for structures within the RE1 Public Recreation and RE2 Private Recreation zones. This is a consequence of the translation of the Wollongong City Centre LEP 2007 Height of Buildings Map directly into the Wollongong LEP 2009.

Height of Building limits apply to the RE1 Public Recreation and RE2 Private Recreation zones within the rest of the Wollongong LGA, and are typically 9m.

A Height of Building limit of 9m has been proposed for the RE1 Public Recreation areas within the new City Centre boundary, which includes MacCabe Park, Rest / Pioneer park, Lang Park, Market Square, the Wollongong Foreshore, Flagstaff Hill.

Similarly, it is proposed to introduce a Height of Building limit of 9m for RE1 Public Recreation area located within the current City Centre boundary and the proposed City Centre boundary – to ensure all reserves are covered. This would apply to Osborne Park, Beaton Park, Wisemans Park, and the foreshore from Belmore Basin to North Wollongong.

The western part of the Wollongong Golf Course currently has a height limit of 8m. The eastern foreshore part which is Crown Land does not have a height limit. It is proposed to extend the 8m height limit over the Crown Land.

The proposed height limits are shown on the draft Height of Buildings Map.



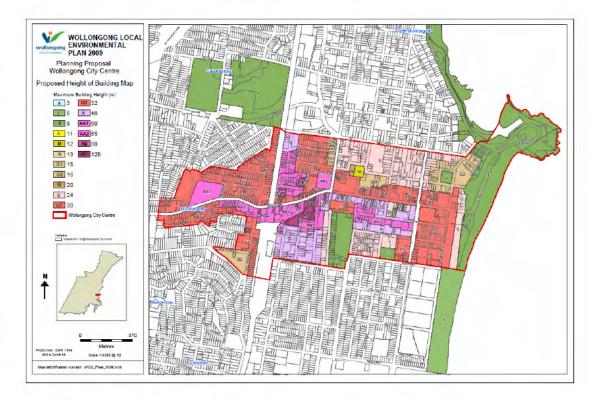


Figure 19 Proposed Height of Buildings controls – open space areas

D4 Natural Resource Sensitivity Map

The dunal vegetation on the City Beach foreshore is currently mapped on the Natural Resource Sensitivity Map (Figure 23) as containing the MU50 Beach Sands Spinifex and MU45 Coastal Sand Scrub, Endangered Ecological Communities. The mapping was prepared in 2002 through the Bioregional Assessment Study — Native Vegetation of the Illawarra Escarpment and Coastal Plain (DECCCW 2002). The mapping no longer reflects the extent of the vegetation community, for example it reflects the existence of the former Wollongong Surf Club (demolished in 2003) and extends on to Marine Drive in places.



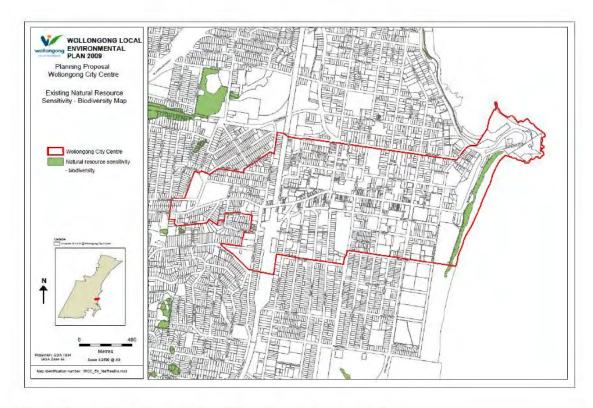


Figure 20 Natural Resource Sensitivity – Biodiversity map - existing







Figure 21 City Beach air photo comparison 2001 and 2018

As part of the preparation of the draft Planning Strategy vegetation survey has been conducted to better define the boundaries of the vegetation community. The proposed revised map is shown below. The coastal vegetation community is transient in nature, being washed away in coastal storms and then re-establishing. It has also been cleared and re-established.



Figure 22 2003 view of City Beach





Figure 23 City Beach vegetation communities

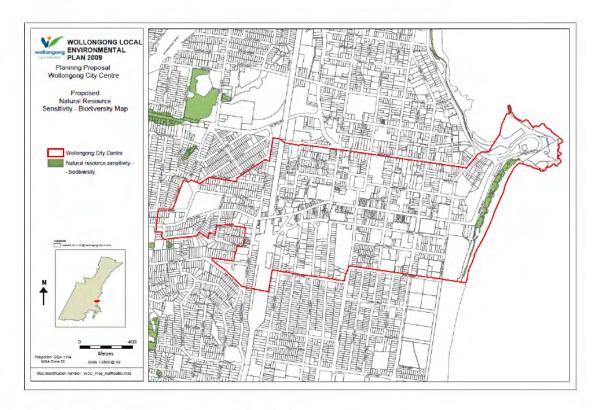


Figure 24 Proposed Natural Resource Sensitivity Map

D5 Clause 1.8 Repeal of Wollongong LEP 1990

Clause 1.8 Repeal of planning instruments applying to land of the Wollongong LEP 2009 lists planning instruments that no longer apply.

A consequential housekeeping amendment is required to add Wollongong LEP 1990 to the list which no longer applies to any land in the LGA.

Suggested drafting

At the end of clause 1.8 Repeal of planning instruments applying to land, the following words be included:

(d) Wollongong Local Environmental Plan 1990

D6 Clause 1.8A Savings Provision

Clause 1.8A Savings provisions relating to development applications, of the Wollongong LEP 2009 enable development applications lodged prior to the commencement of an LEP amendment will continue to be assessed under the existing LEP controls. It is proposed to add the City Centre LEP amendment to this list, to enable a period of transition between the current and future controls.

Suggested drafting

Include the following wording in clause 1.8A (2) after "(Amendment 19)":



"or Wollongong Local Environmental Plan 2009 (Amendment XX)"

D7 Clause 1.9 Application of SEPPs

Clause 1.9 Application of SEPPs indicates the relationship of the SEPPs to the Wollongong LEP 2009. Subclause 1 indicates that SEPPs prevail over the LEP. Subclause (2) indicates that SEPP No. 1 Development Standards does not apply to land within the LGA. Subclause (2A) indicates that SEPP No.71 Coastal Protection does not apply to land within the current Wollongong City Centre boundary.

On 23 March 2018 SEPP No. 71 was repealed and replaced by SEPP Coastal Management 2018. The NSW Department of Planning, Industry and Environment spatial viewer indicates that the SEPP Coastal Management 2018 applies to the coastal part of the Wollongong City Centre, and the City Centre is no longer excluded. The SEPP applies to land east of the red line.

Although, subclause (1) indicated that SEPPs prevail over LEPs, to avoid confusion a housekeeping amendment should be made to subclause (2A) to remove the reference to SEPP No.71.

Suggested drafting

In clause 1.9 remove subclause (2A) SEPP No. 71 Coastal Protection.

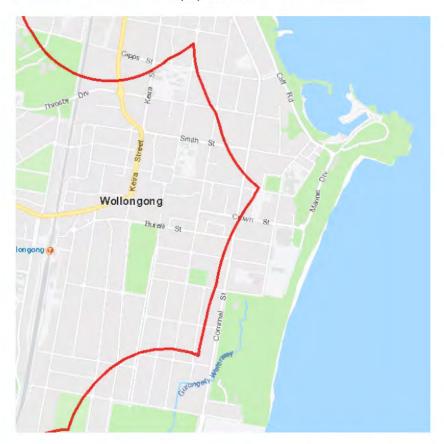


Figure 25 SEPP Coastal Management 2018 - Land Application Map



D8 Clause 25K Environmental Planning and Assessment Regulation 2000 – Development Contributions

Clause 25K of the Environmental Planning and Assessment Regulation 2000 lists locations where development contributions under Section 7.12 of the Environmental Planning and Assessment Act 1979, can exceed a 1% development contribution.

25K Section 7.12 levy—maximum percentage

- (1) The maximum percentage of the proposed cost of carrying out development that may be imposed by a levy under section 7.12 of the Act is—
 - (a) in the case of development other than development specified in paragraph (b)—
 - if the proposed cost of carrying out the development is up to and including \$100,000—nil, or
 - (ii) if the proposed cost of carrying out the development is more than \$100,000 and up to and including \$200,000—0.5 per cent of that cost, or
 - (iii) if the proposed cost of carrying out the development is more than \$200,000—1 per cent of that cost, or
 - (c) in the case of development on land specified in the Table to this paragraph—the percentage specified in Column 2 of the Table opposite the relevant proposed cost of carrying out the development listed in Column 1 of the Table.

Column 1	Column 2
Proposed cost of carrying out the deve	elopment Maximum percentage of the levy
Land within the Commercial Core zone Plan 2007	e under Wollongong City Centre Local Environmental
U- + 1: 6250 000	A ICI
Up to and including \$250,000	Nil

The table enables a development contribution of 2% for development with a capital values greater than \$250,000. The table within the clause still refers to the B3 Commercial Core zone as mapped under the Wollongong City Centre LEP 2007. This LEP was repealed in February 2010 with the commencement of the Wollongong LEP 2009.

The B3 Commercial Core zone applies to some 577 lots and an area of 63 hectares.

Wollongong City Centre is one of 7 centres listed in the table to the clause. The following table provides a comparison of the centres, their maximum percentage rates, the applicable zones and approximate area that the clause applies too.

Centre	Max Rate %	Zones	Applicable Area (approx)
Wollongong	2	B3	63 ha
Newcastle	3	B3, B4, R3	162 ha
Parramatta	3	B3, B4	153 ha
Liverpool	3	B3, B4, R4, IN2	214 ha
Chatswood	3	B3, B4, B5, R2, R3, R4	57.5 ha
Gosford	4	B3, B4, R1	200 ha
Burwood	4	B4	48.3 ha



The comparison indicates that the Wollongong rate is the lowest, and covers a smaller number of zones and area than many of the other centres.

As part of the draft Planning Strategy, it is proposed that:

- the rate be applied to both the B3 Commercial Core and B4 Mixed Use zones within the revised City
 Centre boundary. This would mean that an additional 273 properties (estimated 27 hectares) would
 be subject to the 2% development contribution levy.
- Apply a 1% discount to Commercial-only development (including retail premises, office premises, business premises, tourism accommodation, education establishments). If residential development is included the 2% rate will apply. This change will be introduced via a resolution of Council.

Suggested drafting

Amend the table to clause 25K to refer to both the B3 Commercial Core and B4 Mixed Use zones within the Wollongong City Centre.

Column 1	Column 2	
Proposed cost of carrying out the deve	elopment Maximum percentage of the levy	
Land within the Wollongong City Cent Wollongong City Centre Local Environ	re B3 Commercial Core <mark>and B4 Mixed Use</mark> zones under mental Plan 2007 2009	
Up to and including \$250,000	Nil	
More than \$250,000	2 per cent	



PART 3: JUSTIFICATION OF OBJECTIVES, OUTCOMES AND PROVISIONS AND PROCESSES FOR THEIR IMPLEMENTATION

Section A - Need for the planning proposal

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

The planning proposal is the outcome of the following strategic studies and reports:

A City for People: Wollongong Public Spaces Public Life (2016)

In 2014, Wollongong City Council committed to commence a review of the Revitalising Wollongong City Centre Strategy (2007) and its associated suite of planning controls. To inform the review of the Revitalisation Strategy, Council engaged Gehl Architects and McGregor Coxall to partner in the preparation of a Public Spaces and Public Life Study.

The resulting Study sets a City-wide vision for the future - a people-oriented, sustainable and liveable city.

The Study establishes 12 vision statements under four themes to support growth towards this vision:

- 1 Celebrate the uniqueness
- 2 Develop a human scale city
- 3 Grow a living city
- 4 Create an accessible, pedestrian friendly city

The City for People Study provides a strong direction for Wollongong, with a clear focus on people, experience of the public domain, and design quality. The need to undertake a planning and design review of the city and its controls to achieve the vision was identified.

Wollongong City Centre Urban Design Framework (2019)

An Urban Design analysis of the Wollongong City Centre has been prepared by Architectus for the as the next step in implementing A City for People. This planning proposal is the first stage of the implementation of the recommendations of the Urban Design Framework.

This study includes the following components and methodology:

1 Urban Design Analysis

An understanding of the physical attributes of the city was established. Opportunities and constraints were recorded as key findings.

2 Testing the existing controls

To understand the impact of the existing planning controls (LEP and DCP) on delivering the vision and capacity for the city, a 3D model of the City Centre was built. The model excluded sites which were identified as constrained and less likely to redevelop, including recently constructed (within 5 years), existing heritage items, existing residential subject to strata over 5 storeys, existing commercial over 10 storeys, special uses and recreational land, and isolated lots. Remaining lots were modelled under an amalgamated scenario to achieve minimum lot frontage and lot size dimensions



3 Precinct Analysis

The City was divided into 9 precincts. Detailed analysis, observation and research was used to establish the character of 8 of the precincts. Strengths and weaknesses in the current land use, built form and public domain were identified, and the capacity of the existing controls to support the character of each precinct were determined.

4 Key Findings

Following urban design testing and analysis, a series of key land use, built form and public domain key findings were identified.

5 Developing the Urban Design Framework and Recommendations

Based on the key findings for the city, land use, built form and public domain scenarios were tested to address the key findings.

6 Objectives

High-level objectives relating to land use, built form and public domain were prepared. These objectives were identified following the city-wide and precinct-wide analysis as a result of the key findings in each area.

7 Directions and Strategies

The Urban Design Framework includes directions to achieve the objectives. To achieve the directions, the framework outlines strategies.

8 Recommendations for Implementation

Key recommendations for implementation which include policies and legislation that needs to made or amended; supporting studies that need to be undertaken, the next steps for engagement and consultation. This includes recommendations for LEP and DCP controls.

9 Structure Plan

A structure plan incorporates the strategies for land use, built form and public domain and connections.

10 Precinct Master Plans

Desired future character statements were developed for each precinct. Proposed changes to controls were analysed at precinct scale for their capacity to support the desired future character and deliver high quality places for people within the city.

The relevant actions and directions, strategies and recommendations in the UDF and SGS' Economic Analysis that this planning proposal seeks to achieve are:

LAND USE

Objectives



A vibrant and growing Regional City: Planning controls promote land-use diversity to encourage a vibrant mix of offers throughout the City Centre, day and night. Jobs and population growth support Wollongong's role as a Regional City. Wollongong is an attractive place to live, work, visit and invest.

Directions & Strategies

Prioritise employment growth and establish a resilient commercial core

- 1.1 Define and strengthen the role of the B3 Commercial Core for employment
- 1.2 Investigate incentives for commercial development
- 1.3 Communicate a clear economic vision and jobs targets for the City Centre.

Plan for a variety of housing to support a vibrant city

- 3.1 Guide residential development in the City Centre in the right locations
- 3.2 Leverage opportunities for public benefit improvements through development
- 3.3 Encourage a diversity of housing in the city including Affordable Housing and Student Housing.

Define a thriving retail network that responds to character and supports a range of offers

- 2.1 Only require non-residential ground floors on key retail streets
- 2.2 Protect the character and role of key retail streets and precincts

BUILT FORM

Objectives:

An attractive and diverse city in a unique natural setting: Clear planning controls preserve the unique character of Wollongong's precincts. Renewal at all scales is encouraged and this creates an interesting built fabric. Built form variety creates a recognisable city skyline that celebrates the natural setting and responds to human scale.

Directions & Strategies:

Strengthen and simplify planning controls to promote built form diversity in response to people and place.

- 4.1 Develop ground setback controls that provide attractive interfaces and functional streetscapes.
- 4.2 Develop street wall controls that respond to character and human scale.
- 4.3 Develop controls that ensure slender tower forms, appropriate separation and consistent setbacks.
- 4.6 Develop controls for fine grain frontages to ensure human-scale development.

Grow a legible city that supports a distinctive and evolving character

5.1 Plan for diversity in form and renewal at all scales



- 5.2 Plan for building envelopes that preserve amenity and support the desired future character
- 5.3 Preserve views to the escarpment, ocean, natural and built heritage.

Elevate the importance of design quality in the City Centre

- 6.1 Strengthen the commitment to design excellence
- 6.2 Encourage innovation and design quality in the local design and development industry
- 6.3 Provide clarity and improve outcomes through a strong assessment process
- 6.4 Prepare design guidelines that communicate better design outcomes

PUBLIC DOMAIN

Objectives:

A green and walkable city: A significant increase to the City's tree canopy will contribute to a green, walkable and sustainable city. Attractive and revitalised public spaces support an active and healthy community and are a catalyst for growth in the city. The city grid is clear and permeable and facilitates walkability.

Protect sunlight to key public places

9.2 Protect solar access to key public spaces to maximize amenity

Wollongong City Centre Planning Review: Economic Analysis (2019)

SGS Economics and Planning undertook theoretical capacity testing, development feasibility testing, forecasting and testing of potential feasibility levers.

Under the existing planning controls there is significant capacity (1.3 million square metres) for development within the City Centre. However, limited feasibility of commercial development is a significant barrier for commercial growth. Based on SGS findings, demand for commercial floor space significantly exceeds feasible capacity.

Over the next 20 years, SGS has projected demand for an additional:

- 120,000 sqm of commercial floor space; and
- 195,000 sqm of residential floor space

Currently only 34,000sqm of commercial floor space in the City Centre is feasible. This is likely to result in an estimated shortfall of 86,000 sqm of commercial floor space by 2036 (based on forecast demand for 120,000 sqm floor space). The delivery of commercial floor space requires significant cross-subsidisation with residential development.

Conversely, the capacity for residential development significantly exceeds projected demand.

Using the residual land value model to test feasibility, SGS found that residential shop top housing is the most feasible development type in the City Centre business zones. This results in residential and mixed use development being the predominant development type in the City Centre, which has potential to constrain future commercial development.



SGS found that barriers to feasibility include increased construction cost associated with taller buildings, estimated land acquisition costs, high construction costs associated with basement car-parking, risk in the DA process, and the development contributions levy.

SGS has determined that if the dominant mixed use development scenario was to continue unheeded, there would be a net loss of 45,000 square metres of commercial floor space in the City Centre. This is under the assumption that existing commercial would be redeveloped to shop-top housing, in line with the dominant trend and permissibility of shop top housing under the B3 Commercial Core. This is a significant issue as commercial floor space is required to support the economic role of Wollongong.

SGS identified that retail demand is relatively low in the City Centre. The requirement for active ground floor uses across the City Centre has the potential to result in an oversupply of retail floorspace.

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

The Planning Proposal is the only means of achieving the objectives and intended outcomes.

Section B - Relationship to strategic planning framework

Q3 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)?

Illawarra Shaalhaven Regianal Plan 2015

The Illawarra-Shoalhaven Region Plan (the Region Plan), prepared by the Department of Planning and Environment (DP&E), provides a clear direction for planning and development over the next 20 years in the Wollongong City centre and surrounding region. This document identifies the Wollongong City Centre as part of a regional Metropolitan City (referred to as Metro Wollongong).

The Plan envisages Metro Wollongong as the economic and cultural core of the region and a nationally significant city. The importance of growing employment in Metro Wollongong, especially in health, education and knowledge intensive industries, and the delivery of housing in and around the City Centre are noted in the Plan as key drivers to increase the national significance of Wollongong.

The Wollongong City Centre largely falls in the Commercial Core identified by the Plan. The Commercial Core centres on Crown Street as the focus for retail, office, tourism and cultural activity. The Waterfront Precinct to the east is intended to be a focal point for tourism activity, anchored by the stadium, entertainment centre and heaches

A key action within the Region Plan is to create new and innovative opportunities for commercial development in the commercial core by making it more attractive for investment and business (Action 1.1.1). it states that the Department of Planning and Environments will work closely with Council to:

 Examine opportunities to change planning and development controls to create more flexibility, to attract commercial investment and business activity



 Improve the public domain through planning contributions and by investigating other potential funding opportunities.

This highlights a clear focus on attracting commercial investment and improving amenity.

The planning proposal is significant in implementing the goals of the Illawarra Shoalhaven Regional Plan, particularly Goal 1: A Prosperous Illawarra-Shoalhaven.

As such, this proposal is strongly aligned with Direction 1.1: Grow the national competitiveness of Metro Wollongong to provide jobs and housing.

The following actions have been identified in relation to the proposal (under the direction).

Action 1.1.1 Create new and innovative opportunities for commercial development in the commercial core by making it more attractive for investment and business

Action 1.1.3 Improve the productivity and liveability of Metro Wollongong by connecting and integrating the individual precinct

Action 1.1.6 Establish a governance framework to guide the ongoing delivery of the Plan's vision for Metro Wollongong

Q4 Is the planning proposal consistent with the local council's Community Strategic Plan or other local strategic plan?

Our Wollongong 2028 Community Strategic Plan

The proposal is consistent with the Community Strategic Plan's visions particularly that of *Goal 2 We have an innovative and sustainable economy*. As the proposal seeks to strengthen the important economic role of the City Centre, it is aligned with the majority of the objectives and strategies as listed below.

- · Objective 2.1 Local employment opportunities are increased with a strong local economy
 - 2.1.1 Support educational and employment opportunities that retain young people and local talent, attract new workers and provide opportunities for the unemployed
 - 2.1.2 Grow the national competitiveness of Metro Wollongong to drive economic growth, employment and diversification of the region's economy
 - 2.1.3 Cross-sector initiatives are coordinated and implemented to increase and attract business investment, supporting small businesses and encouraging jobs growth
- Objective 2.3 The profile of Wollongong as a regional city of the Illawarra is expanded and improved
 - 2.3.2 Continue to build Wollongong as a vibrant, modern city with a revitalised City Centre and an active evening economy

The following measures from the goal's community indicators are relevant to the proposal.

- Increase in the number of jobs within the City of Wollongong
- Increase proportion of resident workers of the City of Wollongong who are employed locally
- · Increase the proportion of people working within Wollongong's CBD
- Increase Wollongong City's Gross Regional Product by 1.5% each year till 2028
- Decrease unemployment rate to align with the Illawarra (SA4) average by 2028

Q5 Is the planning proposal consistent with applicable state environmental planning policies?



An assessment against all applicable State Environmental Planning Policies is provided in the table at Appendix 4 of this planning proposal.

Q6 Is the planning proposal consistent with applicable Ministerial Directions (s.9.1 directions)?

The Minister for Planning, under section 9.1 of the EP&A Act issues directions that relevant planning authorities must follow when preparing Planning Proposals for new Local Environmental Plans. The directions cover the following broad categories:

- employment and resources;
- · environment and heritage;
- housing, infrastructure and urban development;
- hazard and risk;
- · regional planning;
- · local planning making; and
- Metropolitan planning.

A complete assessment of the Planning Proposal's consistency against all s.9.1 Directions is provided at Appendix 4 of this planning proposal.

Section C - Environmental, social and economic impact

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

The Planning Proposal relates to an existing business precinct in a substantially built up area. As such, the Planning Proposal is unlikely to adversely affect critical habitat or threatened species, populations or ecological communities, or their habitats.

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

It is unlikely that the proposed amendments to Wollongong LEP 2009 will result in development creating any environmental effects that cannot be controlled. It is envisaged that proposed controls will in fact provide a positive contribution to the environmental conditions in Wollongong City Centre. In particular, proposed amendments to sun protection controls will ensure sunlight and the amenity of public places are given priority consideration in the assessment of development proposals.

The proposed revisions to sun access controls will serve to ensure good sunlight access to existing and proposed public parks and places in perpetuity. Other than making these places desirable places for recreational activities, this will ensure the healthy growth of trees, grass and other vegetation.

Q9 How has the planning proposal adequately addressed any social and economic effects?

The implementation of the proposed controls in the planning proposal will have a significant positive and direct impact on the economic growth within the Wollongong City Centre and the Illawarra Shoalhaven Region.



Supporting employment growth

Based on feasibility analysis undertaken by SGS, under the existing controls with no change, the most likely scenario for the City Centre over the next 20 years is a net loss of 45,000 sqm of commercial floor space. SGS also found that even in the most ideal circumstances for commercial development, growth of commercial floorspace in the City Centre will not be able to meet forecast increases in demand over the medium term.

Action is required to change the trajectory of the City Centre, to attract commercial investment and grow strategic employment as well as population-serving industries. Long term commercial growth opportunities are currently being compromised by the current controls.

Because residential is the most active property market in the Wollongong City Centre (where both residential and commercial development are allowed), this has the potential to constrain future commercial development if the majority of sites are developed as residential strata or if residential development 'prices' out commercial development.

Whilst there is enough feasible capacity under both the proposed and existing controls for commercial floorspace to meet demand, it requires heavy cross-subsidisation to from residential development to be feasible. Consequently, this would not facilitate the development of individual sites into A-Grade commercial floorspace. Owing to its increased profitability, the existing planning controls would likely result in the delivery of residential development to the detriment of commercial outcomes.

The significant increase in residential activity risks detracting from the character of the Wollongong City Centre as a business area, and by extension making it more difficult to attract commercial activity. These trends warrant a commercial core zone in which residential development is prohibited or restricted. Intervention is required to promote growth and highlights the need for potential incentives or levers to be considered that could address these feasibility constraints.

The planning proposal largely does this by this by protecting land for high-grade commercial land use and functions in appropriate locations in the City Centre and by capping the proportion of residential development in the retail core.

Proposed controls will manage competition between commercial and residential land uses. As such, new controls will ensure that there is adequate land to accommodate long term growth in employment and provide flexibility in a changing market. The proposed controls will also provide greater certainty to developers through the reduction of risks associated with commercial development in the City Centre.

A focussed city centre and commercial core

The permissibility and attractiveness of residential development also highlights the need for the role of the Wollongong City Centre to be clearly articulated, particularly its economic role and function. The City Centre continues to play a strong role as the administrative and civic centre for the Illawarra-Shoalhaven region. The planning proposal will do this redefining the boundary of the city centre so that its focus is business zones and related uses, and to will also better identify the retail core.

As the retail core is the heart of merchant activity in the city, providing a well-defined compact location close to services will benefit the economic market in the long term. Its strategic location will allow for the maximisation of commercial activity and provide an increase in both employment opportunities and wider



commercial options for the population, which encompasses both local residents and external visitors. This provides a strong foundation for economic growth and strengthens the economic importance of Wollongong.

Realistic FSR and height contrals

Although there is significant capacity for development within the City Centre based on the existing planning controls, feasibility analysis has highlighted that only a small proportion of this capacity is feasible based on the current market. Economic analysis undertaken by SGS found that planning controls in Wollongong LEP 2009 allow a built form which is much greater than the current market is delivering. Given that the maximum theoretical capacity is determined overwhelmingly by the FSR control, the maximum building height controls are in excess of this level by another significant margin. The planning proposal addresses this unintended economic effect by ensuring height and floor space controls are better aligned.

Section D - State and Commonwealth interests

Q10 Is there adequate public infrastructure for the planning proposal?

The full range of utility services including electricity, telecommunications, water and sewer are all currently available across the Wollongong City Centre. It is expected that these services will be upgraded where required as individual development occurs.

Q11 What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

The Gateway determination will advise the full list of public authorities that will need to be consulted with as part of the planning proposal process. It is requested that public authority consultation be undertaken concurrently with community consultation.

Public authority consultation will be as directed by the Gateway determination. It is proposed that the following authorities be consulted in relation to the Planning Proposal as part of public authority consultation:

As part of the preparation and exhibition of the Urban Design Frameworks and the preparation of the draft Planning Strategy, Council has consulted with:

- Transport for NSW
- NSW Health
- NSW Department of Planning, Industry and Environment Southern Regional office
- Venues NSW

These agencies and others will be further consulted during the exhibition process.



PART 4: MAPPING

The Map Book, shown at Appendix 2 includes maps for the purpose of public consultation. Where relevant, maps show existing controls and proposed controls.

PART 5: COMMUNITY CONSULTATION

Public consultation will take place in accordance with the Gateway determination made in accordance with Division 3.4 of the *Environmental Planning & Assessment Act 1979*.

A comprehensive package of documents including this planning proposal will be made available for the public exhibition and public agency consultation. This package includes supporting draft development control plan controls.

The statutory public exhibition and agency consultation requirements of public notices in the paper and the provision of documents on the Council website, with hard copies available at the Council offices and libraries.

Council will engage through a range of media to seek comment and feedback from stakeholders including landowners, industry groups and the community on the package of documents.

Distribution of material and raising the awareness of industry, the community as well as public agency stakeholders will be a proactive engagement by the City. Initial and early engagement with some key Stakeholders has commenced, and will be expanded as part of the engagement process.

It is requested that the Planning Proposal be publicly exhibited for a period of 60 days to coincide with the exhibition of an accompanying draft DCP.



PART 6: PROJECTED TIMELINE

Task	Completion Time
Anticipated commencement date (date of Gateway determination)	8 weeks from Council request seeking gateway Determination
Anticipated timeframe for the completion of required technical information	N/A
Timeframe for government agency consultation (pre and post exhibition as required by Gateway determination)	To be determined
Commencement and completion dates for public exhibition period	60 day period
Dates for public hearing (if required)	N/A
Timeframe for consideration of submissions	To be determined
Timeframe for the consideration of a proposal post exhibition	To be determined
Date of submission to the Department to finalise the LEP	To be determined
Anticipated date RPA will make the plan (if delegated)	To be determined
Anticipated date RPA will forward to the Department for notification	To be determined



APPENDICIES

Appendix 1 Wollongong Local Planning Panel advice

ADVICE AND STATEMENT OF REASONS

WOLLONGONG CITY COUNCIL - WOLLONGONG LOCAL PLANNING PANEL (WLPP)

ITEM PLANNING PROPOSAL - WOLLONGONG CITY CENTRE	
DATE OF DETERMINATION	14 June 2019
PANEL MEMBERS Sue Francis (Chair), Scott Lee, Stephen Layman	

Public meeting was not required.

MATTER CONSDIERED

The Panel considered a draft Planning Proposal for the Wollongong City Centre, prepared by Council officers. The Planning Proposal is proposed to amend the Wollongong Local Environmental Plan 2009 as it relates to the Wollongong City Centre.

The Planning Proposal aims to update planning controls to reflect the findings and recommendations of A City for People (2016) and the Wollongong City Centre Urban Design Framework (2019) and accompanying Economic Analysis (2019).

PUBLIC SUBMISSIONS

The project is not public at this stage.

The Panel was briefed by Council staff who provided background information in relation to the draft planning proposal.

PANEL CONSIDERATION AND DECISION

The Panel received a presentation by Council staff, and considered the Officer's report and accompanying Urban Design and Planning reports.

Attached is a summary of the comments from the Panel, for Council officer's consideration.

It is recommended that the following advice be provided to the Wollongong City Councillors as part of a Council report on the Planning Proposal:

The Wollongong Local Planning Panel has reviewed and supports the proposed Planning Proposal for the Wollongong City Centre. The Planning Proposal has strategic merit as it is supported by an Urban Design Framework, an Economic Study, a 3D model and thorough analysis, and implements Council's 2016 Vision far the City.

Sue Francis Chairperson



Summary of comments:

On 14 June 2019 the Wollongong Local Planning Panel received a presentation and reviewed the draft Wollongong City Centre Planning Proposal.

The following 'comments' are simply that, matters that should be considered by Council prior to resolving to adopt the plan and seek gateway.

Panel comments:

	PROPOSED AMENDMENT	COUNCIL RATIONALE	PANEL COMMENT
1	LAND USE CONTROLS		
	General Comments		How will the Council address the s.9.1 (s.117) directions? Need to provide justification/explanation why there are reductions in residential density in specific areas.
			Need to demonstrate that the new controls are not taking away anything when development is already not feasible. Show that any loss is balanced by changes elsewhere where yield is perhaps increased.
			Very important to articulate the objectives of provisions very clearly, particularly zone objectives and development standards objectives to provide clear guidance in the consideration of cl4.6 variations. Ensure that it is clear whether provisions are prohibitions
			or development standards.
	- •		Start strong dialogue with stakeholders who can be champions. Consultation with industry representatives.



	PROPOSED AMENDMENT	COUNCIL RATIONALE	PANEL COMMENT
			A clear basis for the new plan would be to improve the public domain to encourage and facilitate appropriate development outcomes
			A clear champion would be the Council to actually deliver physically or in a planned way public domain improvements; not just footpaths.
			"it's all about the public domain" Council needs to be a party to public domain. Delivering public domain corporately
			Aligning FSR, Heights and Zoning makes sense. These are the "three fundamentals".
			Articulating desired future character is very important.
			Gosford Council is experiencing similar issues to Wollongong and direct consultation with Gosford may provide some insights.
1.1	City Centre Boundary Amend the boundary of the Wollongong City Centre	City Centre focussed on business zones (B3 & B4). No longer includes majority of R1 Residential Zones north and south of the City, or Beaton	Locating the hospital appropriate within the city centre boundary, particularly as other private medical uses locate nearby.
		Park.	Foreshore is appropriate within the city centre boundary.
		Includes Wollongong Harbour – Due to character/ connection with foreshore. No planning control amendments proposed.	How is the boundary line drawn (roads or lot boundaries)? That is — is there a clear difference in character, within and beyond the City Centre.



	PROPOSED AMENDMENT	COUNCIL RATIONALE	PANEL COMMENT
		Includes Hospital – Due to employment and economic role aligned with the City Centre. No planning control amendments proposed.	
1.2	Zoning Amend the boundary of the B3 Commercial Core Zone	The boundary of the B3 Commercial Core is generally reduced to better define the retail and commercial core. Some B3 is proposed to be rezoned to B4 Focus boundary on CBD function of the City Centre, to include 3 pockets of commercial lands and retail lands focussed around Crown Street and Keira Street.	Needs very strong objectives that relate to B3 Zone, particularly where minimum 30% commercial uses are required e.g. "optimise commercial, minimise residential" Establish clear objectives to a development standard to achieve this outcome. Need to be able to demonstrate net change (loss or gain) of Commercial/ Residential capacity for the City Centre resulting from planning control changes. R1 Residential Zoning within the city centre The potential rezoning of the residential (R1) land should be resolved as part of this body of work, rather than being a consideration of the Housing Strategy. Consider removing R1 Residential Zoning in its entirety as this zoning does not work effectively and results in unexpected outcomes and conflicts between land uses. There are mixed perceptions about what R1 zoned land is



	PROPOSED AMENDMENT COUNCIL RATIONALE PANEL COMMENT		PANEL COMMENT
			for, as it permits dwelling houses adjacent to apartment buildings.
			May be appropriate to change zoning to R2, R3 or R4. Is there a difference in character? How does this inform housing outcomes?
			Zone transitions are very important. Need to think about transitions out of the city centre.
			"Work on your transitions". Not a mixture of apartments and houses.
			B4 Mixed Use
			If seeking ground floor residential then need to have good design criteria for ground floor – good setbacks, ground floor slightly above street.
			The appropriate zoning for the Arts Precinct Lawn on Burelli Street was also discussed during the precinct walk.
1.3	Commercial Core Zone Objectives	Proposed to remove high density residential development objective as	See 1.2 above
	Amend B3 Commercial Core Zone objectives	this is inconsistent with the intent of the Commercial Core.	The importance of having strong objectives was reinforced
1.4	Zoning Table Remove shop-top housing	Proposed to quarantine three areas in the city centre (two located along	Support removal of shop top housing as it is anomalous in town centres
	and other residential uses	Burelli Street and one located at Market Street west) for future	



	PROPOSED AMENDMENT	COUNCIL RATIONALE	PANEL COMMENT
	as being permissible in the B3 Commercial Core Zone	commercial. Residential is prohibited in these locations.	
1.5	Introduce a residential development cap in retail core.	Allow residential (up to 70% of the gross floor area) in defined areas within the revised B3 Commercial Core zone.	Introduce a development standard to achieve this with clear objectives
1.6	Active Street Frontage Revise Clause 7.13 (Certain land within business zones) so that it does not apply to City Centre and rely on Active Frontages Map.	Reduce the extent to which 'Active Frontages' applies – limited to revised Commercial Core area.	Ensure you define what is an active frontage
1.7	Identify where active street frontages are required in the commercial core	Active street frontages to be mapped. Defined generally within the Commercial Core zone.	
2	BUILT FORM CONTROLS		
2.1	Building Height Amend height of building controls.	Varied impact. Some uplift and some reduction in heights. Change in heights are to: _Reflect precinct character _Align with floor space ratio controls _Protect views _Guide an appropriate City Centre	



	PROPOSED AMENDMENT	COUNCIL RATIONALE	PANEL COMMENT
2.2	Floor Space Ratio (FSR) Amend FSR controls. Clause 4.4A (Floor space ratio – Wollongong city centre) removed.	There is a complex integration between site size, land use and street frontage to determine "actual" FSR permissible on a site. Change in FSR to: _Remove base FSR and apply a maximum FSR only — no "bonus" for site sizeSimplify floor space ratio controls by removing the "sliding scale" approach to provide certainty for developers/investors _Align with height controls _Respond to desired character _Protect sufficient theoretical capacity for future demand for commercial, residential and retail into the future.	Are you keeping FSR? Why? Is it the best mechanism? Need to think about how to deal with landowners who will experience a perceived reduction in FSR for their land (e.g. from 6:1 to 3.5:1). perhaps building envelopes are a better tool in this circumstance Need clear arguments to justify changes.
2.3	Minimum Site Width Amend minimum site width requirement.	Remove restriction of development with a frontage less than 20 metres. _Minimum site frontage reduced to 14m to allow for fine grain commercial/ retail development. _Allow residential flat buildings between 24m and 14m to unlock a large number of 'small sites' for	Minimum site width in LEP - is it restrictive or enabling?



	PROPOSED AMENDMENT	COUNCIL RATIONALE	PANEL COMMENT
		renewal. Some areas excluded as per Precinct map (south eastern corner). _Linked with street wall height control, and design excellence.	
2.4	Building Separation Amend Clause 8.6 to remove building separation controls	Current clause largely redundant due to duplication with ADG.	
2.5	Design Excellence Amend Clause 7.18 (Design excellence in	Amended thresholds for Design Excellence which will extend the type of applications being considered by	Should all DAs go to DRP? Otherwise it's an ordinary assessment.
	Wollongong city centre and at key sites) to	DRP	To apply to new buildings + substantial alterations.
	improve design quality outcomes and processes	 including small / narrow sites, sites above street wall. 	Competitive design process
	in the Wollongong City Centre.	Require the preparation of a site- specific development control plans.	Is there a need for a 10 % bonus?
		Applies to development on sites with a site-area of 2,500 square metres or more.	Competitive design process needs to be worthwhile for proponents. Can cost \$500k
		_Reintroduce competitive design provisions	How do you balance 10% and expectations for a site.
		Compulsory for development with an area of 5,000 square metres or more. _All sites able to access 10% bonus if	Could consider alternatives to 10% bonus. E.g. Deliver public Domain rather than contributions?
		progress through Design Competition Process.	Design brief is important.
			Need to set up a clear process. Discuss with Sydney and Parramatta Councils



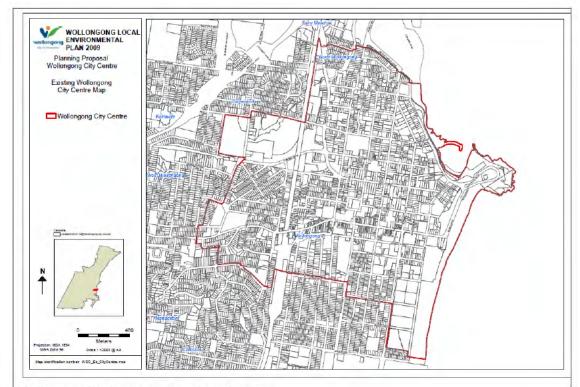
	PROPOSED AMENDMENT	COUNCIL RATIONALE	PANEL COMMENT
3	PUBLIC DOMAIN CONTROLS		
3.1	Sun Plane Protection amended to extended to 2 additional sites	Retaining existing nominated public spaces and adding: _Crown Street Mall – Impact setback and height of buildings along northern side of street. _Arts Precinct Lawn – Impact height of surrounding buildings	Proposed control will not be subject to variation under clause 4.6. Possible exceptions. If there is a need for flexibility then need to be explicit about it. E.g. minutes of overshadowing accumulative solar impact, what is overshadowed. A prohibition may be overly restrictive so consider building in exemptions
4	MISCELLENEOUS		
4.1	Clause 4.6 (exceptions to development standards)	Some new controls not subject to variation	
4.2	Clause 5.1A (development on land intended to be acquired for a public purpose) Council properties identified for acquired. Council properties identified for acquired for acquired for acquired for acquired included? Seek some le that it may limit FSR on sites whe street (near station) identified. Council properties identified for to be acquired for a public purpose acquired included? Seek some le that it may limit FSR on sites whe with no compensation. So either land for the highest and best value.		Question about FSR calculation for sites that are proposed to be acquired for a public purpose, is land proposed to be acquired included? Seek some legal advice. Reason being that it may limit FSR on sites where land is to be acquired with no compensation. So either the council acquires the land for the highest and best value OR it allows the land to deliver greater FSR over the larger site.
4.3	Savings and transitional	Protect DAs lodged prior to when new LEP is in effect	
4.4	Heritage	No changes proposed in PP	How to ensure conservation community benefit Integrating heritage into the built form e.g. 86 Walker Street, North Sydney discussed as good example.
4.5	DCP issues	No changes proposed in PP	Opportunity to review car parking controls.



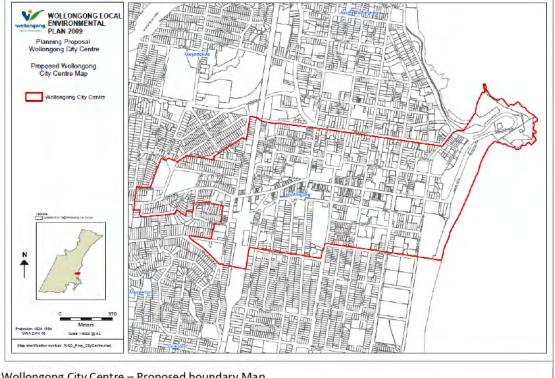
PROPOSED AMENDMENT	COUNCIL RATIONALE	PANEL COMMENT
Car Parking		Less podiums + bulky street wall Car parking as City grows. Can you reduce carparks? Parking stations → commuter carparks, keep off site



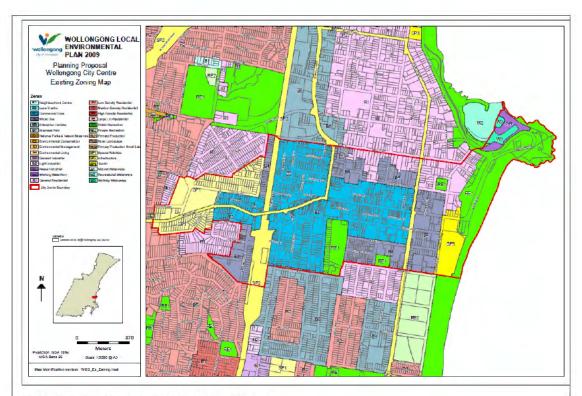
Appendix 2 LEP Maps: Existing and Proposed



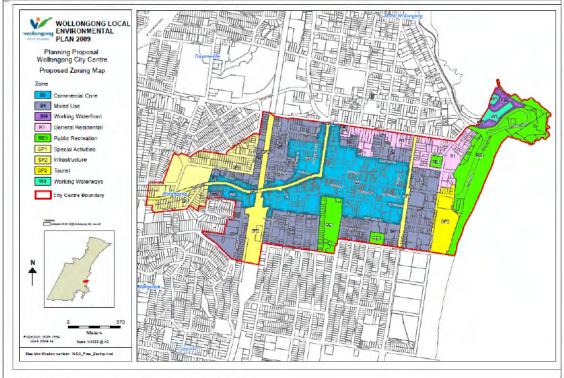
Wollongong City Centre – Existing boundary Map





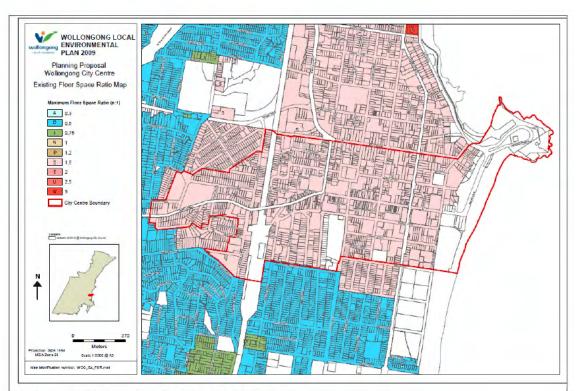


Wollongong City Centre – Existing Zoning Map

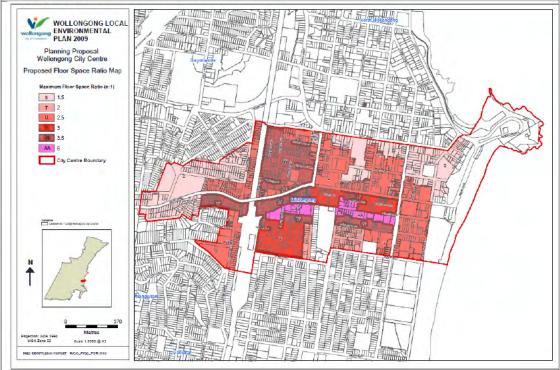


Wollongong City Centre – Proposed Zoning Map



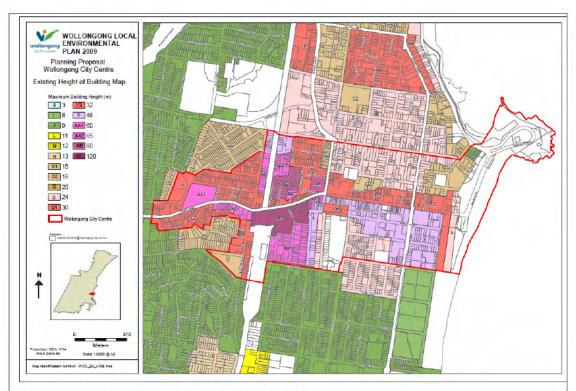


Wollongong City Centre – Existing Floor Space Ratio Map

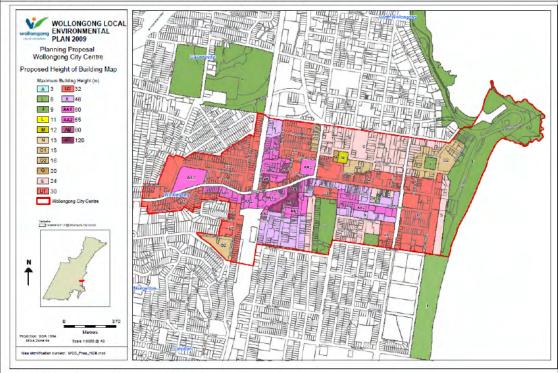


Wollongong City Centre - Proposed Floor Space Ratio Map



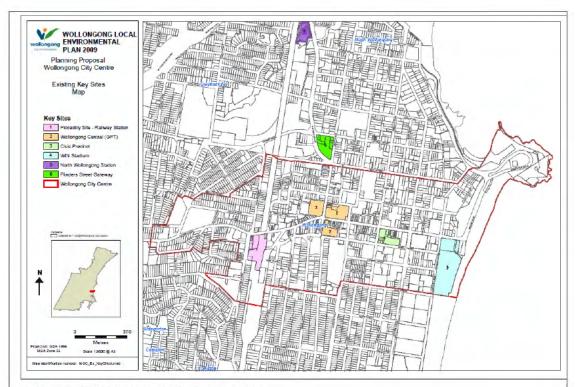


Wollongong City Centre - Existing Height of Buildings Map

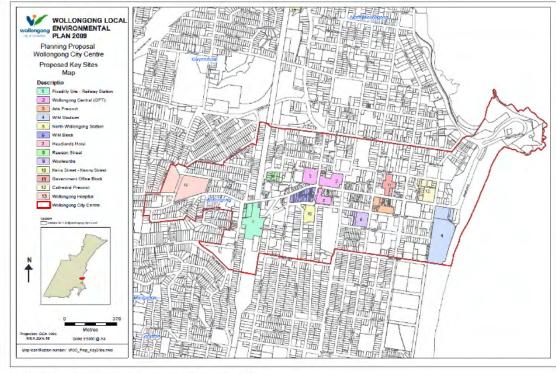


Wollongong City Centre – Proposed Height of Buildings Map



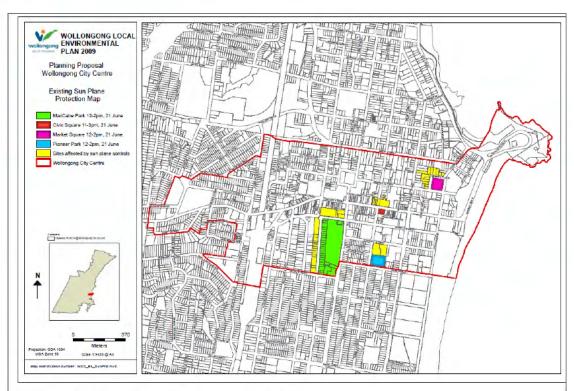


Wollongong City Centre – Existing Key sites Map

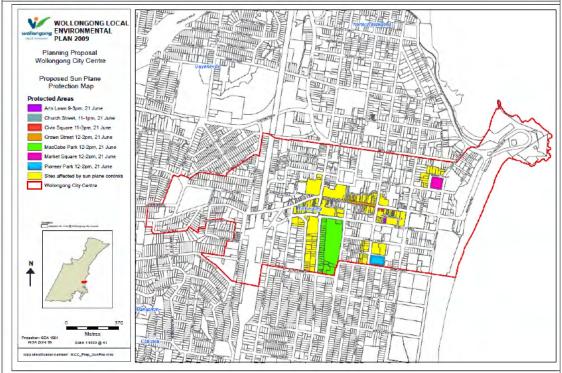


Wollongong City Centre – Proposed key sites Map



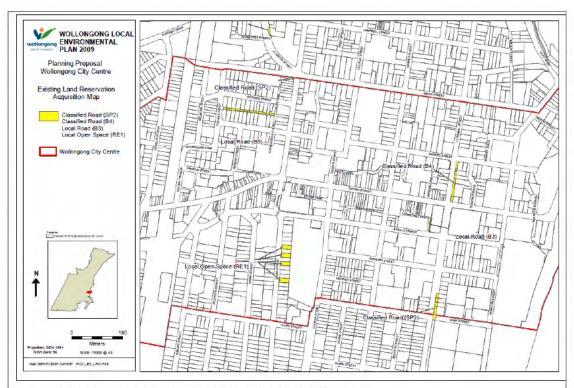


Wollongong City Centre - Existing Sun Plane Protection Map

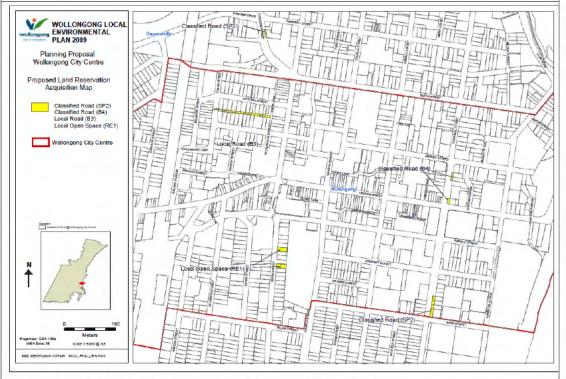


Wollongong City Centre - Proposed Sun Plane Protection Map



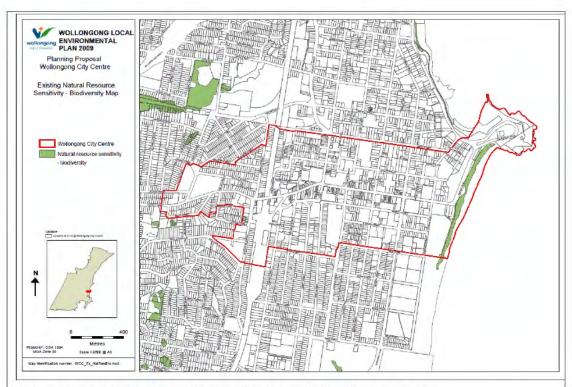


Wollongong City Centre – Existing Land Reservation Acquisition Map

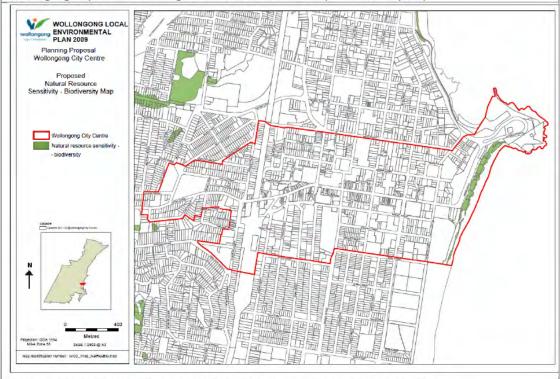


Wollongong City Centre - Proposed Land Reservation Acquisition Map



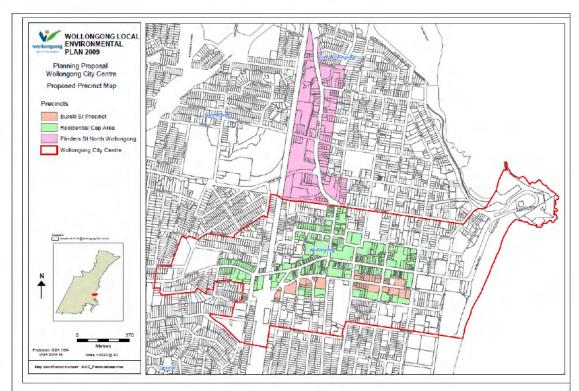


Wollongong City Centre – Existing Natural Resource Sensitivity – Biodiversity Map

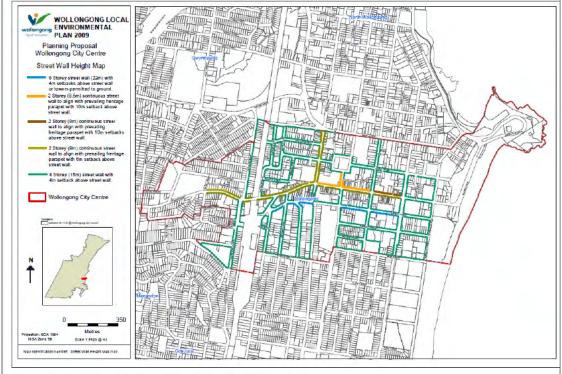


Wollongong City Centre – Proposed Natural Resource Sensitivity – Biodiversity Map



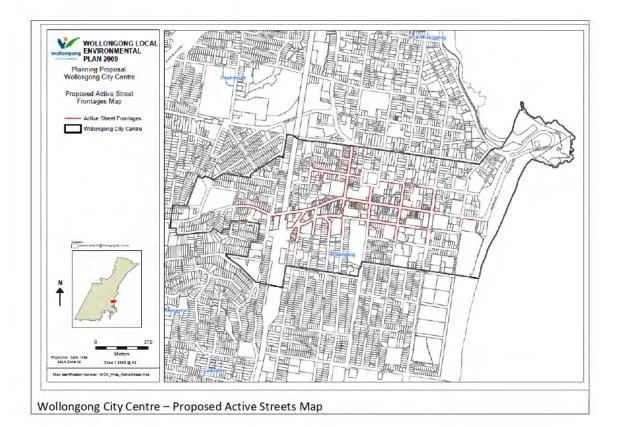


Wollongong City Centre - Proposed Precincts Map



Wollongong City Centre – Proposed Street Wall Height Map







Appendix 3 Solar Plane Analysis

Wollongong Sun Access Planes - Data Summary

architectus

REV B. ISSUED 14/01/202

GLOBAL VARIABLES

Coordinates for all calculations (latitude, longitude) Node Coordinates and Elevations

-34.4229238, 150.8967447

Coordinates and Elevations As per surveyed nodes provided by council

DESCRIPTION

The aim of the sun access planes is to define the boundary where built form will affect the overshadowing of a protected site, year round. Due to this, the sun angles used need to account not only for the winter solstice but also for an equinox (in this instance Spring, 23rd of September) and the summer solstice (21st of December) in order to ensure that sites are protected all year. This leads to 'tails' at the start and end of some sun access planes, where the sun angles are noticably steeper. Where this is applicable, it has been noted.

HOW TO INTERPRET THE DATA

PLANE ID NUMBER

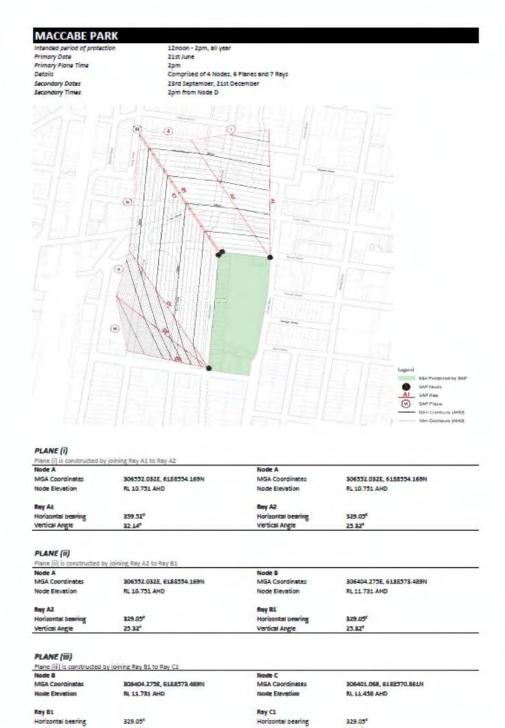
Description on how to construct the plane and which rays to use First Node ID Second Node ID (in some instances it will be the same as the first) 306331.6E, 6188333.8N MGA Coordinates MGA Coordinates 306331.6E, 6188333.EN Node Elevation RL12 6 AHD Node Elevation RL12.6 AHD First Ray ID Second Ray ID Horizontal bearing Horizontal bearing 359.52 329.00 Vertical Angle Vertical Angle 32.14 25.32

Sun Angles

The following sun angles were used to generate the following sun access planes.

		Azimuth (degrees)	Altitude (degrees)
	9am	42.69	18.33
	10am	30.14	25.70
Ē	11am	15.52	30.51
ā	12 noon	359.52	32.14
21st June	ipm	343.56	30.31
~	2pm	329.05	25.32
	3pm	316.63	17.83
7	9am	58.19	37.76
23rd Septemb	10am	42.41	47.32
5	11am	21.02	53.90
ă.	12 noon	355.03	33.67
ŭ,	1pm	330.26	31.93
E .	2pm	311.05	44.07
23	3pm	296.92	33.80
h	9am	85.71	30.60
đị.	10am	73.85	62.77
5	11am	50.84	73.82
ĕ	12 noon	353.43	78.95
9	ipm	303.27	71.99
215	2pm	283.52	60.59
7	3pm	272.58	48.35





329.05°

25.320

Vertical Angle

Wollongong Sun Access Planes | Architectus

Horizontal bearing

Vertical Angle

329.05

25.32

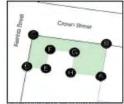


PLANE (iv)

Node C	by joining Ray C1 to Ray D1	Node D	
MGA Coordinates	306401.06E.6188570.861N	MGA Coordinates	306371.857E, 6188191.497N
Node Elevation	RL 11.458 AHD	Node Elevation	RL 7.637 AHD
Ray C1		Ray D1	
Horizontal bearing	329.05°	Horizontal bearing	329.05°
Vertical Angle	25.32	Vertical Angle	25.32
Dr and ful			
Plane (v) is constructed to	oy joining Ray D1 to Ray D2		
Node D	177	Node D	To offer the second
MGA Coordinates	306371.857E, 6188191.497N	MGA Coordinates	306371.857E, 6188191.497N
Node Elevation	RL 7.637 AHD	Node Elevation	RL 7.637 AHD
Ray D1		Ray D2	
Horizontal bearing	329.05°	Horizontal bearing	311.05°
Vertical Angle	25.32°	Vertical Angle	44.07°
Plane (vi) is constructed in	by joining Ray D2 to Ray D3		
Node D		Node D	Para Peter Peters For
MGA Coordinates	306371.857E, 6188191.497N	MGA Coordinates	306371.857E, 6188191.497N
Node Elevation	RL 7.637 AHD	Node Elevation	RL 7.637 AHD
Ray D2		Ray D3	
Horizontal bearing	311.05°	Horizontal bearing	283.52°
Vertical Angle	44.07°	Vertical Angle	60.59°







CIVIC SQUARE

Site Protected by the SAP

The protected site is formed by connecting nodes A to H, as per the following coordinates

	MGA Coordinates	Devation
Node A	306836.158E, 6188615.61N	RL 7.802 AHD
Node 8	306840.734E, 6188636.611N	RL 8.871 AHD
Node C	306797.981E, 6188643.098N	RL 10.25 AHD
Node D	306794.776E, 6158622.25N	RL 9.64 AHD
Node E	306805.365E, 6188620.559N	RL 9.708 AHD
Node F	306807.361E, 6188633.895N	FL 9.831 AHD
Node G	306821 913E, 6188631 633N	RL 9.573 AHD
Node H	306819.907E 618861E 229N	RL 9.595 AHD

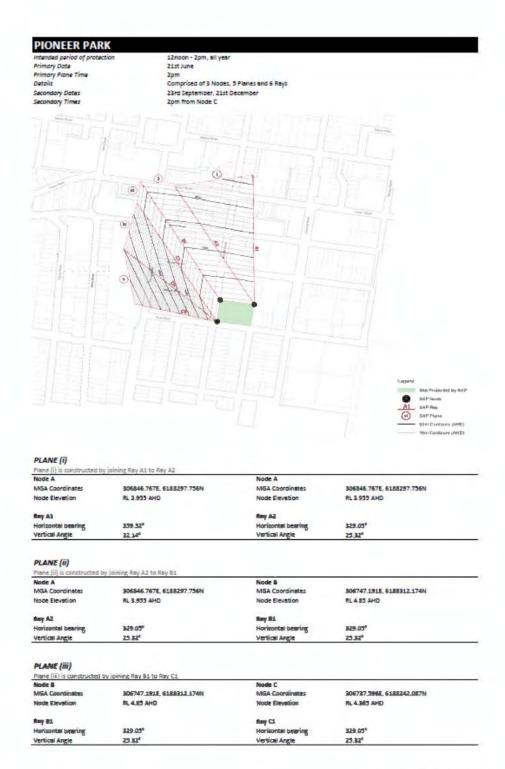
-		-	177
PL.	A.	ĸe.	m

Horizontal bearing Vertical Angle	50.84° 73.82°	Horizontal bearing Vertical Angle	21.02° 53.9°
Ray A1		Ray AZ	
Node Elevation	RL9.6 AHD	Node Clexitism	RLS.E AHD
MGA Coordinates	NOSR25 25, 6188600 3N	MGA Coordinates	306835.25, 6188600.3N
Node A		Node A	



Plane [ii] is constructed b			
	y joining Ray A2 to Ray A3		
Node A		Node A	
MGA Coordinates	306835.2E, 6188600.3N	MGA Coordinates	306835.2E, 6188600.3N
Node Elevation	RL9.6 AHD	Node Elevation	RL9.6 AMD
Ray A2		May A3	
Horizontal bearing	21.02°	Horizontal bearing	15.52°
Vertical Angle	53.9"	Vertical Angle	30.51*
PLANE (iii)			
Plane (iii) is constructed to	y joining Ray A3 to Ray B1		
Node A		Node B	
MGA Coordinates	306835.2E, 6188600.3N	MGA Coordinates	306840.7E, 6188636.6N
Node Elevation	RL9.6 AND	Node Elevation	RL10.8 AHD
Ray A2		flay 81	
Horizontal bearing	15.524	Horizontal bearing	15.52"
Vertical Angle	30.51°	Vertical Angle	30.51*
PLANE (iv) Plane (iv) is constructed to	ry joining Ray \$1 to Ray \$2		
Node 8		Node B	
MGA Coordinates	306840.7E, 6188636.6N	MGA Coordinates	306840.7E, 6188636.6N
Node Elevation	ML10.8 AHD	Node Elevation	RL10.8 AHD
flay 61		Stary B2	
Horizontal bearing	15.32	Horizontal bearing	316.63°
Vertical Angle	30.51*	Vertical Angle	17.83*
PLANE (v)			
Plane [v] is constructed b	y joining Ray B2 to Ray C1	Node C	
MGA Coordinates	306840.7%, 6138636.6N	MGA Coordinates	306798.0E, 6189643.1N
Node Elevation	RLIDE AHD	Node Elevation	306701.0E, 6120643.1N RL12.1 AHD
	PLANE APIN	PROPER ALPENDADO	REAL APPLY
		Rev CL	
Rey 62 Horizontal bearing	316.68*	Rey CL Horizontal bearing	316.60°

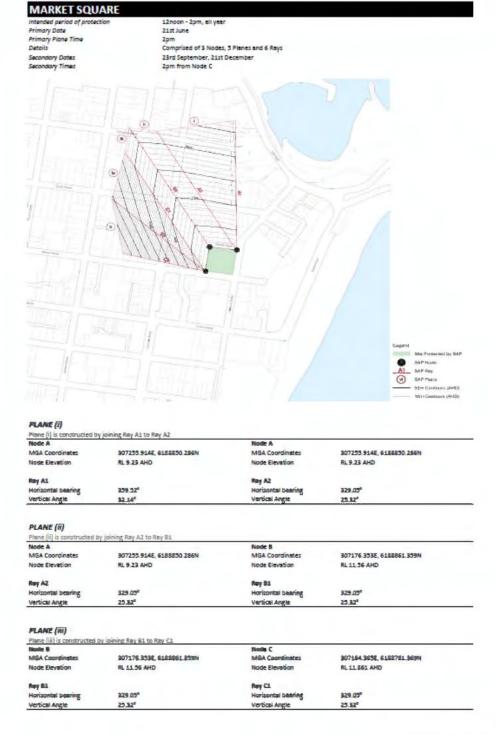






PLANE (iv)			
	by joining Ray C1 to Ray C2		
Node C		Node C	
MGA Coordinates	306737.596E, 6188242.087N	MGA Coordinates	306737.596E, 6188242.087N
Node Elevation	RL 4.365 AHD	Node Elevation	RL 4.365 AHD
Ray C1		Ray C2	
Horizontal bearing	329.05°	Horizontal bearing	311.05°
Vertical Angle	25.320	Vertical Angle	44.07°
PLANE (v)			
Node C	oy joining Ray C2 to Ray C3	Node C	
MGA Coordinates	306737.596E, 6188242.087N	MGA Coordinates	306737.596E, 6188242.087N
Node Elevation	RL 4.365 AHD	Node Elevation	RL 4.365 AHD
Ray C2		Ray C3	
Horizontal bearing	311.05°	Horizontal bearing	283.52°
Vertical Aprile	44 070	Vertical Anele	60.39*



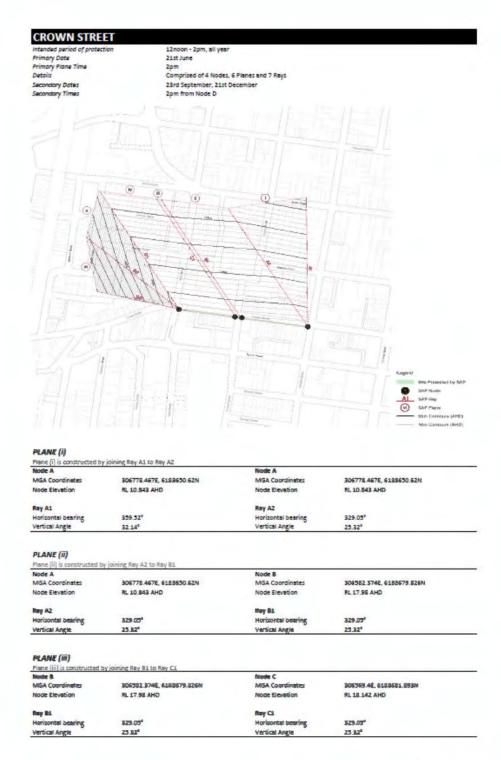




PLANE (iv)

Node C		Node C	
MGA Coordinates	307164 365E, 6188781 369N	MGA Coordinates	307164.365E, 6188781.369N
Node Elevation	RL 11.861 AHD	Node Elevation	RL 11.861 AHD
Ray C1		Rey CZ	
Horizontal bearing	329.05°	Horizontal bearing	311.05°
Vertical Angle	25.32"	Vertical Angle	44.07°
PLANE (v)	v joining Ray C2 to Ray C3		
Plane (v) is constructed b	y joining Ray C2 to Ray C3	Node C	
	y joining Ray C2 to Ray C3 307164 365E, 6188781 369N	Node C MGA Coordinates	307164.365E, 6188781.369N
Plane (v) is constructed b Node C MGA Coordinates	The second second second		307164.365E, 6188781.369N RL 11.861 AHD
Plane [v] is constructed b	307164.365E, 6188781.369N	MGA Coordinates	
Plane [v] is constructed b Node C MGA Coordinates Node Elevation	307164.365E, 6188781.369N	MGA Coordinates Node Elevation	



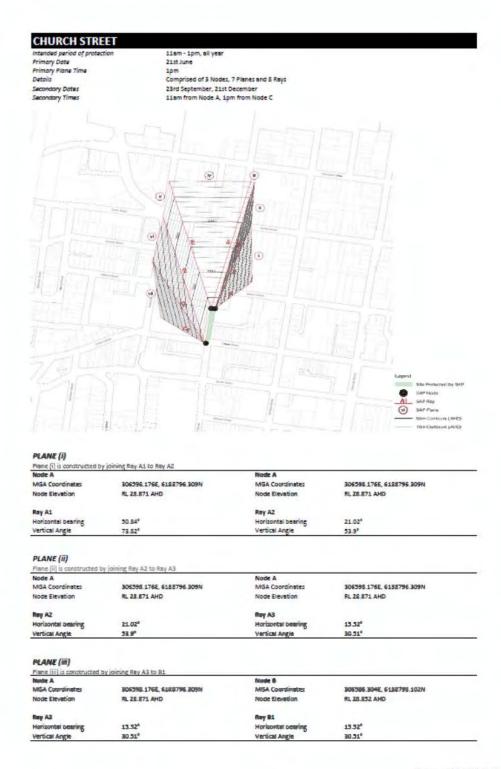




PLANE (iv)

Plane liv) is constructed	by joining Ray C1 to Ray D1		
Node C	of lound ust or to they be	Node D	
MGA Coordinates	306569.4E, 6188681.893N	MGA Coordinates	306402.763E, 6188707.176N
Node Elevation	RL 18.142 AHD	Node Elevation	RL 18.77 AHD
Ray C1		Rey D1	
Horizontal bearing	329.05°	Horizontal bearing	329.05°
Vertical Angle	25.32°	Vertical Angle	25.32°
2022			
PLANE (v)			
	by joining Ray D1 to Ray D2		
Node D	distributed in the second	Node D	
MGA Coordinates	306402.763E, 6188707.176N	MGA Coordinates	306402.763E, 6188707.176N
Node Elevation	RL 18.77 AHD	Node Elevation	RL 18.77 AHD
Ray D1		Ray D2	
Horizontal bearing	329.05°	Horizontal bearing	311.05°
Vertical Angle	25.32°	Vertical Angle	44.07°
PLANE (vi)			
	by joining Ray D2 to Ray D3		
Node D	100000000000000000000000000000000000000	Node D	
MGA Coordinates	306402.763E, 6188707.176N	MGA Coordinates	306402.763E, 6188707.176N
Node Elevation	RL 18.77 AHD	Node Elevation	RL 18.77 AHD
Ray D2		Ray D3	
Horizontal bearing	311.05°	Horizontal bearing	283.52°
Vertical Angle	44.07°	Vertical Angle	60.59°



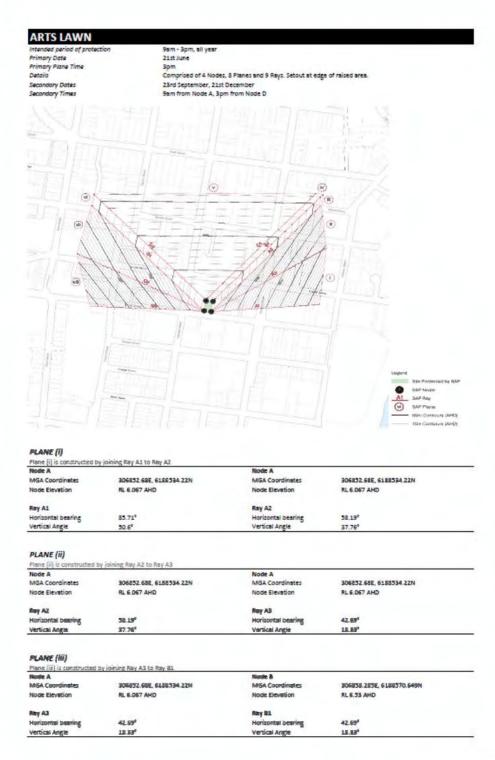




Plane (iv) is constructed	· · · · · · · · · · · · · · · · · · ·	Node E	
MGA Coordinates	306586 304E, 6188798 102N	MGA Coordinates	306586.304E. 6188798.102N
Node Elevation	RL 28.852 AHD	Node Elevation	RL 28.832 AHD
Ray III		Any 82	
Horizontal bearing	13.32"	Horizontal bearing	343.56
Vertical Angle	30.51*	Vertical Angle	30.31
PLANE (v)			
Plane (v) is constructed to	py joining Ray BZ to C1		
Node B		Node C	
MGA Coordinates	306586 304E, 6188798 102N	MGA Coordinates	306568.325E, 6188682.064N
Node Elevation	RL 28.852 AHD	Node Elevation	RL 18.145 AHD
Pary 02		Rey CL	
	343.56*	Horizontal bearing	343.561
Horizontal bearing	246.26	HOUSENS DESIGNATION	
Vertical Angle PLANE (vi)	20.21*	Vertical Angle	30.31*
Vertical Angle PLANE (vi) Plane (vi) is constructed i	20.21*	Vertical Angle	
PLANE (vi) Plane (vi) is constructed in Note C	20.81° by joining Ray C1 to C2	Vertical Angle	30.31*
Vertical Angle PLANE (vi) Plane (vi) is constructed I Node C MSA Coordinates	20.81° Dy joining Ray C1 to C2 306368.323K. 6189682.064N	Vertical Angle Node C MGA Coordinates	30.31° 306368.325E, 6188682.064N
Vertical Angle PLANE (vi) Plane (vi) is constructed I Node C MSA Coordinates	20.81° by joining Ray C1 to C2	Vertical Angle	30.31*
Vertical Angle PLAME (Vi) Plane (Vi) is constructed i Node C MSA Coordinates Node Elevation	20.81° Dy joining Ray C1 to C2 306368.323K. 6189682.064N	Vertical Angle Node C MGA Coordinates	30.31° 306368.325E, 6188682.064N
PLANE (vi) Plane (vi) is constructed in Note C	20.81° Dy joining Ray C1 to C2 306368.323K. 6189682.064N	Vertical Angle Node C MSA Coordinates Node Elevation	30.31° 306368.325E, 6188682.064N
PLANE (vi) Plane (vi) is constructed i Node C NGA Coordinates Node Elevation Rey C1 Horizontal bening	20.21° Dy joining Ray C1 to C2 306368.323K. 61.89682.064N RL 18.143 AHD	Vertical Angle Rode C MGA Coordinates Node Elevation Ray C	30.31° 306368.325E, 6188682.064N RL 18.145.AHD
PLANE (vi) Plane (vi) is constructed i Node C NGA Coordinates Node Elevation Rey C1 Horizontal bening	20.31° Dy joining Ray CL to CZ 306368.3278, 6189682.064N PL 1E.145 AHD 348.36°	Vertical Angle Node C MASA Coordinates Node Elevation Ray CJ Horizontal bearing	30.31° 306368.3258.6188682.064N RL 18.145 AHD 330.26°
PLANE (vi) Plane (vi) Plane (vi) Plane (vi) is constructed: Node C Node C Node C Node C Node Elevation Rey C Horizontal bearing Varical Angle	20.31° Dy joining Ray CL to CZ 306368.3278, 6189682.064N PL 1E.145 AHD 348.36°	Vertical Angle Node C MASA Coordinates Node Elevation Ray CJ Horizontal bearing	30.31° 306368.3258.6188682.064N RL 18.145 AHD 330.26°
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PLANE (vi) Plane (vi) is constructed: Node C Node C Node C Node C Node C Node C Node Elevation Ruy C Node Elevation Ruy C Node Elevation Ruy C Node C Node Elevation Ruy C Node C	20.31° by joining Ray C1 to C2 306368.3236, 6189682.064N RL 18.145 AHD 343.36° 30.31° by joining Ray C2 to C3	Vertical Angle Rode C MSA Coordinates Node Elevation Ray C2 Horizontal bearing Vertical Angle	30.31° 306368.325E, 6188682.064N RL 18 143 AHD 330.26° 21.83°
Vertical Angle PLANE (vi) Plane (vi) is constructed I Node C MASA Coordinates Node Elevation Ray CI Horizontal bearing Vertical Angle PLANE (vii) Plane (vii) s constructed I Node C Malia Coordinates	20.31° Dy joining Ray C1 to C2 306368.3236, 6189682.064N PL 18.145 AHD 343.36° 30.31° Dy joining Ray C2 to C3 306368.3236, 6189682.064N	Vertical Angle Node C MSA Coordinates Node Elevation Ray G Horizontal bearing Vertical Angle Node C MSA Coordinates	30.31° 306368.325E, 6188682.064N RL 18.145 AMD 330.26° 51.85°
Vertical Angle PLANE (VI) Plane (VI) is constructed! Node C MISA Coordinates Node Elevation Reg CI Horizontal bearing vertical Angle PLANE (VII) Plane (VI is constructed!) Node C	20.31° by joining Ray C1 to C2 306368.3236, 6189682.064N RL 18.145 AHD 343.36° 30.31° by joining Ray C2 to C3	Vertical Angle Rode C MSA Coordinates Node Elevation Ray C2 Horizontal bearing Vertical Angle	30.31° 306368.325E, 6188682.064N RL 18 143 AHD 330.26° 21.83°
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PLANE (vi) Plane (vi) is constructed Node C MGA Coordinates Node Elevation Ray CI Horizontal bearing vartical Angle PLANE (vii) Plane (vii is constructed) Node Elevation Node Elevation Node Elevation Node Elevation	20.31° Dy joining Ray C1 to C2 306368.3236, 6189682.064N PL 18.145 AHD 343.36° 30.31° Dy joining Ray C2 to C3 306368.3236, 6189682.064N	Node C Mode C Mode C Mode Condinates Node Elevation Rey C2 Horizontal bearing Vertical Angle Number C MISA Countinates Node Elevation	30.31° 306368.325E, 6188682.064N RL 18.145 AMD 330.26° 51.85°

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PLANE (iv)

Plane (iv) is constructed t Node 8	by joining Ray B1 to Ray C1	Node S	
MGA Coordinates	306838 283E 6188570 649N	MGA Coordinates	306838.283E, 6188370.649N
Node Elevation	RL 6.53 AHD	Node Elevation	RL 6.33 AND
TOOL EXTENSION	NE 6.33 AND	NOOE ENGINEERING	nc 4.32 prio
Ray 81		Ray 82	
Horizontal bearing	42.69*	Horizontal bearing	42.69*
Vertical Angle	18.33*	Vertical Angle	18.93*
PLANE (v)			
Plane (v) is constructed b	y joining Ray C1 to Ray C2		
Node B		Node C	
MGA Coordinates	306232.225E, 6182370.649N	MGA Coordinates	306837.263E, 6188573.909N
Node Elevation	RL 6.33 AHD	Node Elevation	RL 7.01 AHD
Rey 52		Bay CL	
Horizontal bearing	42.69°	Horizontal bearing	316.63*
Vertical Angle	UI-13"	Vertical Angle	17.83"
PLANE (vi)			
	by joining Ray C2 to Ray D1		
Node C		Node D	
MGA Coordinates	306537.263E, 6185373.909N	M&A Coordinates	306831.713E, 6188537.322N
Node Elevation	RL 7.01 AHD	Node Elevation	RL 6.467 AHD
Rany CS.		Ney D1	
Horizontal bearing	316.63 ⁶	Harizontal bearing	316.63°
Vertical Angle	17.83°	Vertical Angle	17.83°
PLANE (vii)	by joining Ray D1 to Ray D2		
Node D	of lover E was not to say no	Node D	
MGA Coordinates	306831.718E, 6188537.322N	M&A Coordinates	306831.713E. 6188537.322N
Node Elevation	RL 6.467 AHD	Nade Elevation	RL 6.467 AHD
Ray D1	aut end	Ray D2	ner and
Horizontel Dearing	316.63	Horizontal bearing	296.92
Vertical Angle	17.83°	Vertical Angle	33.8"
PLANE (viii)			
	by joining Ray D2 to Ray D3	W- 4- B	
Node D	******	Node D	
		MGA Coordinates	306831.713E, 6188537.322N
	306831.713E, 6188537.322N		
	RL 6.467 AHD	Node Elevation	RL 6.467 AHD
Node Elevation		Node Elevation	RL 5.467 AHD
MGA Coordinates Node Elevation Bay 02 Horizontal begring			RL 6.467 AHD

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Appendix 4 Compliance with SEPPs and Ministerial Directions

Table: Compliance with State Environmental Planning Policies

State Environmental Planning Policy	Applicable	Compliance	Comment
State Environmental Planning Policy (Aboriginal Land) 2019	No	N/A	
State Environmental Planning Policy (Affordable Rental Housing) 2009	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.
State Environmental Planning Policy (Coastal Management) 2018	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.
State Environmental Planning Policy (Concurrences) 2018	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.
State Environmental Planning Policy (Gosford City Centre) 2018	No	N/A	
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.
State Environmental Planning Policy (Infrastructure) 2007	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.
State Environmental Planning Policy (Kosciuszko National Park—Alpine Resorts) 2007	No	N/A	



State Environmental Planning Policy	Applicable	Compliance	Comment
State Environmental Planning Policy	No	N/A	
(Kurnell Peninsula) 1989			
State Environmental Planning Policy	No	N/A	
(Mining, Petroleum Production and			
Extractive Industries) 2007	No	NI/A	
State Environmental Planning Policy	No	N/A	
(Miscellaneous Consent Provisions) 2007			
State Environmental Planning Policy	No	N/A	
(Penrith Lakes Scheme) 1989	INO	N/A	
State Environmental Planning Policy	No	N/A	
(Primary Production and Rural	140	13/75	
Development) 2019			411
State Environmental Planning Policy	No	N/A	
(State and Regional Development)	110	14/1	
2011			
State Environmental Planning Policy	No	N/A	
(State Significant Precincts) 2005			
State Environmental Planning Policy	No	N/A	
(Sydney Drinking Water Catchment)		227	
2011			-4, 1
State Environmental Planning Policy	No	N/A	
(Sydney Region Growth Centres) 2006			
State Environmental Planning Policy	No	N/A	
(Three Ports) 2013			
State Environmental Planning Policy	No	N/A	
(Urban Renewal) 2010			
State Environmental Planning Policy	Yes	Consistent	The Planning Proposal
(Vegetation in Non-Rural Areas) 2017			does not contain
			provisions that will
			contradict or would
			hinder the application of
			the SEPP.
State Environmental Planning Policy	No	N/A	
(Western Sydney Employment Area)			
2009	ļ		
State Environmental Planning Policy	No	N/A	
(Western Sydney Parklands) 2009		21/4	
State Environmental Planning Policy	No	N/A	
No 1—Development Standards		21/4	
State Environmental Planning Policy	No	N/A	
No 19—Bushland in Urban Areas	No	N/A	-
State Environmental Planning Policy No 21—Caravan Parks	No	N/A	
State Environmental Planning Policy	No	N/A	
No 33—Hazardous and Offensive	No	N/A	
Development			
State Environmental Planning Policy	No	N/A	
No 36—Manufactured Home Estates	NO	N/A	-4,146
State Environmental Planning Policy	No	N/A	
No 44—Koala Habitat Protection		13/71	
State Environmental Planning Policy	No	N/A	
No 47—Moore Park Showground		13/73	
State Environmental Planning Policy	No	N/A	
No 50—Canal Estate Development	1.00		
State Environmental Planning Policy	Yes	Consistent	The Planning Proposal
No 55—Remediation of Land		Solisiotelle	does not contain
			provisions that will



State Environmental Planning Policy	Applicable	Compliance	Comment
			contradict or would hinder the application of the SEPP.
State Environmental Planning Policy No 64—Advertising and Signage	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.
State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.
State Environmental Planning Policy No 70—Affordable Housing (Revised Schemes)	Yes	Consistent	The Planning Proposal does not contain provisions that will contradict or would hinder the application of the SEPP.



Table: Ministerial Directions (Section 9.1 Directions)

	· · · · · · · · · · · · · · · · · · ·	
1. Employment and Resources	Yes Con	The planning proposal involves amendments that relate to zone B3 – Commercial Core and zone B4 – Mixed Use. As the planning proposal seeks to manage the impact of residential land uses on commercial uses and employment growth in these zones it complies with the objectives of this direction: (a) encourage employment growth in suitable locations, (b) protect employment land in business and industrial zone (c) support the viability of identified centres. It also complies with (4)(c) as it does not assume the reduction of floor space area for the purposes of employment; and (4)(e) as the proposed locations for the new B3 – Commercial Core zones are in accordance with a strategic study and report. The proposal has a minor inconsistency with (4)(b) as the boundary of the B3 Zone within the Wollongong City Centre is proposed to change. This is justified through a strategy and study prepared in support of the planning proposal; that is – the Wollongong City Centre Urban Design Framework and
		Review: Economics Report.
1.2 Rural Zones	N/A	
1.3 Mining, Petroleum Production and Extractive Industries	N/A	
1.4 Oyster Aquaculture	N/A	
1.4 Rural Lands	N/A	
2. Environment and Heritage		
2.1 Environment Protection Zones	N/A	
2.2 Coastal Management	Yes	The planning proposal relates to land that is within a coastal zone The Planning Proposal does not contain provisions that contradict or would hinder the application of this direction



Direction	Application	Consistency	Comment
2.3 Heritage Conservation	Yes	Consistency	it does not include any provisions that are inconsistent with provisions 4(a) to 4(d) of the direction; it will not enable increased development or more intensive land-use on land within a coastal vulnerability are, or on land identified on land affected by a current or future coastal hazard. It does not relate to a coastal wetlands or littoral rainforest area identified in SEPP (Coastal Management) 2018. It does not propose to amend maps in SEPP (Coastal Management) 2018. The objective this direction is to conserve items, areas, objects and places of environmental heritage significance and indigenous heritage significance. This Planning Proposal does not contain any provisions that specifically or directly facilitate heritage conservation as required by provision 2.3(4) of this direction, nor does it propose any heritage listings. Notwithstanding this, the
			environmental or indigenous heritage significance of Wollongong City Centre is conserved by existing or draft environmental planning instruments, legislation, or regulations that apply to Wollongong City Centre.
			The Planning Proposal does not contain provisions that contradict or would hinder application of this direction.
2.4 Recreation Vehicle Areas	N/A		
2.5 Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEPs	N/A		
	walanmant		
3. Housing, Infrastructure and Urban De			This direction and its because the
3.1 Residential Zones	Yes		This direction applies because the planning proposal will affect land within a zone in which significant



Direction	Application	Consistency	Comment
			residential development is permitted.
			The planning proposal seeks to restrict certain types of residential accommodation in parts of the B3 Commercial Core zone within the Wollongong City Centre.
			This direction requires that a Planning Proposal must include provisions that encourage the provision of housing that will:
			(a) broaden the choice of building types and locations available in the housing market, and
			(b) make more efficient use of existing infrastructure and services, and (c) reduce the consumption of land for housing and associated urban development on the urban fringe, and (d) be of good design.
			The direction also requires that Planning Proposals:
			(a) contain a requirement that residential development is not permitted until land is adequately serviced (or arrangements satisfactory to the council, or other appropriate authority, have been made to service it), and
			(b) not contain provisions which will reduce the permissible residential density of land.
			Generally, the Planning Proposal does not contain provisions that contradict or would hinder the application of this direction, noting its application largely to land zoned B3 Commercial Core and B4 Mixed Use. The objectives of these zones are largely focussed on the provision of commercial uses or supporting uses.
			Although the planning proposal seeks to limit residential uses in the B3 Commercial Core Zone,



Direction	Application	Consistency	Comment
			this is consistent with the direction in on the basis that it is justified by a study prepared in support of the planning proposal, and is in alignment with Directions and Actions in the Illawarra Shoalhaven Regional Plan 2015. This is discussed in detail in Section B of this planning proposal and the following studies:
			Wollongong City Centre Urban Design Framework; and
			Wollongong City Centre Planning Review: Economics Report.
3.2 Caravan Parks and Manufactured	N/A		
Home Estates 3.3 Home Occupations	N/A		
3.4 Integrating Land Use and Transport	Yes		The objectives of this direction are to improve accessibility, increase transport options, reduce travel demand and dependence on cars, support public transport, and provide for efficient movement of
			freight. The proposal is consistent with the direction in that it relates to land in a well-serviced and central location. As a result, the planning proposal does not contain provisions that will contradict or would hinder the application of the direction.
3.5 Development Near Licensed Aerodromes	N/A		
3.6 Shooting Ranges	N/A		
3.7 Reduction in non-hosted short term rental accommodation period	N/A		
4. Hazard and Risk			
4.1 Acid Sulphate Soils	Yes		Wollongong City Centre is situated in Class 5 acid sulphate soil as it is located within 500m of land mapped as Class 3. The Planning Proposal does not
			contain provisions that contradict or would hinder application of this direction.



Direction	Application	Consistency	Comment
			Specific responses to the presence of acid sulfate soils can be addressed site by site through the development application process.
			The proposal primarily seeks to amend the LEP Controls and
			does not propose any specific developments on the area. As such, it is suggested that an acid-sulphate soils impact analysis should be pursuant to the lodgement of a development application.
4.2 Mine Subsidence and Unstable Land	N/A		
4.3 Flood Prone Land	Yes		This direction applies because the planning proposal amends provisions in WLEP that relate to land that has been identified as flood prone land.
			Existing Clause 7.3 of WLEP2012 already includes provisions to minimise flood hazards. While future amendments to planning controls may be required, this Planning Proposal makes no amendments to the flood planning clause in SLEP2012 as well as controls within Chapter E13 of Wollongong Development Control Plan 2009.
			Future development applications will continue to be required to address flooding risks in the aforementioned controls which align with the NSW Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005.
			The planning proposal is therefore consistent with the objectives and requirements of this direction.
			It is noted that a review of the existing Wollongong City Floodplain Risk Management Study & Plan (flood study) has recently been prepared and exhibited.
			Parts of the Wollongong City flood study area comprises of land that is subject to the provisions of this planning



Direction	Application	Consistency	Comment
			proposal. Amongst other areas, the flood behaviour at the southern parts of Church Street, Kembla Street and Corrimal Street have been investigated in detail. An assessment of the impact of future flood risks associated with sea level rise and increases in rainfall intensity was also undertaken. This work was undertaken in accordance with the Flood Prone Land Policy (NSW Government, 2005) and set out in the NSW Floodplain Development Manual (NSW Government, 2005).
4.4 Planning for Bushfire Protection	Yes		determinent, 2005).
5. Regional Planning			
5.1 Implementation of Regional	N/A		Superseded by 5.10
Strategies			
5.2 Sydney Drinking Water Catchment	N/A		
5.3 Farmland of State and Regional Significance on the NSW Far North Coast	N/A		
5.4 Commercial and Retail Development along the Pacific Highway, North Coast	N/A		
5.5 Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA)	Revoked		
5.6 Sydney to Canberra Corridor	Revoked		
5.7 Central Coast	Revoked		
5.8 Second Sydney Airport: Badgerys Creek	Revoked		
5.9 North West Rail Link Corridor Strategy	N/A		- I
5.10 Implementation of Regional Plans	Yes		The planning proposal will give legal effect to the vision of Illawarra Shoalhaven Regional Plan, including (where relevant) its land use strategies, goals, directions and actions. In particular it will contribute to giving effect to Goal 1: A Prosperous Illawarra-Shoalhaven. As such, this proposal is strongly aligned with Direction 1.1: Grow the national competitiveness of Metro Wollongong to provide
			jobs and housing. The following actions under this direction are given effect,



Direction	Application	Consistency	Comment
			particularly to "Metro Wollongong".
			 Action 1.1.1 - Create new and innovative opportunities for commercial development in the commercial core by making it more attractive for investment and business. Action 1.1.3 - Improve the productivity and liveability of Metro Wollongong by connecting and integrating the individual precinct. Action 1.1.6 - Establish a governance framework to guide the ongoing delivery of the Plan's vision for Metro Wollongong. Strategic alignment with regional plans is discussed in further detail in Section B of this
5.11 Development of Aboriginal Land	Yes		planning proposal. The planning proposal does not
Council Land	res		contain provisions that contradict or would hinder application of this direction.
6. Local Plan Making			application of this direction.
6.1 Approval and Referral Requirements	Yes	7	The planning proposal is consistent with this direction and does not seek additional provisions that hinders the efficiency of development assessment
6.2 Reserving Land for Public Purposes	N/A		discission
6.3 Site Specific Provisions	N/A		
7. Metropolitan Planning			
7.1 Implementation of A Plan for Growing Sydney	N/A		
7.2 Implementation of Greater Macarthur Land Release Investigation	N/A		
7.3 Parramatta Road Corridor Urban Transformation Strategy	N/A		
7.4 Implementation of North West Priority Growth Area Land Use and Infrastructure Implementation Plan	N/A		
7.5 Implementation of Greater Parramatta Priority Growth Area Interim Land Use and Infrastructure Implementation Plan	N/A		
7.6 Implementation of Wilton Priority Growth Area Interim Land Use and Infrastructure Implementation Plan	N/A		
7.7 Implementation of Glenfield to Macarthur Urban Renewal Corridor	N/A		



Direction	Application	Consistency	Comment	
7.8 Implementation of Western Sydney	N/A			
Aerotropolis Interim Land Use				
7.9 Implementation of Bayside West	N/A			
Precincts 2036 Plan				
7.10 Implementation of Planning	N/A			
Principles for the Cooks Cove Precinct				



DRAFT Wollongong DCP Chapter D13: Wollongong City Centre



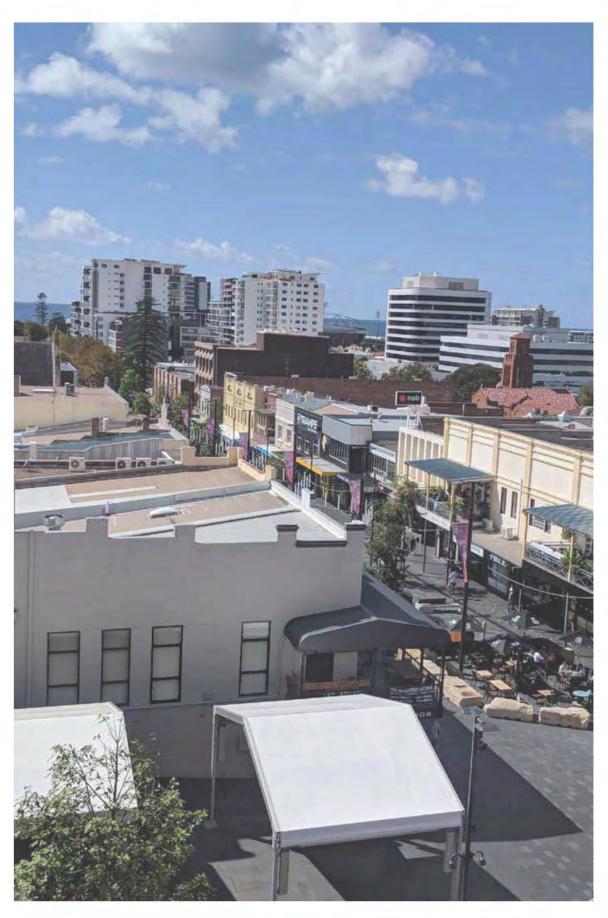
Item 2 - Attachment 3 - Draft Wollongong Development Control Plan 2009 - Chapter D13 Wollongong City Centre



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DRAFT Wollongong DCP: Chapter D13 Wollongong City Centre



1. Introduction



1.1 Introduction

Purpose of this Chapter

The Wollongong City Centre Development Control Plan (WDCP) Chapter D13 outlines the objectives, controls and design guidance for development in Wollongong's City Centre. This chapter supports the objectives contained in the Wollongong Local Environmental Plan (WLEP).

This Chapter is informed by:

- 1. The vision for the City Centre A City for People: Public Spaces Public Life (2016)
- The Wollongong City Centre Urban Design Framework
- 3. The Wollongong City Centre Planning Strategy (2020)

This DCP Chapter should be read in conjunction with the WLEP and the other chapters of WDCP. Where there is an inconsistency between this chapter and others in the DCP, the controls in this chapter will apply for development within the City Centre.

Where this DCP chapter applies

This chapter applies to the Wollongong City Centre as defined in the WLEP and illustrated in Figure 1.

Application of this Chapter

The determining authority will take the provisions of this chapter into consideration in determining all applications within the City Centre.

Development applications must demonstrate conformity with the aims, objectives and controls of this and other relevant chapters of the WDCP.

The aims of this DCP chapter are:

- To communicate the expectations and requirements of development within the Wollongong City Centre and build upon the WLEP 2009 by providing detailed objectives and controls for development.
- 2. To ensure development aligns with A City for People: Public Spaces Public Life (2016) and the directions and recommendations of the Wollongong City Centre Urban Design Framework (2020).
- 3. To guide a place-based development approach through a comprehensive set of planning and design guidelines informed by the character of distinct precincts within the city centre
- 4. To promote design excellence and quality urban design and architectural outcomes in Wollongong City Centre.

Residential Development Controls

The provisions in the Apartment Design Guidelines associated with the State Environmental Planning Policy No.65 - Design Quality of Residential Flat Development (SEPP65) will be applied as the design controls for residential apartment development within Wollongong City Centre (including flats, any residential component of a mixed use development, and serviced apartments that are strata titled.)

In some cases, this DCP requires additional controls for residential apartment buildings which respond to the desired character of particular areas.



Figure 1: Wollongong City Centre

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1.2 Strategic Priorities

This Section outlines the vision for Wollongong City Centre in relation to key strategic documents and explains how the approach of this DCP Chapter will help support the City Centre vision.

The vision - A City for People: Public Spaces Public Life, Wollongong.

In the 21st century Wollongong City Centre will be a peopleoriented, sustainable and livable city.

Wollongong City Centre is a thriving and unique Regional City, delivering a diverse economy and offering a high quality lifestyle. The city centre is nationally recognised as a livable city and is the place where people want to live, work and play.

The Urban Design Framework

The Urban Design Framework defines objectives and strategies across three key areas: Land Use; Built form and Public Domain & Connections.

Land Use

A vibrant and growing Regional City: Planning controls promote a diversity of uses to encourage a vibrant City Centre, day and night. Jobs and housing growth support Wollongong's role as a Regional City. Wollongong is an attractive place to live, work, visit and invest.

Built Form

An attractive and diverse city in a unique natural and historic setting: Clear planning controls preserve the unique character of Wollongong's precincts. Renewal at all scales is encouraged and this creates an interesting built fabric. Built form variety creates a recognisable city skyline that celebrates the natural setting and responds to human scale.

Public Domain & Connections

A green and walkable city: The city grid is clear and facilitates walking. Revitalised public spaces are a catalyst for growth and support an active, healthy community. A significant increase to the City's tree canopy contributes to a green and sustainable city.

Wollongong City Centre Planning Strategy

The Planing Strategy develops the Directions and Strategies of the UDF to define specific recommendations for changes to planning controls.

Wollongong City Centre DCP

This DCP chapter has been developed with reference to the strategic priorities and recommendations identified above and to work in conjunction with the revised provisions of the Wollongong LEP 2009, particularly in relation to land use distribution and building heights.

The role and application of this chapter has particular relevance to the following directions:

- 1. Prioritise jobs growth and establish a resilient commercial core;
- Develop active commercial streets that respond to character:
- Plan for a variety of housing to support a lively and inclusive city;
- 4. Grow a legible city that supports a distinctive and evolving character;
- Strengthen and simplify planning controls to promote built form diversity in response to people and place;
- 6. Elevate the importance of design quality in the City
- 7. Strengthen the structure of the City through a permeable grid that prioritises pedestrians;
- 8. Create a green network of open spaces and a strong street tree grid for a sustainable, healthy and attractive city; and
- 9. Protect sunlight to key public spaces.





Figure 2: Artist's perspective of the future Burelli Street



1.3 Good Design and Design Excellence

The NSW Environmental Planning and Assessment Act 1979 (the Act) requires that all development demonstrate "good design". The objectives of the Act section 1.3(g) include: "to promote good design and amenity of the built environment".

Better Placed: An integrated design policy for the built environment of NSW (GANSW 2017) establishes what the NSW Government expects regarding good design and effective process across all built environment projects in NSW. Better Placed explains how we can raise quality, expectations, and standards, and establishes a set of seven objectives for the NSW built environment:

- 1. Better fit: contextual, local, and of its place
- 2. Better performance: sustainable, adaptable, and durable
- 3. Better for community: inclusive, connected, and diverse
- 4. Better for people: safe, comfortable, and livable
- 5. Better working: functional, efficient, and fit for purpose
- 6. Better value: creating and adding value
- 7. Better look and feel: engaging, inviting, and attractive

Built environment projects should be evaluated against these objectives at several stages throughout their development.

Better Methods: Evaluating Good Design (GANSW 2018) sets out relevant criteria for each of the seven objectives.

Wollongong City Council has adopted the **Wollongong City Centre Urban Design Framework (UDF)** that defines the future character of the City Centre's key precincts, streets and open spaces. The **UDF** provides a contextual basis for the built form and land use controls in the LEP and this DCP chapter. It also provides a framework through which the objectives of **Better Placed** can be tested and realised when designing development within the City Centre.

All developments in Wollongong City Centre will be assessed against object 1.3g) of the Act, and are expected to demonstrate achievement of the 7 objectives of **Better Placed**.

Design Excellence Process Requirements

Consent for developments involving the construction of a new building or external alterations to an existing building in the City Centre is contingent on whether they achieve design excellence, as defined by the criteria set out in the LEP. To achieve design excellence an increased rigour must be applied to the resolution of the design. The mechanisms through which design excellence is demonstrated and assessed differ according to the assumed impact of the proposal, as expressed by certain thresholds or triggers. These thresholds and their related design process requirements are defined in the LEP.



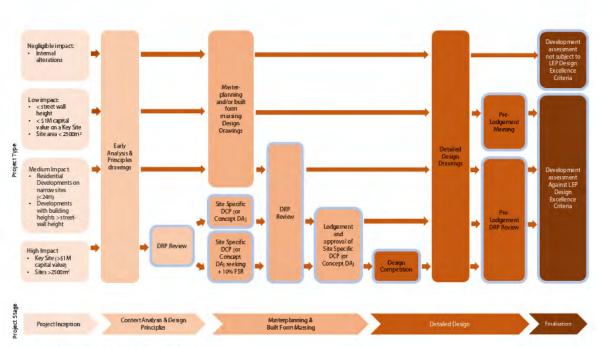
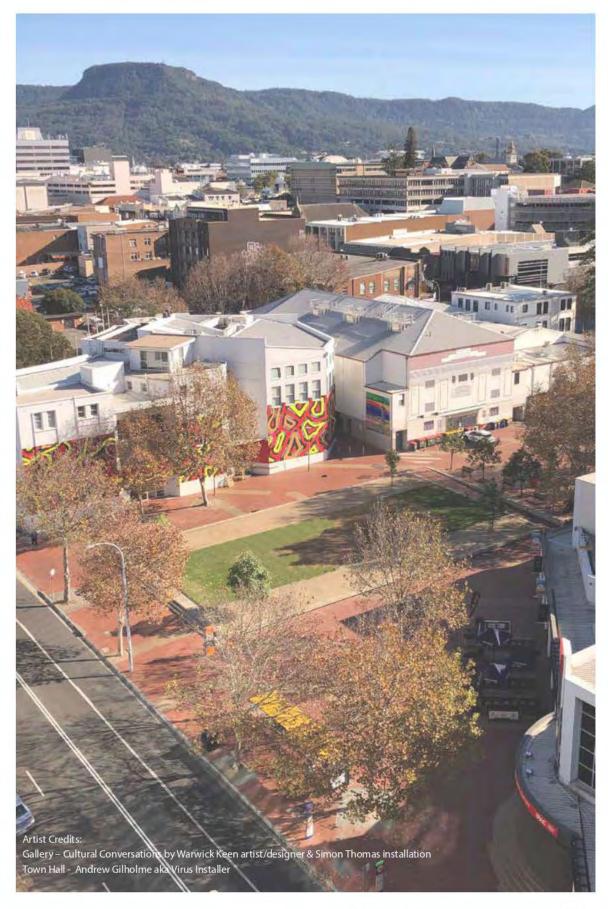


Figure 3: Design Excellence Process requirements



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2. City Precincts & Key Sites



2.1 Introduction

Structure Plan

A structure plan has been developed for the city which incorporates strategies for land use, built form and public domain and connections. The structure plan is high level and summarises the strategies into a single plan.





DRAFT Wollongong DCP: Chapter D13 Wollongong City Centre

City Precincts

Great places build on their unique characteristics to reflect shared community values and culture. Through this, they attract residents, workers, visitors, enterprise and investment to grow and enhance the city for the enjoyment of its people.

The City Centre is made up of a collection of precincts which provide a foundation for the ongoing renewal and revitalisation of the city centre. These 'character precincts' each have their own blend of history, culture, activity, built form and natural features, creating places with distinctive identities and functions.

Significant heritage places within these city precincts contribute to the quality and experience of the built environment. Shaped by their cultural, social, historical, political, economic, and physical contexts, heritage places provide meaningful links to our past and have a significant role to play in the future of our city.

This Section describes the character of the different Precincts within the city centre, including relating specific objectives to those Precincts and the Key Sites within them.

Overarching objectives for all City Precincts include:

- The unique character of each Precinct is enhanced.
- b. New development has regard to the existing fabric and character of each Precinct in scale, proportion, street alignment, materials and finishes; and reinforces their distinctive attributes and qualities through the new built form.
- c. Heritage items and their setting are protected, enhanced and valued for their contribution to the City Centre's character.
- d. Public spaces, including streets, lanes and parks maintain a high level of amenity, especially with regard to solar access, physical accessibility and greening.
- Active frontages address the public domain.
- Existing significant views and vistas to buildings, and places of historic and aesthetic importance, are protected.
- New development responds appropriately to the future desired context of the site.

Controls

- 1. New development is to demonstrate how Precinct Objectives as outlined in the City Precinct sections are
- 2. New development is to demonstrate application of the Precinct Moves



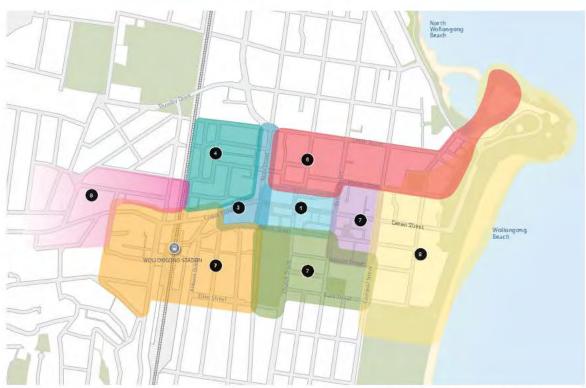


Figure 5: City Precincts

- 1. Rail Arrival and Southern District
- 2. MacCabe Park
- 3. Keira and Western Crown
- 4. Market Street West
- 5. Crown St Mall
- 6. Market St to Harbour
- 7. Arts and Eastern Crown
- 8. Foreshore
- 9. Health



Key Sites have an important role to play in the urban fabric of the City Centre. These sites act as catalysts for urban renewal and provide an opportunity to greatly improve urban design and amenity outcomes for the greater public domain. The Wollongong LEP 2009 (LEP) requires that a detailed urban design study is prepared for all Key Sites, to ensure holistic consideration of site specific design issues. This Section sets out principles for each site which must be addressed through the Site Specific Urban Design Study. Acceptance of principle departures are at the discretion of the determined authority.

This Section includes objectives and controls relevant to all sites noted as 'Key Sites' in the LEP.

The objectives, controls and contextual information provided will assist applicants and the determining authority in understanding the desired urban design outcomes for key sites in Wollongong City Centre.

The Design Review Panel will advise the assessment and determination authority as to whether the objectives and controls have been appropriately addressed.

Overarching objective for all Key Sites include:

- a. To ensure appropriate site planning resolution through a detailed Urban Design and Architectural analysis and design process
- b. To achieve high quality urban design and amenity outcomes for the City Centre
- To protect solar access to the public domain including key open spaces
- d. To protect public views and street vistas
- To protect all trees and significant landscape elements contributing to the existing public domain
- To respond appropriately to the future desired context of the site
- To ensure appropriate distribution of height, especially with regard to the positioning of towers
- h. To ensure appropriate public domain outcomes are delivered on the site, including mid block links, new streets and lanes

Controls

- 1. Key Sites are identified in the WLEP Key Sites Map, duplicated in Figure 6.
- 2. Development on Key Sites is to comply with the design excellence requirements processes set out in the LEP, including the preparation of Site Specific Development Control Plans (or alternative Concept Development Applications).
- 3. Key Sites must be developed in accordance with the objectives, character statement and precinct structure and key moves for the relevant City Precinct/s.
- 4. On key sites and sites with frontages exceeding 30m in width, existing underground services within the footpath shall be relocated to ensure adequate space for new street trees behind the kerb.



Figure 6: Key Sites Map

- Piccadilly Site (241 355 Crown Street), Railway Station and Lowden Square
- Wollongong Central (GPT) including: 200 Keira Street (Wollongong Central - West Keira), 168 - 218 Crown Street (Wollongong Central - East) and 207 - 217 Crown Street (Wollongong Central South)
- 3. Arts Precinct (32 46 Burelli Street)
- 4. WIN Sports and Entertainment Centre and practice oval (9-111 Crown Street and 49 Harbour Street)
- 5. North Wollongong Station (not shown)
- WIN Block (The block bound by Crown, Keira, Burelli and Atchison Streets)
- 7. Headlands Hotel (not shown)
- 8. Rawson Street Carpark
- 9. Kenny Street Parking Station (91 Burelli and 258 Keira Street)
- 10. Woolworths Supermarket (63 Burelli Street)
- 11. Government Office Block & hotel (72 86 Crown Street St)
- 12. St Francis Xavier Cathedral Precinct (24 Crown Street)
- Wollongong Hospital and Carpark (348 Crown St & 3-11 Dudley St)
- 14. SES site (10 Atchison St)



2.2 Rail Arrival and Southern District



Character

This precinct is the western entrance to the City Centre and development supports the City's role as a vibrant and growing Regional City. The precinct is an inviting, high quality and well connected transport hub, with strong pedestrian links to the commercial core, MacCabe Park, the coast and hospital.

Buildings and public domain along Burelli Street and interfacing the Rail Corridor supports this precinct by providing high-quality urban design outcomes that contribute to a positive first impression of Wollongong. Burelli Street is the city's premier location for A-grade office development, showcasing the highest quality, new office buildings in a well connected and high amenity location.

A new east-west shared way improves permeability connecting the Station to MacCabe Park and providing a buffer between the new office core and the supporting southern district. The provision of additional connections breaks up long east-west blocks offering high levels of accessibility to both pedestrians and vehicles.

Moving away from Burelli St, the precinct offers an eclectic mix of uses and scales. The diversity of the existing built form is maintained and complemented by new development. New buildings transition sympathetically from the taller, large scale commercial office towers along Burelli Street to lower scale, mixed uses.

Objectives

- Improve pedestrian experience by increasing permeability from Station through to MacCabe Park and the commercial core
- b. Provide a high quality public domain
- Integrate vegetation into both the public and private domain to increase canopy cover and amenity and add colour to the streets
- d. Ensure excellent solar access to Lowden Square
- e. Promote 'A-grade' office development along Burelli Street to support Wollongong City Centre's role as a the core of the Region's commercial activity
- f. Create a positive first impression of Wollongong with high quality urban and architectural design
- g. Promote and retain diversity of land uses and built form throughout the area west of MacCabe Park
- Open up views from the station through to MacCabe Park
- Retain views to the escarpment, including along the Rail Corridor





Lowden Square and the new street connection provide a strong connection, and a sense of arrival into the CBD

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Concept perspective The Southern District will continue to support a range of uses

Precinct Structure & Key Moves - Rail Arrival and Southern District

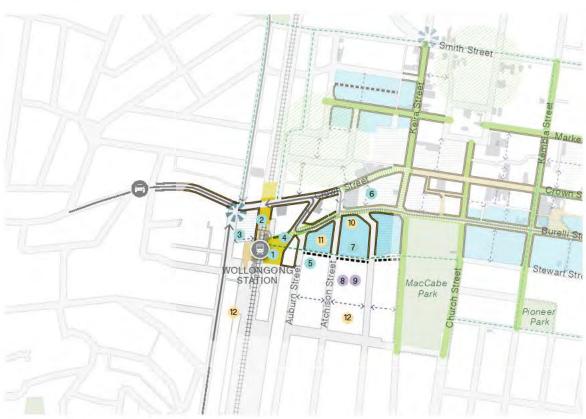
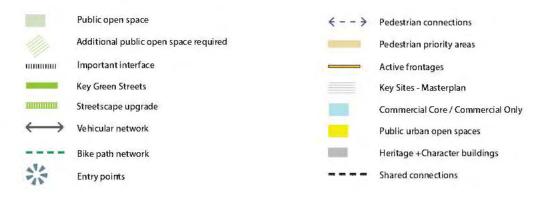


Figure 7: Rail Arrival and Southern Precinct Map





- Revitalise Lowden Square to provide new public domain and street tree planting to create an attractive and legible station forecourt.
- Create a new station forecourt off Crown Street extending from Jubilee Bridge, north of the existing station (over rail corridor). This is subject to discussions with Transport for NSW.
- A new east-west pedestrian link between the station access and Gladstone Avenue is desirable to increase the permeability of the site and provide active commercial offers.
- 4. Realign Station and Burelli Streets to prioritise pedestrians, providing a direct line of sight to the station and provide new footpath and street planting upgrades improve access and amenity to the station precinct.
- Establish a new east-west through-block active transport connection to provide at-grade access connecting the station directly to MacCabe Park. This link has the potential to continue east of MacCabe Park to connect to the foreshore and extended Blue Mile.
- Ensure multiple new north-south connections through this block to improve pedestrian access through the site.
- On all sites, consolidate vehicle access requirements to minimise their visual impact and reduce pedestrian conflicts in and around the site.

Land Use

- Burelli Street office core: Permit commercial only uses south of Burelli Street to create a dedicated high density office core close to amenity and infrastructure.
- Retain a mix of uses south of the new laneway including residential and employment uses. Encourage a variety of employment uses to continue to operate from commercial offices to warehouses and showrooms.

- Burelli Street ground setback: Provide a 6m landscaped ground floor setback to the southern edge of Burelli Street to provide the opportunity for improved public domain and street tree planting.
- 11. Concentrate greatest heights (up to 120m) around the office core and station with a mixture of podium & tower and tower to ground typologies. Encourage well spaced tall slender towers which signify that Burelli Street is the City Centre.
- 12. Provide a transition with reduced heights to the west and south of the station. In the southern district, encourage a variety of building uses in a podium and tower typology including vertically and horizontally mixed buildings. Proposed heights to comply with solar access to MacCabe Park.

2.3 MacCabe Park



Character

MacCabe Park is approximately 5.6 hectares in size and is bounded by Burelli Street to the north, Ellen street to the south, Keira Street to the west and Church Street to the east. MacCabe Park has been a formal city park since 1929 and has played host to a range of utility, sporting and recreational uses since that time. Since the 1970s Council has been gradually acquiring properties along Keira Street and Ellen Street to expand the Park.

MacCabe Park is the City centre's premier park. It is a significant green open space which is integrated with the commercial and retail core, and surrounding residential areas through a network of high-quality streets and lanes. The Park is a focal point for everyday outdoor activity, active and passive recreation, festivals and informal occasions.

MacCabe Park is a sustainable landscape acting as a green filter for the city. Development surrounding the Park provides a strong urban identity built on the quality of the streets and building facades. It provides passive surveillance, good public transport, facilities and services. The Park is framed by low and medium density buildings to the south, slowly stepping up to the high-rise commercial towers of Burelli Street.

The establishment of a new street connects MacCabe Park to the Station in the west, a key transport hub. Integrated transport routes along Burelli Street facilitate a hive of

activity, helping to establish a series of exciting, comfortable and activated places for meeting and socialising.

Objective:

- Ensure MacCabe Park is welcoming, accessible and functional for all city users providing breakout areas for office workers, spaces for reflection, urban sports opportunities, and infrastructure that supports events, festivals and activities.
- b. Renew connections and enhance sightlines to the park.
- Maintain and open up views from the park to the escarpment and foreshore
- d. Prioritise the amenity of the park and its users by maintaining solar access in alignment with the sun access plane provisions.
- e. Maintain views to the sky from the park by creating a transition in height away from the park edges.
- f. Create a green network by linking tree-lined streets to the park and other open spaces
- g. Residential and Commercial development around the park provides a strong and active interface day and night, creating a safe and welcoming space.
- Any redesign of the park retains the heritage listed Canary Date Palms and respond to their existing definition of space and role as landmarks.
- Stormwater is captured and filtered through the park's landscaping.
- Pedestrian paths trace key pedestrian desire lines.
- Views and connections within the park are clear and open.
- Significant heritage structures are retained and interpreted through the park's landscape including: Canary Island Date Palms (item 6587), Monument & Memorial Arch (item 6324)





Concept perspective

MacCabe Park will be a focal point for the City on the Burelli Commercial Spine linking rail to foreshore



Concept perspective

MacCabe Park will support a range of residential communities which will reflect its landscape character



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Precinct Structure & Key Moves - MacCabe Park

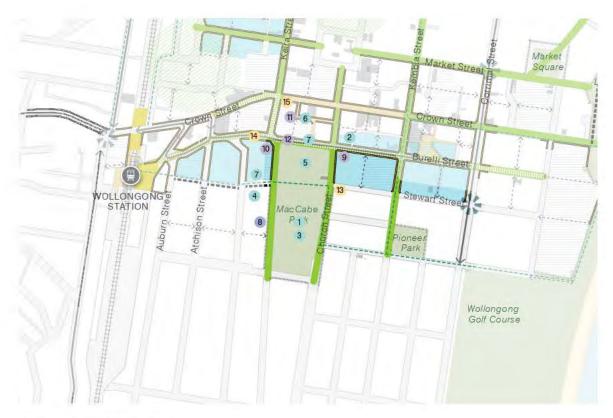
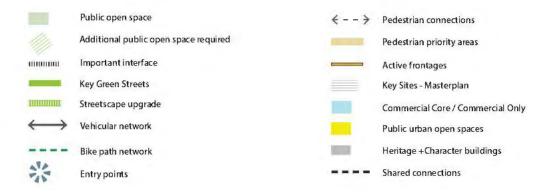


Figure 8: MacCabe Park Precinct Map





Public Domain & Connections

- Upgrade MacCabe Park as a place for workers as well as residents with daytime and evening activation. Provide passive green space, as well as active recreational facilities including basketball and tennis, skate park and an informal kick-about area.
- Widen Burelli Street footpaths and investigate continuous street tree planting along north and south sides where possible.
- Incorporate water sensitive urban design into the park and proposed new east-west street connection.
- 4. Establish a new east-west mid-block shared connection to provide at grade access between the Station and MacCabe Park. This new active transport link caters to pedestrian and bike path connections with the possibility of included shared vehicle access. This link has the potential to continue for active transport uses east of MacCabe Park to connect to the foreshore and extended Blue Mile.
- Ensure, through redevelopment of the existing shopping centre, a new north south through site link from the park to Globe Lane to provide visual and physical connections and passive surveillance between MacCabe park and Crown Street Mall.
- A landscape street frontage to Burelli and Keira Streets is to reference the connection with MacCabe Park and provide a high amenity street.
- The interface with the proposed east-west shared connection should be of high quality and not present a 'back door' to this important pedestrian link.

Land Use

- Residential uses to ground for land adjacent to the park (in the B4 Mixed Use Zone) provide passive surveillance for the park.
- Retain a commercial frontage to the park at Burelli
 Street to allow the commercial precinct to have direct
 connection to the park in the future and a visual
 connection across the park.
- To the north of the park ensure ground floor retail uses activate the park edge.
- Consider permitting community uses to continue in the park such as existing youth centre, however investigate upgrading facilities with new buildings to improve interfaces with the streets and park.

- Provide a continuous street edge and a street wall height that provides a consistent scale around the park and an appropriate interface between different land uses.
- 13. The location and form of any towers is to be determined through detailed urban design analysis to ensure solar protection of MacCabe Park and that any overshadowing to surrounding public domain is minimised and fast moving.
- 14. Existing shopping centre to open up more active frontage to Burelli Street and provide better surveillance of park. Remove overpasses that currently obstruct visual connections and encroach over the road.

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2.4 Western Crown and Keira Streets



Character

Western Crown and Keira Streets contribute to a regionally significant retail and entertainment precinct.

This precinct hosts a range of small and medium offers, including selected late night food and beverage offers.

The built character of the street is a result of the small lot subdivision patterns from 1800s. Clusters of fine-grain heritage and character buildings in the form of one and two-storey interwar buildings, line Crown and Keira Streets. Grand buildings of up to 3 storeys articulate key corners such the former Crown Hotel, former Marcus Clark Building, The Illawarra Hotel and former National Mutual Building.

Detailing of the existing buildings utilise traditional materials such tiles and brickwork with molding and contrasting paint schemes to vertically articulate the facades and bring the buildings down to a human scale.

Pedestrian movement and amenity is prioritised with wide footpaths, additional through-site links, integrated seating, continuous awnings and accessible at-grade entrances, creating a pleasant walking experience linking the City to the station and Hospital.

Objectives

Reinforce and emphasise the historical street proportions and street wall of main street shop typologies along Keira Street. New development

- preserves and responds to the existing rhythm typical of a traditional retail high-street including low scale street walls, continuous awnings, generous shopfront glazing, narrow frontages and multiple entrances at-grade.
- b. Continuous built edges and generous setbacks frame views north-west to the escarpment and create a street open to the sky.
- c. New development complements the existing landmark on the northeast corner of Market and Keira Streets (formerly the National Mutual Life Association Building).
- d. Shopfronts are to be expressed at a maximum width of 6m wide to retain fine grain character of the Precinct.
- The heritage listed row of early federation shops is conserved and informs the character of the surrounding precinct.
- Traditional shop facades are conserved and adapted including paintwork and possible restoration of classical detailing.
- g. Small tenancies continue to host local offers that are valued by the community and contribute to the vibrancy of Wollongong. Encourage further agglomeration of active uses (day and night) such as boutique restaurants, specialty shops, grocery stores, clubs and pubs (that characterise land north and south of Victoria Street).
- h. Shopfronts are active and clean with strong and simple signage, clear glazing and open-able facades. Overscaled and inappropriate signs are not permitted.
- i. Integrate vegetation into both the public and private domain to increase canopy cover and amenity and add colour to the streets.
- Maintain the amenity of the street by maximising solar access and minimising wind effects from taller buildings.
- Preserve the curvature of Crown Street to the point where it connects to West Crown Street.



Concept perspective

Western Crown Street will become a pedestrian friendly active high street with mixed use development set back behind fine grain retail street walls.



Pedestrian spaces are high amenity



Outdoor dining enlivens the street

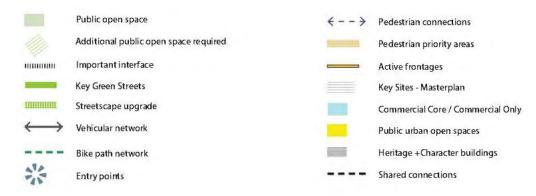


Retail activity is on display

Precinct Structure & Key Moves - Western Crown and Keira Streets



Figure 9: Western Crown and Keira Streets Precinct Map





- Crown and Keira Streets are designed to provide a high quality pedestrian environment.
- Setback along the southern edge of Crown Street facilitates widened footpaths to enable outdoor dining opportunities and street trees.
- The Denison Street by-pass facilitates the declassification of Crown and Keira Streets and they are returned as local roads.
- Remove existing road safety barriers and over road bridge connections along Crown Street to improve visibility and encourage pedestrian movement at street level.
- Provide a series of fine grain secondary pedestrian connections through blocks to enable new opportunities for site activation.

Land Use

- Retain fine grain, active frontages along Crown and Keira Streets with ground floor retail/ commercial and commercial or shop top housing above.
- The western end of Crown Street, closest to the station, can comprise of a more diverse mixture of uses which include ground floor commercial uses such as medical suites, given their proximity to the Wollongong Hospital.
- 8. Deliver a considered balance of land uses that responds to the role and character of the precinct and promotes night time trading, activation and surveillance. A dedicated mixed use precinct incorporating a number of non-residential uses such as hotels, bars, restaurants, commercial and residential could be explored to create a new precinct and a destination for this part of the city.

- New development should undertake a streetscape analysis, and demonstrate how they respond to the traditional high street character of Crown and Keira streetscapes, including the 2 storey scale with parapet features and fine grain tenancies.
- Additional development above existing streetwall
 height should provide generous setbacks from the
 street to maintain the scale and character of the current
 streetscape.
- Encourage signature or identifying buildings on sites located at the arrival points to indicate an arrival into the City Centre.
- Expansive roof spaces should be connected, activated and planted to increase green linkages across the city and mediate heat island effects.



2.5 Market St West



Character

The precinct is an important place of local commerce and thrives as a supplementary commercial precinct. High density residential on the top of the hill supports this precinct by bringing a transition of people day and night. Small and interesting food and beverage offers are integrated into the commercial fabric of the precinct, and connect up to the night-time hub of small bars and eateries on Keira Street.

New public open spaces are integrated into the neighbourhood, which together with tree-lined, landscaped streets provide amenity and connectivity throughout, and contribute positively to streetscape character. Multiple pedestrians paths break up the long blocks, connecting people with new open spaces and through to upgraded station connections off Crown Street.

Mid-scale office development addresses the street providing a continuous built edge with awnings. A strong street wall of up to four storeys responds to the landmark developments at the intersection of Keira and Market.

Views to the escarpment and to the St Michael's Cathedral Spire from this precinct are retained and accentuated due to their significance.

Objectives

- New development includes small to medium offices buildings to complement and support the mixed use employment functions of the area.
- High density residential apartment buildings maintain slender tower forms to maintain significant public views west to the escarpment.
- Generous setbacks are maintained along the northern side of Market Street to allow for wider footpaths and increased street tree planting.
- d. Long blocks are made more permeable by new pedestrian through-site links (refer 3.4 Permeability Figure 25: Through site links).



Concept perspective

Market Street will continue to develop as a vibrant commercial services precinct with new open space and improved public domain



Landscaped urban spaces provide a place for casual interaction



Contemporary architecture complements heritage buildings



Smaller professional office suites are clustered



Precinct Structure & Key Moves - Market Street West



Figure 10: Market Street West Precinct Map





- Upgrade Market Street to include continuous street tree
 planting where possible to the north and south of the
 street, facilitated by increased building setbacks. Provide
 integrated parking bays as the primary commercial
 address in this precinct.
- Consider a new local open space or plaza on Market Street to support the working population in this precinct, likely to be integrated into redevelopment of a site should the opportunity arise.
- 3. Implement proposed cycle network.
- 4. Provide new shared ways within the precinct to break down the continuous street frontages and facilitate improved pedestrian movement and servicing. This includes connections between:
 - Young Street and Regent Street
 - Market Street and Victoria Street
 - Keira Lane and Young Street.
- Provide a north-south pedestrian through site link to connect Belmore Street, Waters Place and Crown Street

Land Use

- Continue and encourage commercial outcomes along Market Street and south of Victoria Street to allow the existing successful small office suites and local businesses to continue to operate.
- South of Market Street, a mix of residential and employment uses support the commercial core.

- Keep built form to the western fringes of the precinct low to protect distant views to the escarpment.
- Placement and shape of towers is to be subject to detailed urban design testing in order to ensure views to the escarpment are maximised from surrounding locations.
- 10. The built form response to the significant grade change across the site is to be addressed in such a way to provide an excellent street address to Rawson St, Railway Parade, Governors Lane and the new pedestrian link and open space.



2.6 Crown Street Mall



Character

Crown St has been the city's high street for over a century and remains a significant contributor to the commercial and social life of the city. Crown St Mall is an urban event space, and supports activity day and night through a complementary mix of leisure, entertainment, education, arts and music

The Mall is the pedestrian spine of the city with laneways running north-south to connect to surrounding streets. Views from the Mall to the Foreshore and Escarpment are key to orientation and appreciation of the natural landscape.

East of Church Street, clusters of two storey character buildings promote a fine grain, human scale. A variety of ornamented parapets provide visual interest and tell the story of Crown Street's commercial history. A defined street wall of up to two-storeys, continuous built edges and generous setbacks above street wall frame views and create a street that is open to the sky.

West of Church Street larger retailers provide open and active facades which offer multiple entry points and promote pedestrian activity on their edges and through larger sites.

The materiality of the street is varied and colourful, ranging from the sandstone of the Wesley Uniting Church and seating elements throughout the mall, through decorative tiled, rendered and painted shopfronts to clean and crisp commercial office lobbies.

Objectives

- Views to the escarpment and foreshore are preserved.
- Views of St Michael's Square are maintained from Church Street and the mall looking north.
- c. Solar access to the Mall is protected in alignment with the sun access plane provisions in the WLEP.
- d. The Mall is prioritised as an active urban event space.
- Large format retail buildings are redeveloped to respond to the fine grain context.
- f. Small infill development is encouraged and all new development responds to the established heritage scale, fine grain character
- g. The materiality of new developments responds to the vibrant materiality, colour and facade treatment of the historic buildings and contemporary artworks.
- h. Commercial and retail uses are prioritised.
- Residential uses are setback from the street wall.
- Service and vehicle entries are consolidated on rear laneways.



Concept perspective

New development on Crown Street will be set back to protect the fine grain character of Crown Street Mall, and preserve solar access to the open space



The pedestrian space is active day and night



Lanes and arcades are activated with dining



Small offers bring variety and activity



Precinct Structure & Key Moves - Crown St Mall

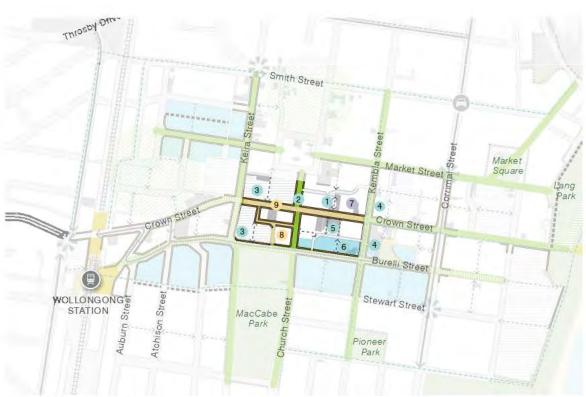
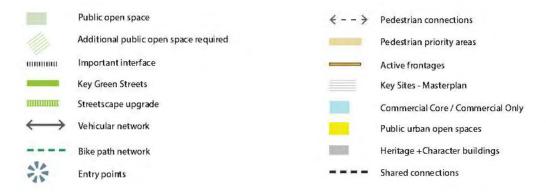


Figure 11: Crown Street Mall Precinct Map





- Explore possible widening of the existing pedestrian through site link adjacent to the heritage listed Uniting Church (Court Lane to Crown Street)
- Remove shade structure located at the corner of Church Street and Crown Street once trees are sufficiently mature to provide shade
- Provide north-south pedestrian access, through existing Wollongong Central sites to facilitate improved connection of the precinct to the retail core.
- Consider road widening for an integrated active transport link along Kembla Street
- Retain existing through-block pedestrian links from Crown St Mall to Simpson Place
- Provide new mid-block pedestrian links to Simpson Place from Burelli Street and Church Street

Land Use

7. Limit residential uses and promote late night trading.

- Build-out zero lot line, maintaining 2 storey fine grain built form to the edges of Crown Street Mall.
 Substantially set back any additional development above, to protect Crown Street character, maintain solar access to the mall space and minimise visual impact from street level.
- Remove Wollongong Central building overpasses and overhangs to facilitate improved lines of sight along Keira and Crown Streets and encourage increased foot traffic at street level.



2.7 Market Street to Harbour



Character

This precinct reflects the city's first town plan of 1834. The plan integrated topography, street layout, public buildings and places and lot subdivision into one cohesive design. The layout connects Crown Street to Wollongong Harbour via an orthogonal street grid centred on Market Street and punctuated by St Michael's Cathedral Square.

A network of heritage items are connected visually and physically across the precinct. Each item retains critical significance for the identity and character of Wollongong City, both individually and in connection with the other sites.

Market Square's formal presentation and relationship with surrounding residential buildings is unique in the city centre. Views and pedestrian connections from the Square down to the Harbour and Breakwater Lighthouse connect the city centre with its economic history.

Objectives

- a. Maintain the established moderate scale and civic nature of developments surrounding St Michael's Square, Wollongong Courthouse and Wollongong Public School.
- Preserve the significant view looking West along Market
 Street to St Michael's Cathedral and east along Market
 Street towards the coast.
- Maintain the courthouse clock tower and Cathedral steeples as the highest structures on the hill.
- Retain the established residential character and moderate scale of development on land surrounding Market Square.
- Solar access to Market Square is protected in alignment with the sun access plane provisions in the WLEP.
- f. Enhance Market Street through public domain improvements that build upon the notable existing landscaping and mature vegetation
- g. Active transport links along streets are to be improved.
- Pedestrian permeability is to be improved through the provision of new through block links.
- The historic, visual and physical link provided by Harbour Street between Market Square and Wollongong Harbour should be preserved and reinforced.
- To conserve and manage the archaeological resources that are likely to remain throughout this precinct, which provide evidence of the earliest period of colonial invasion and occupation in the Illawarra and the beginnings of the Township of Wollongong.

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Concept perspective

New development provides a strong built edge, framing the view up to the Courthouse and St Michaels Church.



Pedestrian paths are green and comfortable



Existing heritage fabric is retained and revealed beside contemporary additions

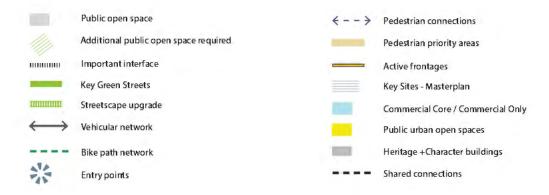


Heritage buildings are celebrated with adequate curettage and quality activation. Location: Joynton Avenue Creative Precinct by Peter Stutchbury Architecture in association with Design 5 – Architects for the City of Sydney.

Precinct Structure & Key Moves - Market St to Harbour



Figure 12: Market Street to Harbour Precinct Map





- Explore possible widening of existing pedestrian through site links adjacent to the Wollongong Local Court (Market Street to Court Lane).
- Provide public domain improvements to Market Street including footpath upgrades, new open space and continuous street tree planting north and south sides.
- Implement an integrated active transport link along Kembla Street.

Land Use

 Focus residential uses on the ground floor as an alternative to retail ground floors.

- Align new built form heritage setback to align with Court House Facade
- Manage built form around recent development or existing residential flat buildings to ensure a high quality street interface.
- Reinforce the historic, visual and physical link between Market Square and Wollongong Harbour via Harbour Street
- Consider and manage known and potential heritage and archaeological sites in accordance with Chapter E11 of the DCP.



2.8 Eastern Crown Street and Arts Precinct



Character

This precinct is the city's cosmopolitan civic and office core. The Arts Precinct is a welcoming and active city plaza with high amenity and a range of offers for city workers, residents and visitors. Venues including bars, live performance venues and restaurants activate the area at night.

Interconnected laneways, and streets and buildings, celebrate art, music and culture through the installation of public art. The Arts Precinct lawn provides a key passive recreation and event space, activated by surrounding cultural institutions such as the Town Hall, Gallery and IPAC.

Lower Crown Street is defined by clusters of heritage listed civic and commercial buildings. The high quality form and materiality of the building facades is complemented by the amenity of the public domain.

Mature trees line Burelli and Crown Streets and the Arts Precinct, and are integral to its public character.

Burelli Street will provide a prestigious front door to the commercial core of the city. A-grade commercial buildings define the City's commercial core and support the economy of the Regional City. Burelli Street is a key green street with generous ground setbacks, mature canopy trees and streetscape upgrades that prioritise pedestrian and active transport movement over vehicles. Generous foyers and forecourts at ground are an integral part of the commercial feel of the street, incorporating internal portions of public

domain and offering opportunities to meet and interact.

Towers are slender and distributed to maximise solar access, preserve key view corridors and encourage view sharing. Canopy and vegetation cover is increased with efforts on both private and public land to achieve canopy targets. Treelined streets with ground setbacks frame views along streets, generous well-lit footpaths create safe and pleasant walking routes in this precinct.

Objectives

- a. Art and Culture are celebrated in the public domain
- Buildings addressing Burelli Street have a high quality commercial or civic character.
- Building envelopes maximise winter solar access to the public domain
- Building envelopes sensitively transition to heritage and character items.
- e. Undesirable wind action on prominent public and private open spaces is alleviated
- Restore and activate existing Heritage and character buildings along east Crown Street between Kembla and Corrimal Streets.
- g. Ground and first floor frontages of new buildings along East Crown Street from Kembla Street to Corrimal Street are sympathetic to the late 19th Century Victorian and Italianate shop front styles without creating repetition of such styles.
- The appearance of building external finishes and colour promotes a sense of unity and character that consolidates the heritage environment.
- Shop signage and lighting is sympathetic to the heritage context and is not installed above awning height.





Concept perspective Active laneways support the integration of commercial and civic uses across this precinct



Slender office towers line Burelli St



Contemporary and Heritage buildings compliment active public domain



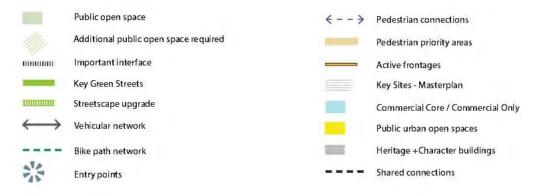
The pedestrian network is alive with greenery and artwork. Artist Credit - 'Heaven' by Peter McGregor



Precinct Structure & Key Moves - Eastern Crown and Arts Precinct



Figure 13: Eastern Crown and Arts Precinct Map





- Maintain generous setbacks along the southern side of Burelli Street. Provide continuous and consistent street tree planting on Burelli and Crown Streets.
- Investigate the possibility of a physical pedestrian connection between the Civic Square and Crown Street.
- Develop an Arts Precinct Master Plan to build the profile, amenity and usability of this cultural precinct.
- Provide a new north-south through site link between Stewart and Burelli Streets.
- Upgrade the through site link adjacent to the Wollongong Library
- A new north south pedestrian link is to be provided either mid block (aligned with Evans Street) or at the eastern end, to align with the existing link west of the Presbyterian Church.

Land Use

- Promote commercial outcomes and long term employment growth with a commercial only precinct along Burelli Street.
- The Arts Precinct is one of Wollongong's most significant cultural and civic places. The precinct includes the Wollongong Art Gallery, Wollongong Town Hall, Illawarra Performing Arts Centre (IPAC), the Arts Precinct Lawn and Civic Square (off Crown St). Continue to cluster cultural and civic uses in this precinct.

- Increase southern setbacks to Burelli Street. Permit taller commercial buildings with a mixture of podium & tower and tower to ground typologies. Encourage well spaced tall slender towers along Burelli Street.
- Retain the 2 storey fine grain quality of Crown Street and set new built form well back above the street wall height...
- Provide new entrances to the Art Gallery and Town Hall that engage with the Arts Precinct.
- 12. Protect solar access to the Arts Precinct Lawn.
- Require an active frontage to the buildings along the northern end of the Arts Precinct, to give the long, deep square a focal point at its northern end.
- 14. The setting of the heritage listed St Andrew's Presbyterian Church, the row of Figs on the opposite site of Burelli St and the Wollongong Art Gallery are to be considered and enhanced through any additional built form or public domain improvements.

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2.9 Foreshore



Character

The foreshore precinct is characterised by its natural setting. The continuous coastal edge and sand dune environment are complemented by the high quality landscape design of Lang Park and connective public domain of the adjacent, heavily treed streets.

Active transport networks are well maintained and used. Public transport links the precinct to other key city areas. Pedestrians are prioritised throughout the precinct, especially at the foreshore edge.

Entertainment and sporting venues are integrated with Lang Park and provide flexible venues for play, training, festivals and relaxation.

The locality has a residential, leafy character with generous side setbacks and landscaping. Residential development in this precinct is high quality and of slender proportions, preserving views in both directions to the escarpment and ocean. Mixed civic, education and retail uses create a mixed use precinct which serves residents and visitors alike.

Long views north to Flagstaff Hill, south to the steel works and Port Kembla and west to the escarpment, are significant to the identity and character of the Precinct.

Objectives

- a. Development responds to and enhances the natural
- Views to the escarpment, foreshore and significant places are preserved.
- c. Buildings have a landscape setting with appropriate side setbacks to allow view sharing for other buildings and pedestrians.
- d. Tourism, recreational and cultural uses and activities are provided in appropriate locations.
- Redevelopment of large format facilities opens up views and pedestrian links to the foreshore.
- f. Large city blocks are made more permeable for pedestrians with new through block links
- g. Architectural diversity is increased through smaller site development
- The established Norfolk Pines along Lang Park are retained as landmarks.
- Development along the foreshore is small footprint and low impact, reflecting the area's sensitive coastal and flood prone environment.





Concept perspective The foreshore will become an important gathering place with a variety of active and passive uses



Arrival at the beach is a focal point



The edges of the public domain are activated

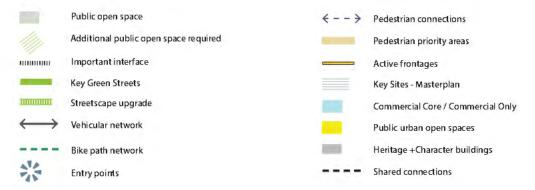


Lang Park connects seamlessly to the beach as a continuous, active space

Precinct Structure & Key Moves - Foreshore



Figure 14: Foreshore Precinct Map



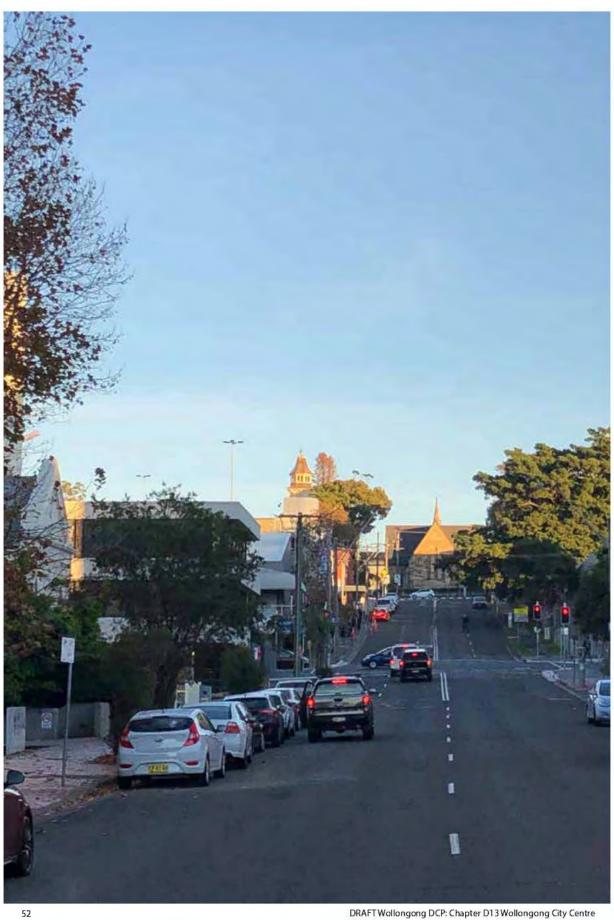


- 1. Create a new City Beach arrival experience with an urban beach-side plaza that connects Lang Park, Crown Street and the beach.
- 2. Reconsider fencing to Rest Park to increase it's permeability and prepare a master plan for an interpretive landscape solution on the site which interfaces with the beach.
- 3. Consider including additional and improved play areas for children in Lang Park.
- 4. Consider the re-design of the Olympic Memorial southern end of the park.
- Remove the roundabout and move the bus layover from Marine Drive to prioritise pedestrian movement from Crown Street to the beach.
- 6. Reconnect the city grid to the beach through a new road/shareway along the western side of Lang Park. Consider relocating existing parking bays from Marine Drive here to enable Lang Park and the Foreshore to prioritise pedestrians.
- 7. Manage the future interface with properties to the west of Lang Park to ensure appropriate interface between private residences and public parkland.
- 8. Extend the existing Blue Mile southwards to connect to Bank Street and back into the centre. Work with stadium to ensure this space is well activated with good surveillance to provide a safe and attractive link. Work with the entertainment centre and stadium to also enable new east west pedestrian links through sites to connect the streets to the beach. Service access is to be limited to Harbour Street.
- 9. Reinforce pedestrian connections through Entertainment and Stadium sites to connect destinations and views.

Land Use

10. Engage with Venues NSW to discuss future redevelopment potential on the site, including active ground uses.

- 11. Include new kiosk pavilions to provide food and beverage attractors and amenities on the beach-front.
- 12. The street frontage to Market Street must preserve views west toward the Wollongong Courthouse and St Michael's Cathedral.
- 13. Redevelopment adjacent to the Post and Telegraph Office is to facilitate a landscaped setting for this listed building.
- 14. Site planning is to address the performance criteria of the Foreshore Management Plan and SEPP (Coastal Management) 2018.
- 15. Site planning is to address the impacts of the site's flood affectation without compromising street address or pedestrian experience.



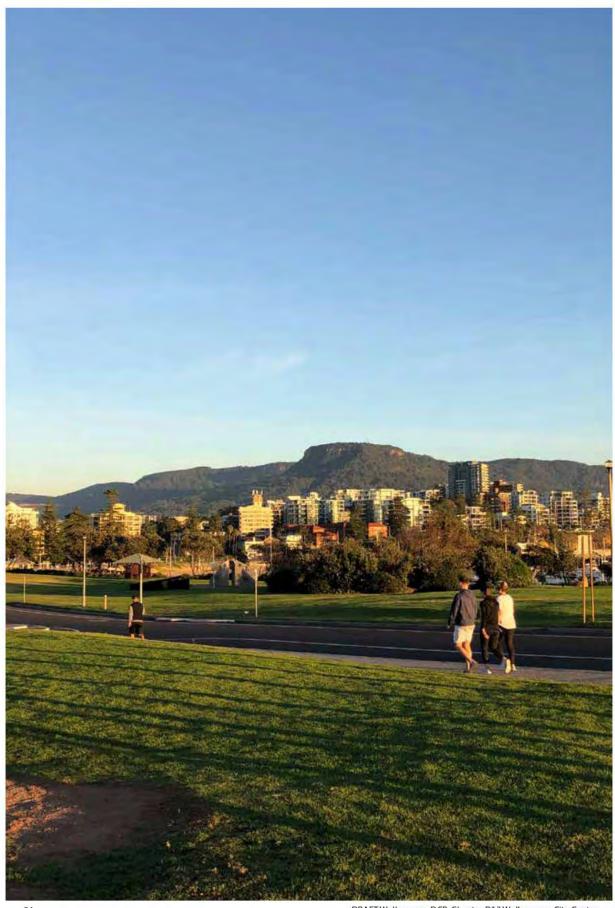
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3. City Centre Development Controls

This section demonstrates in detail how the land use and built form requirements of the Wollongong LEP 2009 are to be realised through development. The objectives and controls are supported by the contextual information presented in the previous section – 2. City Precincts and Key Sites.





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Context

Good design in the built environment is informed by and derived from its location, context and social setting. It is place-based and relevant to and resonant with local character, and communal aspirations.

It also contributes to evolving character and setting.

Better Placed 2017



3.1 Site Analysis

Site analysis identifies the key elements of the site and its context. By identifying and describing the physical elements of the locality and the conditions that impact upon the development site, opportunities and constraints for development can be understood and addressed in the design.

A good site analysis underpins the design response to create a harmonious and seamless relationships with a site's surroundings and characteristics.

Site planning will then coordinate responses to issues relating to noise, overshadowing, safety, access, circulation, place, green cover, native habitat, views, privacy and energy consumption.

Site analysis should inform clear strategies and principles about how the design will respond to elements of site and context, as demonstrated in the adjacent diagrams.

Objectives

- The site analysis is to demonstrate that the proposed design of buildings and spaces is an appropriate response to context.
- b. The site analysis is to reveal clear strategies and principles to inform a high quality, place-based design response.
- c. The site analysis acknowledges and proposes a response to the major contextual issues including:
 - Solar Access
 - Protected Public Views
 - Pedestrian permeability
- d. The site analysis is thorough and includes consideration of:
 - broad context
 - urban structure
 - precinct character
 - urban grain and massing
 - amenity impacts
 - materiality

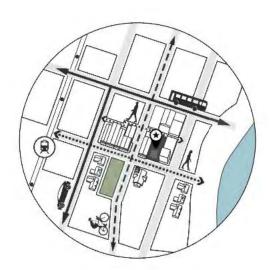


Broad context: where does the site sit in relation to major natural and human-made elements? How does it relate to the Foreshore and Escarpment, the City Centre or City Fringe, topographic high or low points, and environmental conditions?



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Precinct Character: How should the historic context inform the development? How will the development respond to the character of the precinct and contribute to its of sense of place and history, its role in the city, the distinctive patterns of development and landscape, and its uses and activity.

Urban structure: What role does the site play in the multiple layers of the city's structure? How will the development connect with the historic street grid and subdivision, the movement networks and major infrastructure systems, the open spaces, significant landscape and major public realm elements, the green networks and the important view corridors.



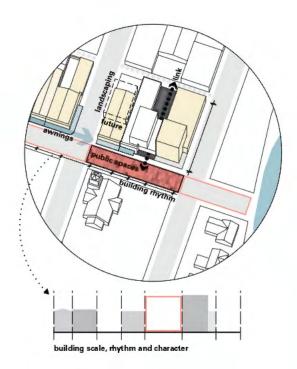


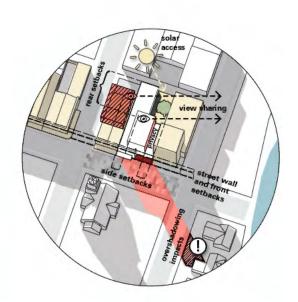
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Urban grain and massing: What is the pattern and scale of the surrounding streets, blocks and lots, the rhythm of building frontages to the street and the relationship between built form and landscaped areas. How will the development contribute to this scale and rhythm?

Amenity: What are the existing challenges to providing amenity to the new development? What amenity impacts to neighbouring developments and nearby public domain need to be considered? How will access to daylight, privacy, and view sharing be ensured for all?

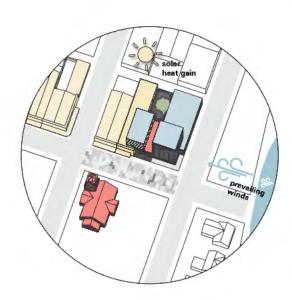




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Materiality: What of the natural and built context will influence the materiality of the development? How will the contextual environmental conditions impact sustainable material choices? What amenity impacts need to be considered when defining the material palette.



Controls

- 1. Development applications are to include a site analysis addressing the objectives.
- Site analysis will include:
- A locality plan and an east-west section at 1:10,000 indicating the site's location in relation to the broad context. The locality plan will include the full extent of the city centre and links to significant features.
- A context plan at 1:10,000 indicating the site's relationship to the Urban Structure. This will include the full extent of the City Precinct and any necessary surrounding areas.
- Diagrammatic mapping, photographs, details and sketches of any relevant materiality, and formal or character elements.
- Street elevations demonstrating the site's relationship to the urban grain and massing of the street and surrounding blocks. Axonometrics may be included to compliment the information presented in the elevations.
- Plans, sections, elevations and axonometrics sufficient to demonstrate the potential amenity impacts from and on neighbouring sites and significant public domain in the area of influence. To include overshadowing, view and wind studies as appropriate.
- Plans, sections, elevations and axonometrics sufficient to demonstrate council's sun access planes, protected views and proposed pedestrian links have been acknowledged and addressed.
- Detailed surveys including the full site, adjacent public domain, roads, location and depth of existing underground services, existing and adjacent built form and all trees and significant landscape elements on and adjacent to the site. In addition to standard inclusions ensure reduced levels (RLs) are included for road kerbs and crests, footpaths, adjacent built form and tree base and tops.
- Photographs, sketches and details of significant landscape features including trees (to be retained or otherwise) and public domain.



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3.2 Solar Access to Public Spaces

Good solar access is a key contributor to the amenity of public spaces. Public Spaces include all parts of the public domain including parks, plazas, building forecourts and footpaths. Good solar access ensures that public spaces are inviting and well used, and that landscape elements are healthy and resilient.

Solar access to public spaces in protected through two key mechanisms; Sun Access Planes (SAP) and No Additional Overshadowing (NAO) controls. General controls may also stipulate how much of a space must receive sunlight for how long, and during what apart of the day.

SAP and NAO controls establish both dates and time periods to protect spaces. Generally, the times for protection are in the middle of the day when the majority of use occurs and the space is most valued by its users.

Direct sunlight access to important parks and places is important throughout the year. The dates used to generate these controls are set at the most conservative sun angles, which ensures protection throughout the remainder of the year when the sun is higher in the sky.

The dates and times of protection vary for each place according to the type of activities occurring in that place that benefits from sunlight, when those activities are likely to occur, and existing levels of sunlight and overshadowing.

Objectives

- Protect and improve sunlight access to significant public spaces throughout the year, and during periods in the day when they are most used.
- Ensure city streets and the broader public domain receive sunlight to a high level of amenity.
- Ensure that sunlight to new and planned future important public parks and places are protected by solar access controls.
- Ensure the healthy growth of trees, grass and other vegetation in the public domain.

General Controls

- 1. New public spaces must be protected from overshadowing. 70% of the open space provided must receive a minimum of 2 hours continuous sunlight between 11am and 2pm on 21 June.
- Outdoor communal open space provided in association with commercial developments must be designed to ensure that at least 50% of the open space receives a minimum of 2 hours continuous sunlight between 11am and 2pm on 21
- 3. An overshadowing analysis is to be submitted with all development applications indicating the existing and proposed condition at 9am, 12 noon and 3pm on 14 April and 21 June. This can be in the form of a traditional set of overshadowing plans or sun-eye diagrams. If required, the consent authority may request additional detail to assess the overshadowing impacts.





Arts Precinct, May 10am

Sun Access Planes

Sun access planes (SAP) are an arrangement of planar surfaces that are set at the same angle as the sun at specific dates and times.

The SAP defines an upper building height for the land impacted by the plane. SAPs are expressed as contoured planes extending between node points on the ground, and rays extending upward from those node points. The heights of the contours are measured in Australian Height Datum (AHD), unlike Height of Building limits (HOB) which are measured in metres above natural ground.

Development on land is prohibited if the development results in any part of the building projecting above the sun plane. Where an LEP height of building limit exists which sits lower than the SAP, the lower height applies.

To determine the actual height of a SAP control at any point, the description of the Sun Access Plane in Wollongong LEP 2009 prevails over the diagrams in Wollongong DCP 2009, in the case of an inconsistency. Wollongong LEP 2009 2009 establishes SAPs for 7 public spaces, as shown on the map on the previous page. The Sun Access Plane Protection Open Spaces and the set out parameters of the sun access planes are detailed in the Wollongong LEP 2009.

Sun Access Plane protected Open Spaces

As shown in Figure 15, the following opens spaces are rpotected by Sun Access Planes:

1.	MacCabe Park	12noon - 2pm
2.	Civic Square	11am - 3pm
3.	Market Square	12noon - 2pm
4.	Pioneer Park	12noon - 2pm
5.	Crown Street Mall	12noon - 2pm
6.	Church Street	11am - 2pm
7.	Arts Precinct	9am - 3pm

The contour diagrams on the following pages provide an indication of the maximum height above which development is prohibited for land affected by sun access planes. The diagrams include height contours which set the height limit (RL AHD) across the impacted sites. To determine the actual height of a sun access plane at any point, the description of the sun access planes in the Wollongong LEP 2009 is to be used.

Controls

- New developments on sites within the highlighted in yellow on the Sun Plane Protection Map in the Wollongong LEP 2009 and on Figure 15 adjacent, are to comply with the Wollongong LEP 2009 Sun Access Plane controls. These controls are demonstrated through the contour diagrams on the following pages.
- Development applications for sites impacted by a SAP are to demonstrate compliance by including hourly diagrams in plan and elevation that show the shadow impact of the proposal on the protected open space on 21 June for the relevant time period.
- 3D models provided with Development Applications will be tested against the SAPs in council's City Centre model.

No Additional Overshadowing

No Additional Overshadowing (NAO) controls protect the existing sunlight to public places where there is already some significant overshadowing from tall buildings. In contrast to 5un Access Planes, No Additional Overshadowing controls preserve sunlight that passes through gaps between buildings to reach public spaces.

No additional overshadowing controls apply to the following spaces, as shown hatched on Figure 15:

Protected Parks or Places

A. Lang Park	9am - 4pm	
B. St Michael's Cathedral Square	9am - 4pm	
C. The foreshore	9am - 4pm	
D. Osbourne Park	9am - 4pm	

Controls

- New developments on sites with the potential to overshadow sites on the No Additional Overshadowing Map in the Wollongong LEP 2009, are to comply with the Wollongong LEP 2009 NAO controls.
- Development applications for sites impacted by a NAO control are to demonstrate compliance by including hourly diagrams in plan and elevation that show the shadow impact of the proposal on the protected open space on 21 June for the relevant time period.

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Areas subject to Sun Access Planes Figure 15: City Centre Sun Access Protected Open Spaces Open Spaces protected by a SAP Open Spaces protected by No Additional Overshadowing Controls

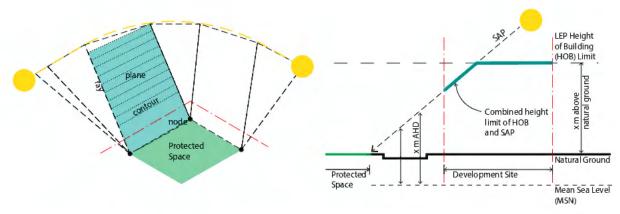


Figure 15: Sun Access Plane diagram showing the different components of the plane

Figure 16: Sun Access Plane diagram showing how the SAP and HOB must be understood in conjunction to define the permissible height limit



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1. MacCabe Park

Intended period of protection 12 noon - 2pm all year

Primary Date 21st June Primary Plane Time 2pm

Details Comprised of 4 Nodes, 6 Planes and 7 Rays

Secondary Dates 23rd September, 21st December

Secondary Times 2pm from Node D



Figure 17: MacCabe Park Sun Access Plane



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2. Civic Square

Intended period of protection 11am - 3pm all year

Primary Date 21st June Primary Plane Time

Details Comprised of 4 Nodes, 8 Planes and 9 Rays

Secondary Dates 23rd September, 21st December Secondary Times 11am from Node A, 3pm from Node D



Figure 18: Civic Square Sun Access Plane



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3. Market Square

Intended period of protection 12 noon - 2pm all year

Primary Date 21st June Primary Plane Time 2pm

Details Comprised of 3 Nodes, 5 Planes and 6 Rays

Secondary Dates 23rd September, 21st December

Secondary Times 2pm from Node C



Figure 19: Market Square Sun Access Plane



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4. Pioneer Park

Intended period of protection 12noon - 2pm all year

Primary Date 21st June Primary Plane Time 2pm

Details Comprised of 3 Nodes, 5 Planes and 6 Rays

Secondary Dates 23rd September, 21st December

Secondary Times 2pm from Node C



Figure 20: Pioneer Park Sun Access Plane



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5. Crown Street Mall

Intended period of protection 12 noon - 2pm all year

Primary Date 21st June Primary Plane Time 2pm

Details Comprised of 4 Nodes, 6 Planes and 7 Rays

Secondary Dates 23rd September, 21st December

Secondary Times 2pm from Node D



Figure 21: Crown St Mall Sun Access Plane



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6. Church Street

Intended period of protection 11am, - 2pm all year

Primary Date 21st June Primary Plane Time 1pm

Details Comprised of 3 Nodes, 7 Planes and 8 Rays

Secondary Dates 23rd September, 21st December Secondary Times 1am from Node A, 1pm from Node C



Figure 22: Church Street Sun Access Plane

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7. Arts Precinct

Intended period of protection 9am - 3pm all year

Primary Date 21st June

Primary Plane Time 3pm

Details Comprised of 4 Nodes, 8 Planes and 9 Rays. Set out at edge of raised area.

Secondary Dates 23rd September, 21st December **Secondary Times** 9am from Node A, 3pm from Node D

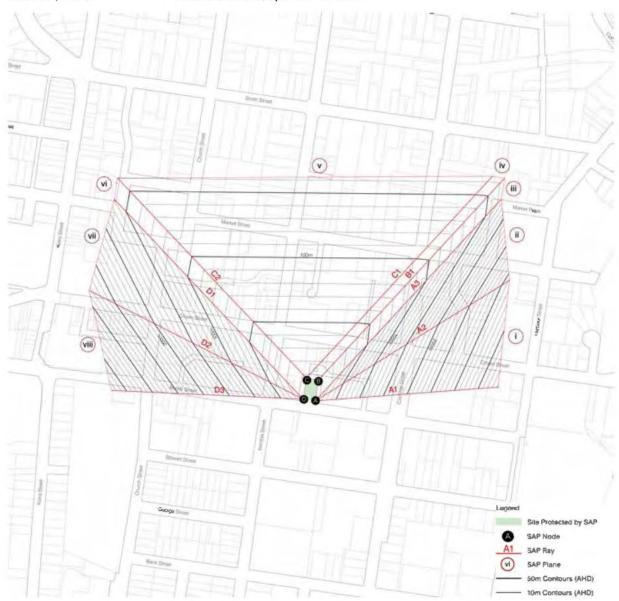


Figure 23: Arts Precinct Sun Access Plane



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3.3 Public Views

Views contribute to the understanding of a place's context and character. Views towards the escarpment and ocean reinforce an understanding of Wollongong City Centre's natural setting. Views to the south towards the Port Kembla Steelworks and north east towards the Harbour are important in referencing the City's industrial, "working" character.

Views to special places or buildings within the city centre, such as the Cathedral and Courthouse, reinforce an understanding of the City's heritage and act as landmarks, contributing to the legibility of the city for the public.

Views can be appreciated in different ways:

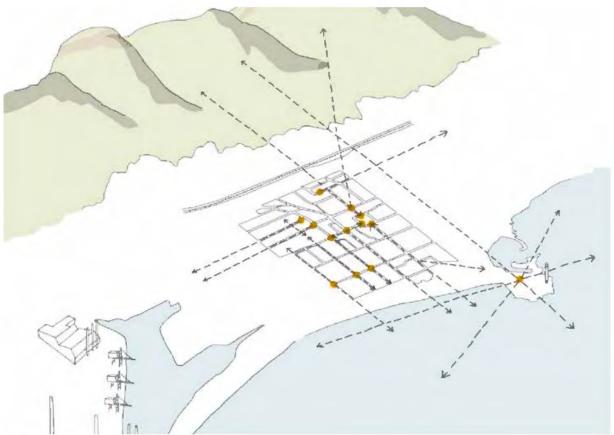


Figure 24: Contextual Views

- Composed views to significant features: for example, the site of St Michael's Cathedral sits where Market and Church Streets intersect at the crest of the hill, meaning it is intended to remain visible from the north, south, east and west extents of the city grid.
- Contextual views of significant landscape: these may be available as glimpses between buildings (as in the foreshore and ocean) or retained as continuous features of the skyline (as in the escarpment ridgeline).
- Silhouette views: A silhouette is the outline of a building against the sky. The silhouettes of many buildings are significant and contribute to the identity of the city and its skyline.

Within the City Centre, the original 1834 street grid and its 1850s and 1900s additions capture and enhance significant views to key locations including:

- St Michael's Cathedral
- Wollongong Courthouse clock tower
- MacCabe Park
- Market Square
- Breakwater Lighthouse

Other important views captured along streets, and between and over buildings include those to:

- Lang Park (and associated Norfolk Pines)
- City Beach and the ocean and the 5 islands beyond
- The continuous ridgeline of the Illawarra escarpment, including the significant high points of Mount Kembla (westsouth-west), Mount Keira (west-north-west) and Brokers Nose (north-west).
- Port Kembla and the Ports area



Composed Views: Market and Church Streets align to views of St Michael's Cathedral



Contextual Views: the Escarpment is seen along streets and between



Silhouette views: the Courthouse clock tower is framed against the sky



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Objectives

- Preserve and improve views from the city centre to the foreshore, escarpment and significant built form.
- Enhance views along City streets.
- Protect the silhouettes of the tops of significant buildings or structures as seen against the sky, escarpment or foreshore.
- Ensure the escarpment remains the dominant feature of the skyline.

Controls

- Existing views shown in Figure x Public Views are to be protected.
- No additional views to the ridgeline of the Escarpment from Flagstaff Hill are to be blocked by new development. View impacts are to be tested view point 34° 25′ 19.32″ S 150° 54′ 33.71"E (Captain Cook Concrete Memorial)
- 3. The height of development on the St Micheal's Square site must not exceed the existing ridgeline of the cathedral (RL 43.45 AHD).
- 4. The view and silhouette of the St Michael's Cathedral against the skyline at any point east of the Cathedral looking west along Market Street must be maintained. Future developments that propose to penetrate this view will not be permitted.
- 5. Development surrounding St Michael's Square must be designed so as not to compromise the existing views appreciated to and from the site.
- The view and silhouette of Wollongong Courthouse Clock Tower against the skyline at any point east of the Courthouse looking west along Market Street must be maintained. Future developments that propose to penetrate this view will not be permitted.

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- The massing and arrangement of the skyline and existing building silhouettes must be carefully considered and proposed development must be designed so that its appearance complements the city skyline.
- 8. The redevelopment of sites with potential to open a blocked view shown in Figure 24: Public Views must restore that view.
- Site analysis submitted with Development Application must address the achievement of the view objectives and controls, taking into account existing topography, vegetation and surrounding development.
- 10. The planning and design of building forms must maximise view corridors between buildings.



Views to Port Kembla steelworks down Corrimal Street



Views to Breakwater Lighthouse down Harbour Street





Views to Mt Keira from Rawson St DRAFT Wollongong DCP: Chapter D13 Wollongong City Centre



Views to MacCabe Park down Bank Street



Views to Ocean down Crown Street



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3.4 Permeability

Great places are walkable - this means they are designed, built and managed to encourage people of all ages and abilities to walk or cycle for leisure, transport or exercise. This requires a fine grain urban form and land use diversity. Places that demonstrate these characteristics promote healthy, active lifestyles and social interaction.

Permeability describes the ease to which people can move through the urban environment. The street structure provides the framework for a permeable city, and this is supported by finer grain connections created by pedestrian links including: throughsite links; through-block links; laneways; arcades; and shared zones.

Objectives

- Contribute to a network of pedestrian links throughout the City Centre by providing through-site links; through-block links; laneways; arcades; and shared zones.
- Retain existing through-block links, laneways, arcades shared
- Provide new pedestrian links that connect private and public open space to existing pedestrian and cycle networks, public facilities and dwellings.
- Promote the use of through-site links through their design and operation.
- Ensure pedestrian links are welcoming and have a public e. character.
- Ensure pedestrian links are safe, well lit and accessible.
- Maximise low angle (eye-level) views between buildings to allow orientation throughout the City Centre and to reduce the effects of visual enclosure.
- h. Ensure pedestrian links are well designed and activated.
- Ensure pedestrian links respond to the scale of adjacent developments.
- Support vehicle access and servicing via rear lanes to protect pedestrian amenity on streets.
- Ensure visual permeability at ground level in commercial buildings through the design of open floor layouts and transparent materials.

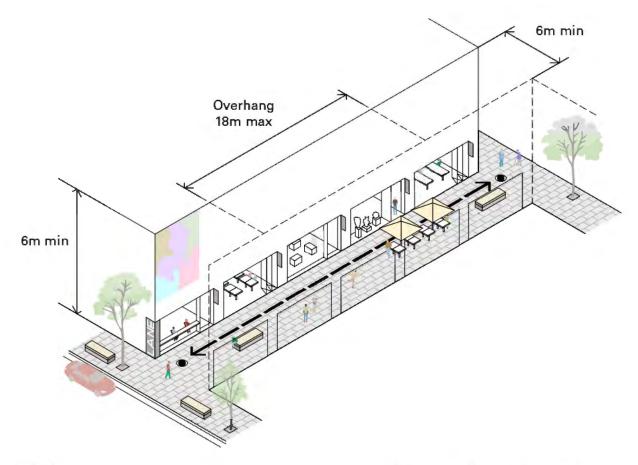
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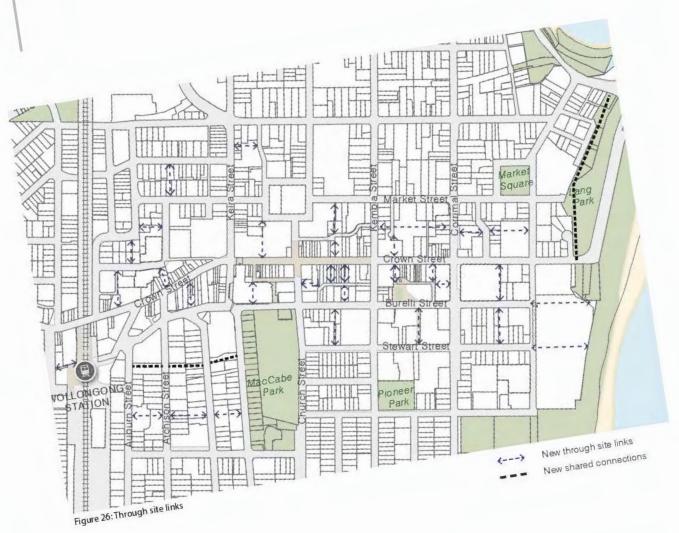




Controls

- 1. Existing pedestrian links are to be retained.
- 2. New through-site links are to be provided:
 - in the locations identified on Figure 25: Through site links
 - within a development site where site analysis indicates the need for, or desirability of, a through-site link.
- Through-site links are to be an easement on title unless identified for dedication to Council.
- 4. New through-site links are to be designed to:
 - have a clear height of at least 6m;
 - have a minimum width of 6m, unless built form analysis
 of the scale of the adjacent built form justifies a
 narrower width;
 - be direct and publicly accessible, allow visibility along the length of the link to the public domain;
 - be easily identified by users and have a public character;
 - be clearly distinguished from vehicle accessways;
 - include active uses and opportunities for natural surveillance;
 - include materials and finishes (paving materials, tree

- planting, furniture etc.) integrated with adjoining streets and public spaces and be graffiti and vandalism resistant;
- ensure no structures (for example, electricity substations, carpark exhaust vents, etc) are constructed in the through-site link; and
- be accessible 24 hours a day
- Through-site links are only to pass through or under a building where:
 - the building's height is greater than 3 storeys; and
 - the distance of the link under any structure is less than
 50% of its total length to a maximum length of 18m.
- 6. In addition to complying with the above controls, internal components of a through-site link must be:
 - able to maintain access to natural light;
 - open at each end or, where air conditioned, provide entry doors that are glazed and comprise a minimum 50% of the width of the entrance;
- Where residential development fronts a through-site link, windows, doors, verandahs and courtyards are to front the through-site link at ground level. Privacy is to be managed through level changes, threshold areas and landscape.





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3.5 Environmentally Sustainable Development

This section sets out objectives and controls to provide a framework for the application of ecologically sustainable development principles in the design, construction and operation of buildings across Wollongong City Centre.

Council encourages the application of ecologically sustainable development principles for all development. Implementing the principles means that the development will be designed and constructed so that it complies with the objectives of DCP Chapter A02 Ecologically Sustainable Development.

Council encourages applicants to use an environmental building rating tool, such as Green Star or any similar rating tool, to demonstrate the environmental performance of a proposed development.

Applicants should contact the operator of the rating tool, such as the Green Building Council of Australia, if they wish to obtain a certified rating. Where an applicant voluntarily proposes achieving a Green Star or other building tool rating Council will apply a condition of development consent that requires the development to obtain the certified rating that was nominated by the applicant.

Controls

Energy efficiency in non residential developments

- 1. Development is to be designed and constructed to reduce the need for active heating and cooling by incorporating passive design measures including design, location and thermal properties of glazing, natural ventilation, appropriate use of thermal mass and external shading, including vegetation.
- 2. Lighting for streets, parks and any other public domain spaces provided as part of a development should be energy efficient lighting such as LED lighting.
- In multi-tenant or strata-subdivided developments, electricity sub-metering is to be provided for lighting, airconditioning and power within each tenancy or strata unit. Locations are to be identified on the development plans.

- Electricity sub-metering is to be provided
- Car parking areas are to be designed and constructed so that electric vehicle charging points can be installed at a later
- Where appropriate and possible, the development of the public domain should include electric vehicle charging points or the capacity for electric vehicle charging points to be installed at a later time.
- 7. Applications for new developments containing office premises with a net lettable area of 1,000 sqm or more are to be submitted with a NABERS Energy Commitment Agreement confirming that the building will be capable of supporting a Base Building National Australian Built Environment Rating System (NABERS) of 4.5 stars with the NSW Office of Environment and Heritage. Such an agreement is to be entered into prior to any construction certificate being issued for the approved development.
- Applications for developments involving alterations, additions and refurbishments to existing office premises where the estimated cost of works is over \$5 million, and contains a net lettable area of 1,000sqm or more, are to be submitted with NABERS Energy Commitment Agreement confirming that the building will be capable of supporting a Base Building National Australian Built Environment Rating System (NABERS) of 4.5 stars with the NSW Office and Environment Heritage. Such an agreement is to be entered into prior to any construction certificate being issued for the approved development. Notwithstanding, a Base Building National Australian Built Environment Rating System (NABERS) Energy Commitment Agreement of 4 stars is not required where the consent authority is satisfied that:
 - the upgrade works would negatively impact on significant heritage fabric or the heritage significance of a listed heritage item, or
 - the costs associated with the energy efficiency upgrade works are unreasonable when compared to the overall estimated cost of works for the alterations, additions and refurbishment.



- Any application which may impact on significant heritage fabric or the heritage significance of a listed item is to be supported by a Heritage Impact Statement prepared by an appropriately experienced heritage consultant.
- 10. Where it is asserted that the costs are unreasonable under subclause (8) the development application is to be supported by a registered Quantity Surveyor's detailed cost report itemising and verifying the cost of the required energy efficiency upgrade works.

Water efficiency in non-residential development

- All new water fittings and fixtures such as showerheads, water tap outlets, urinals and toilet cisterns, in all nonresidential development, the public domain, and public and private parks are to be the highest Water Efficiency Labelling Scheme (WELS) star rating available at the time of development.
- 2. Generally, rainwater tanks are to be installed for all nonresidential developments, including major alterations and additions that have access to a roof form from which rainwater can be feasibly collected and plumbed to appropriate end uses.
- 3. Where a non-residential building, the public domain, a public or private open space or a community facility is serviced by a dual reticulation system for permitted non-potable uses such as toilet flushing, irrigation, car washing, fire fighting and certain industrial purposes, the development is to be connected to the system.
- 4. Generally, water used for irrigation of public and private open space is to be drawn from reclaimed water or harvested rainwater sources. Possible sources include harvested stormwater, treated greywater and wastewater and water from a decentralised local network.
- 5. Separate meters are to be installed for each individual tenancy in commercial or retail buildings over 5,000sqm, such as separate tenant areas within a shopping centre.
- 6. Separate meters are to be installed for the make-up lines to cooling towers, swimming pools, on the water supply to outdoor irrigation, and other major uses. DRAFT Wollongong DCP: Chapter D13 Wollongong City Centre

- 7. Where cooling towers are used they are to be connected to a:
 - recirculating cooling water loop; and
 - conductivity meter so that the blow down or bleed off system in a cooling tower can be automated based on conductivity. This ensures that the water is being recirculated an optimum number of times before being discharged to the sewer.
- 8. Cooling towers are discouraged where they are a single pass cooling system.

Photovoltaic solar panels

- The use, location and placement of photovoltaic solar panels is to take into account the potential permissible building form on adjacent properties.
- 10. Where possible proposals for new buildings, alterations and additions and major tree plantings are to maintain solar access to existing photovoltaic solar panels having regard to the performance, efficiency, economic viability and reasonableness of their location.

Materials and building components

See 3.14 Materials





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Built Form

Built form describes the collection of individual building design elements that contribute to the overall character and performance of the built environment. New built form in Wollongong City Centre will be contextual, sustainable and functional, design in place to enhance the experience of that place for people.

Built form has a high impact on people. Building users, those occupying adjacent buildings and people in the public domain are all impacted by a building's design. New built form in Wollongong City Centre will be people-oriented, catering for the individual and the community as a whole.

Built form presents an image of place, demonstrating the values and aspirations of a community. New built form in the city centre will respond to the beautiful natural setting with high quality urban and architectural design, appropriate for a significant regional city.

3.6 Building Setbacks

A building setback is the distance between the building and a defined site boundary or object. Building setbacks are important because they:

- relieve the scale of a building;
- manage amenity between sites;
- protect areas for landscaping;
- and create interest in the street.

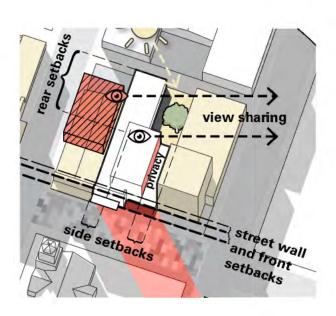
Building setbacks may create a separation from:

- the street boundary;
- a neighbouring site or an adjacent built form;
- a rear boundary;
- a heritage building;
- an open space.

The following objectives apply to all building setbacks:

Objectives

- Provide amenity to the site, neighbouring sites, adjacent public domain and pedestrians. This includes their access to sunlight, views, wind mitigation, ventilation and breezes, noise attenuation, safety and privacy.
- b. Reinforce the desired function and built character of the street
- Give curtilage to significant buildings and places.
- d. Maximise view corridors to significant landscape and built form to enable orientation and way-finding, and protect and enhance the city centre's scenic character.
- e. Provide room for tree planting



Front Setbacks at Ground Floor

Objectives

- Ensure front street setbacks for public domain are well designed for active use by pedestrians.
- Ensure front setbacks for private use include well designed landscaping to provide an appropriate threshold between the footpath and building line.
- Om setbacks and setbacks for public domain are to promote active streets with excellent visual and physical connection between the footpath and building functions.
- 4. Setbacks respond to the character and role of the street.

Comply with the setback controls in Figure 26: Front setbacks at ground floor

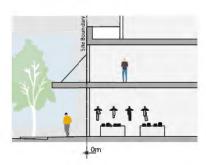




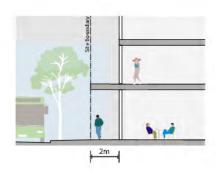
Figure 27: Front setbacks at ground floor 0m setback 2m setback for public domain 3m minimum setback for private domain 4m setback for private domain 4.5m setback for public domain 6m setback for public domain 2m setback for footpath access on laneways



- 5. Front building setbacks are to be deep soil and contain no parking structures at or below ground.
- 6. Balconies may project up to 600mm into the front building setbacks, provided the cumulative width of all balconies at that level is no more than 50% of the horizontal width of the building facade measured at that level. This control does not apply to buildings with 0m build to alignment setback.
- Where towers to ground are permitted and realised, an additional front setback at ground floor is required equal to the required setback above street wall.
- A 3m by 3m chamfered setback must be provided from the site boundary at the ground and first floors at the intersection of streets to allow for the future increase to the radius of the kerb.
- Circumstances where building to the front setback may be inappropriate include development where:
- the site is adjacent to a freestanding or setback heritage building. In this case, the new building should respond to the setback of the heritage building and justify the setback configuration in a Heritage Impact Statement.
- it contributes an appropriate public space at the street frontage.
- A 2m setback shall be provided on laneways to allow for a footpath.
- 11. Existing street trees are to be maintained in place, this shall require the retention of existing setbacks.
- Setbacks' for public domain' are to comply with section 3.17 -Publically Accessible Spaces



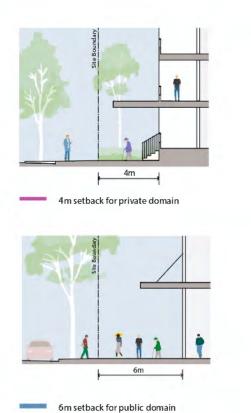
Om (build to street alignment)

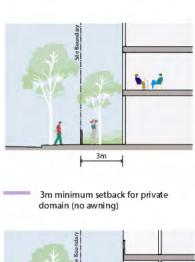


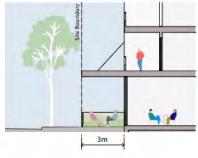
2m setback for public domain

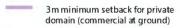
Figure 28 (including 7 sections): Front setbacks at ground floor

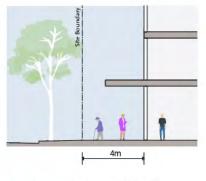












4m setback for public domain

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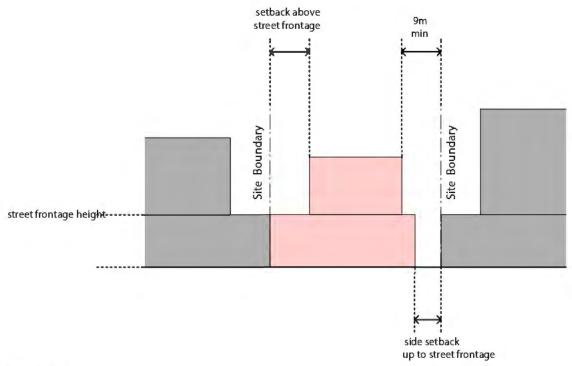
Side and Rear Setbacks

Objectives

- a. Ensure side setbacks preserve amenity between adjacent buildings and allow solar access and views to the sky from
- Ensure rear setbacks provide deep soil and private recreation
- c. Provide sufficient mid-block pedestrian connections to ensure walkability.

Controls

- 1. Comply with the setback controls in Table: Minimum Side and rear setback controls
- Residential setbacks are to achieve the building separation requirements of the Apartment Design Guideline unless this DCP imposes an increase.
- 3. Rear setbacks are to be deep soil and contain no parking structures at or below ground.
- 4. To avoid stepped building forms, a single setback should be provided above street wall. For taller buildings this means the greatest side and rear setbacks should be applied from street wall height.

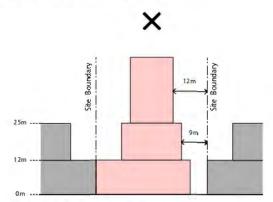


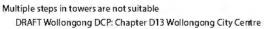
Side setbacks

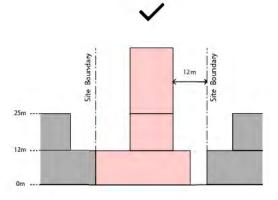


		Minimum Side Setback from boundary (m)	Minimum Rear setback from boundary (m)
Commercial Uses			
Up to Street Frontage	In area east of Corrimal St and	3	0
Height	In area bound by Church St, Stewart St, Corrimal St and Bank St. (noted as Precinct 003 in the Wollongong LEP 2009)	Zero side boundary setback is not permitted in any circumstance	
	In other areas	0 or	0
		3m either side of street frontages over 55m in length	
		or as required to establish a publically accessible open space or through site link	
Above street frontage height and less than 45m	In Commercial Core	6	6
	In other zones		12
Above street frontage height and over 45m	In other zones	12	12
Residential Uses (subject	to ADG building separation req	uirements)	
Up to 4 storeys (approx 12m)	In area east of Corrimal St and In area bound by Church St, Stewart St, Corrimal St and Bank St (noted as Precinct 003 in the Wollongong LEP 2009)	3 Zero side boundary setback is not permitted in any circumstance	4.5
Up to 12m (4 storeys)	In other areas	0 or 3m either side of street frontages over 55m in length	4.5
12 - 25m (5-8 storeys)	In all areas	4.5	4.5
	In all areas	6	6

Minimum Side and rear setback controls







3.7 Street Walls

The 'street wall' is the part of a building that directly addresses the street, from the ground level up to the first building setback.

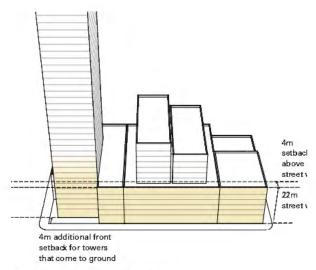
Street walls have a direct impact on the experience of the street for pedestrians. They bring a larger building down to the human scale at the street level, contributing to a sense of enclosure whilst maintaining access to sunlight and reducing the impacts of wind downdrafts from tall towers.

Street walls also influence the character of the street. Uniform street wall height creates a consistent built form typology amongst a mix of uses, building ages and styles.

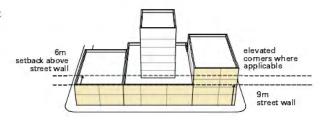
Heights and Setbacks

Objectives

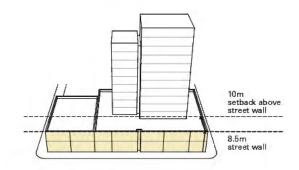
- a. Protect and enhance the character and historic streetscape quality and character of Crown Street Mall, Crown Street, Keira Street and Market Street.
- Promote the civic character of the Burelli Street commercial
- Ensure a human scale interface with MacCabe Park
- Ensure a transition in height to low scale areas
- Ensure street wall lengths and permeability are consistent with precinct character, and promote pedestrian walkability
- Protect the solar amenity of public spaces and streets f.
- Provide for open views of the sky and prevent 'canyoning'.
- Provide higher heights at corners to mark breaks in the street pattern.



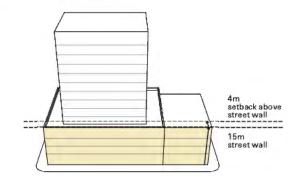
6 storey (22m) streetwall with 4m setback



2 storey (9m) streetwall with 6m setback



8.5m streetwall with 10m setback



4 storey (15m) streetwall with 4m setback



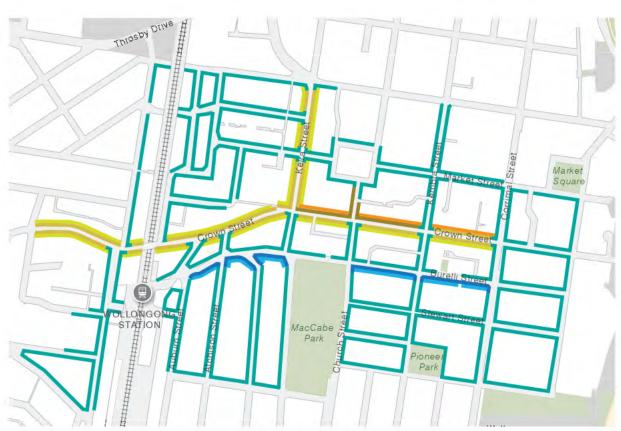
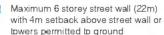


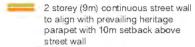
Figure 29: Streetwall heights and setbacks

Controls

- Comply with Figure 29 Streetwall heights and setbacks map
- 2. Streetwall heights shown in Figure 29 are maximums. Buildings are permitted to have a lower streetwall height were a contextual justification can be made.
- 3. Minor variations under the maximum streetwall height on Crown Street and Keira Street (where 2 storey street wall heights apply) are encouraged to realise modulation and visual interest in the streetwall, as consistent with the established streetscape character of diverse parapet walls.







2 storey (9m) continuous street wall to align with prevailing heritage parapet with 6m setback above street wall

Maximum 4 storey (15m) street wall with 4m setback above street wall



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Massing and Form

Objectives

- a. Achieve high amenity for streets and open spaces by preserving access to sunlight and views to the sky.
- Respond to opportunities to improve pedestrian permeability or access to open space.
- c. Preserve and open up public views of significant built form, open spaces and natural features available from and around the site.
- d. Achieve high quality streets for pedestrians.
- Create a strong and interesting street edge to City Centre Streets.
- f. Reinforce corner locations.
- Respond to the character created by dominant street wall heights and setbacks.
- h. Protect and enhance adjacent heritage or character items.
- Minimise the visual and amenity impacts of large scale buildings on the public domain.
- Clearly define the adjoining streets, street corners and public spaces and avoid ambiguous external spaces with poor pedestrian amenity and security.

Controls

- 1. Buildings with street walls greater than 55m in length are not permitted. Where a development site frontage is in excess of 55m in length, two or more buildings with different architectural expressions should be developed to front the street or public domain with a building separation of not less than 6m for the full height of the building.
- Where two different street wall conditions meet at a corner the higher street wall frontage will wrap around the corner. The higher street wall frontage will turn the corner for a length that is the lesser of 30m or 2.5 times the lower street wall height.
- 3. Towers on corners are encouraged to come to ground, adopting an additional ground floor setback equal to the corresponding setback above streetwall.





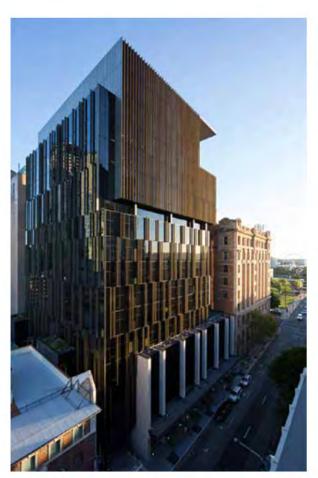
The street wall responds to the scale and texture of the street (Architectus)



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Modulation and Articulation

Modulation and Articulation refers to those design elements that bring interest, character and a sense of scale to the streetscape and broader built environment. Ground floor articulation and modulation is essential to create welcoming and vibrant streets for people.



Large commercial buildings are modulated to the street through the articulation of a street wall which responds to the scale and detailing of adjacent buildings (Shane Thompson)

Objectives

- Achieve diversity and interest in the architectural character of the streetscape.
- Provide identity for residents in large developments by visually differentiating groups of dwellings.
- c. Developments respond to the existing built form and grain of surrounding facades to reinforce a sense of address and a cohesive street character, without being the same in design.
- d. Maintain and develop fine grain modulation and articulation along Crown and Keira Streets. Existing fine grain buildings are retained and contribute to the character of place and inform surrounding new development.
- Buildings express their different functions through modulation and allow the public to read and connect with the building's function.
- f. Introduce fine grain built form and varied architectural character in large developments.

Controls

- All building facades throughout the city centre are to be articulated into smaller elements at a scale or grain that reflects:
 - the use of the building and the various components of the building;
 - the details and building elements including building entries, ground floor, lower floors, top floor and roof.
 - the positive elements of the character of the street and/ or precinct.
- Articulate each facade so that it addresses what is adjacent, including the street, through site links, and side and rear boundaries. Each facade should respond appropriately to its context, this may be through adding visual interest or receding visually to maintain the prominence of an adjacent feature.



- 3. Minor projections up to 450mm from building walls in accordance with those permitted by the Building Code of Australia may extend into the public space providing it does not fall within the definition of gross floor area and there is a public benefit, such as:
 - Expressed cornice lines that assist in enhancing the streetscape,
 - Projections such as entry canopies that add visual interest and amenity, and
 - Provided that the projections do not detract from significant views and vistas
- 4. Within larger developments, built elements are to be limited in length, have a variety of facades, articulation, physical breaks at ground, massing and architectural character so the street block presents as a group of buildings rather than a single building.

- Buildings may have a single architectural character provided that the facade elements establish a 'fine grain' vertical articulation.
- Separate buildings on the same development site must have a different architectural character.

Area specific controls

 The traditional shop-front pattern of 6-12m should be maintained and reinforced in new developments on Keira Street between Burelli and Smith Streets, and Crown Street between the Railway line and Corrimal Street.



Traditional fine grain shopfronts on Keira Street

3.8 Tower Massing and Form

Tower massing and form describes the overall three-dimensional configuration of the upper elements of a building. In most cases this refers to the portion of the building that sits above the 'streetwall'.

Tower massing will be realised differently across the different city precincts, responding to their different characters. Tall, slender commercial buildings are concentrated in a spine of height in the Burelli Street commercial precinct, signaling the importance of this area to the City Centre. The historic low scale, fine grain form is maintained to the street along the key retail streets of Crown and Keira with upper level forms set back and discrete. Narrow tower floorplates and generous side setbacks preserve views of the landscape and ocean at the Foreshore.

Objectives

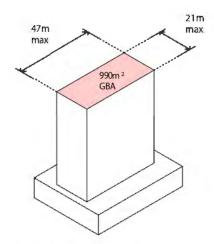
- a. Achieve an attractive city skyline which is informed by the topography, natural setting, character and particular activity of the precinct.
- b. Preserve and open up public views of significant built form, open spaces and natural features available from and around
- c. Achieve high amenity for streets and open spaces by preserving access to sunlight and views to the sky.
- d. Reduce the shadowing impacts of towers,
- Minimise the visual and amenity impacts of large scale buildings on the public domain.
- Proportion floor plates to allow for high internal amenity and minimise floor plate length to maintain oblique views across the city and views of the sky.
- g. Ensure that the fine-grain evident in frontages is carried through to the skyline character through differentiation in urban modelling.



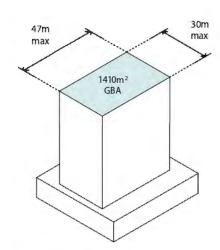
- 1. Comply with the Tower floor plate maximum dimensions table. This control relates to building floor plates above street wall (podium) height. Where tower to ground forms (no setback above street wall) are proposed, the maximum floor plate size must be taken from ground. Note that in some cases, site and urban design analysis, as well as other building envelope controls will prevent the realisation of these maximum floorplates.
- Separate building elements to visually differentiate large building mass, rather than building mass being uniform. Towers with a length over 30m should be expressed as two vertical forms with a clear break of at least 1m wide and 1m deep extending the full height of the tower. A stepped height difference of a minimum of two storeys is to be applied to the two forms.

	Maximum Area	Maximum shorter dimension (depth)	Maximum longer dimension (length)	
	(GBA*)	(m)	(m)	
Commercial	1,410	30	47	
Residential 990		21 (max 18 glassline to glassline as per ADG)	47	

Note: The building depth or length includes the internal floor plate, external walls, balconies, external circulation and articulation such as recesses and steps in plan and section



Maximum residential floorplate dimensions



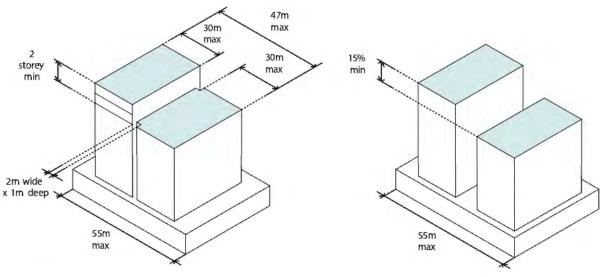
Maximum commercial floorplate dimensions

*GBA (Gross Building Area) is defined as the area of the building at all building levels, measured between the normal outside face of any enclosing walls (or the centre line of common walls between different properties), balustrades and supports. The enclosed and unenclosed areas are usually shown separately and added together to give the total GBA.
(Note: Gross Building Area should not be confused with Gross Floor Area)



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- 3. On larger sites with more than one tower, there is to be a minimum 15% difference between tower heights above ground level.
- 4. Towers should be designed 'in the round' to be seen from all sides. Walls facing side and rear boundaries should have equal design consideration to the street facing wall.
- 5. Roof spaces and their forms should be treated as a considered aspect of the overall building form - effectively a fifth elevation.



Tower massing



3.9 Wind Effects

Wind effects are the positive and negative impacts of built form on the wind conditions of the surrounding area.

The useability of the street, open elevated terraces and balcony spaces is somewhat dependent on comfortable wind conditions being achieved. Moderate breezes can enhance pedestrian comfort and disperse vehicle emissions and air-conditioning plant exhausts. Conversely, windy conditions can cause discomfort and danger to pedestrians and downdraughts from buildings can inhibit the growth of street trees.

Annual Maximum Gust speed	Impact on perceived Pedestrian Comfort		
>23m/s	Unsafe (frail pedestrians knocked over)		
<16m/s	Acceptable for Walking (unsteady steps for some pedestrians)		
<13m/s	Acceptable for standing (window shopping, vehicle drop off, queuing)		
<10m/s	Acceptable for Sitting (outdoor cafes, pool areas, parks and gardens)		

Objectives

- New developments maintain comfortable street level conditions for pedestrians and encourage the growth of street trees.
- New developments provide comfortable upper level conditions for users of balconies and other elevated outdoor areas.

3.10 Residential Development on Narrow Lots

Narrow sites present an opportunity to provide creative and innovative responses to residential renewal to deliver housing diversity while protecting the historic subdivision pattern of the City Centre.

Lots must be of sufficient width to accommodate development. In order to promote the fine grain development of smaller lot types, residential flat buildings are permitted on certain lots as narrow as 14m, subject to relevant controls. Residential flat buildings are not permitted on sites with a street frontage width less than 14m, as per the Wollongong LEP 2009.

Development sites with a site frontage width less than 24m are unlikely to achieve the permissible FSR or maximum building height of Wollongong LEP 2009. Site feasibility and urban design analysis is to be undertaken with respect to this limitation.

Residential development on narrow lots will be subject to assessment of Design Excellence by the Wollongong Design Review Panel.

Objectives

- Promote a mix of housing scales and types in the city centre
- Ensure high amenity outcomes for residents and neighbouring sites
- Ensure residential flat buildings on narrow lots are appropriate to context
- Ensure residential flat buildings on narrow lots achieve design excellence
- e. Development on narrow lots must not sterilise adjacent sites from future development.

Controls

Residential flat development is permitted on sites as narrow as 14m subject to the following controls.

- These controls apply to narrow sites as defined by the Wollongong LEP 2009 clause 7:14
- 7. The design must be reviewed and recommended for approval by the Design Review Panel, as per the Wollongong LEP 2009.
- 8. The development must provide safe and efficient access and servicing facilities - particularly in relation to parking, pedestrian and vehicle access, collection and storage of
- Required site servicing and vehicular access is to be provided
- 10. The development must provide a high standard of amenity to residents and neighbouring sites - particularly in relation to privacy, solar access, ventilation, and the provision of outlooks to landscaped setbacks.
- 11. The development must respond to character of the city precinct in which they are situated.
- 12. Residential flat buildings on narrow lots are not permitted in the B4 Mixed Use area east of Corrimal St, and the area bounded by Church St, Stewart St, Corrimal St and Bank St. This area is defined at Precinct 003 in the Wollongong LEP



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Public Interface

Public interface comprises of the boundary between the internal program of a building and the public realm. The way buildings interface with the public domain has a direct influence on the urban character of the city, the accessibility and functionality of the building and the safety, amenity and quality of the public domain.

3. 11 Activity and Program

Building activity and program describes the position and configuration of uses inside building. The relationship between these uses and the public domain must contribute positively to a people's experience of the city by creating spaces that are attractive, interesting, comfortable, safe, functional and accessible for all.

Objectives

- The arrangement of internal uses promote a safe and high quality interface between the public and private realm
- b. Position active uses to address main streets, streets and laneway frontages
- c. The lower levels of the building are designed to accommodate a range of tenancy sizes including smaller
- Buildings are designed for future adaptation.
- e. Internal communal areas or rooftop-podium spaces should be positioned and designed to maximise surveillance and interaction with the public realm.
- f. Maximise the number of pedestrian building entries along street and laneway frontages to provide for public interaction and long term flexibility of tenancies.
- g. Parking and servicing does not negatively impact the public



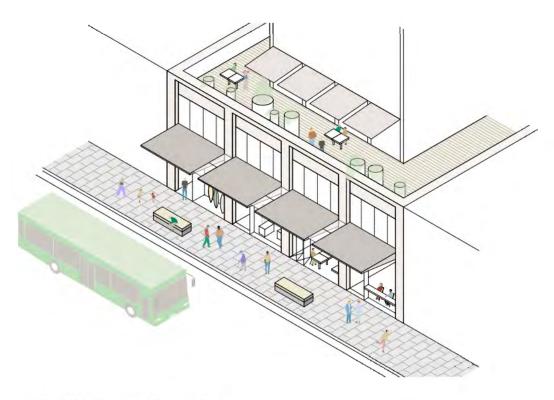


Controls

- Design floorplates and floor to floor heights on the first two levels to allow for future adaptation.
- Position active uses to address main streets, streets and laneways.
- Services are to be integrated where possible and positioned away from main streets and public spaces.
- Service functions, plant and car parking are located away from the street frontage and appropriately integrated into the building.
- Provide elements of visual interest, such as display cases, or creative use of materials where fire escapes, service doors

and equipment hatches cannot be avoided.

- 6. Parking is not visible from the street.
- 7. Where it is not possible to provide basement car parking, car parking may be located on the first floor or above. In this circumstance, landscaping or high-quality facade treatments should be used to be screen from the street or any public frontage.
- Car parking areas at ground level must be concealed by other uses with a minimum depth of 6m which front and activate the street.
- Carparking areas at ground cannot detract from achieving pedestrian through site links



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3. 12 Active Street Frontages

All development in the city centre must address the street. A positive building address to the street improves the functionality of the building and the quality of the public domain for people. All uses are capable of activating the street, however non residential uses such as shops, studios, offices, cafes, recreation and community facilities tend to create the most active street

The Wollongong LEP 2009 requires non-residential active frontages throughout the City Centre's key retail and commercial streets and precincts. These are defined in the Wollongong LEP 2009 Active Frontages Map.

All ground floor frontages in the City Centre, including those outside the Wollongong LEP 2009 mapped zone, must add to the liveliness and vitality of the street, displaying active frontages which may be retail, commercial or residential.

Objectives

- a. The City Centre's streets are lively and active places of social, civic and economic interaction.
- b. The space between the public street and the built form invites interaction and engagement providing both a seamless transition and an extension of the public domain.
- c. The street frontage and ground floor of buildings is prioritised for active use by people.
- d. Building frontages contribute to the use, activity, safety and interest of the public realm.
- Development allows for unobstructed views into the ground floor of buildings
- Development presents welcoming, engaging and active edges to streets and other public spaces at ground floor and the street frontages of lower storeys.

Controls

1. Non-residential uses are to be provided on the ground floor in the locations nominated on the Wollongong LEP 2009 Active Frontages map.



Active frontages diagram





Active frontages create a pleasant pedestrian environment

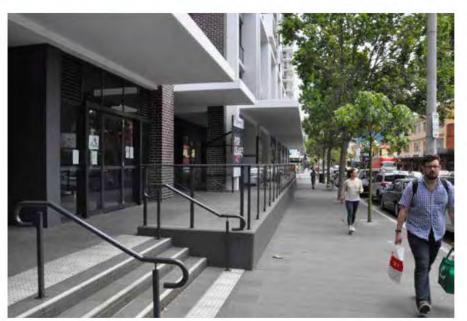


- Non-residential frontages are to be designed with the ground floor level at the same level as the footpath.
 Entrances are accessed directly off the street, and not via an off street lobby or foyer.
- Entrances to buildings with multiple tenancies are distributed along the street, rather than consolidated into a single entrance.
- Development addresses the street with frontages at ground and on upper floors with physical openings including doorways, verandahs, terraces, windows and balconies.
- Publicly accessible built form elements at ground are scaled for a positive human experience and provide amenity to pedestrians in the form of weather protection, seating and visual interest.
- 6. Colours, lighting and materials contribute to the vibrancy of the street and respond to the context.

- Ground floor tenancies are transparent and permeable and provide a seamless transition between public and private places and invite interaction and engagement.
- 8. Where non-residential floor plates must be elevated above street level for flood resilience, access between the street level and floor plate level shall be accommodated within the building footprint so that all ramps, stairs and associated handrails for the level transition occur behind the building facade and are not located in the public domain. This may also assist in the articulation of facades at street level

Location	Nominated on the Wollongong LEP 2009 Active Frontages Map	Not nominated on the Active Frontages Map		
Uses on public domain frontage	Entries or display windows to shops and/or food and drink premises; open and transparent lobbies to commercial offices	Entries to shops, commercial offices or residential properties. Note: residential developments at ground are to provide individual entries to ground floor dwellings. No requirement		
Transparency	A minimum of 70% of the ground floor frontage is to be clear glazing with a predominantly unobstructed view from the adjacent footpath to at least a depth of 6m within the building			
Preferred ground floor tenancy grain and width on Keira and Crown Streets	Fine grain: 6 - 12m (8-16 separate tenancy entries per 100m.	Grain is to reflect precinct character and be reflected in the modulation and materiality of the building.		
Minimum ground floor 4m floor-to-ceiling height		3.3m		
Provide Awnings	Fixed	As appropriate		





No:

- Dark glazing or opaque transfers to façade conceals activity inside
- Raised entrances for commercial tenancies are not inclusive or accessible
- Awnings that don't shelter pedestrians
- Ramps protrude into public domain
- Lack of differentiation in materials to highlight ground floor



Active frontages: improving the interface

Yes:

- Clear glazing and operable facades
- Opportunities for passive surveillance
- Visually interesting activities and objects visible from the street
- Awnings which shelter pedestrians



3. 13 Residential Frontages at Ground

Paired with commercial and retail uses residential can contribute positively to the activation of streets by providing a clear street address, direct access from the street, passive surveillance on to the street and landscaping.

Objectives

- Residential frontages contribute to the use, activity, safety and interest of the public realm.
- Residential interfaces are high quality and durable and add value to the public domain.
- Development sets a fine-grain rhythm and character to residential streets.
- A diversity in housing types and architectural styles creates an interesting and varied streetscape
- e. Residential development provides a clear distinction between private and public space
- f. New development brings life to the street with individual entries to ground floor dwellings, to provide passive surveillance and opportunities for social interaction.
- g. Planting or landscaped areas visually extend open areas at the lower levels.

- Ground and first floor residential uses should be designed as split level apartments or two-storey terrace houses with individual entries to the street and elevated for visual privacy
- Ground setbacks should be designed to provide privacy and amenity at ground with abundant, quality landscaping.
 Residential at ground floor levels should be raised 0.6 - 1.4m above street level to provide visual privacy.
- Basements are not to encroach forward of the building setback so that landscape areas can provide adequate soil volume for successful tree growth.
- Building setbacks of new developments are to accommodate existing street trees.
- Private open spaces addressing the street may be raised or at street level. The top of any fencing to private open space is not to exceed 2m above street level so as not to obstruct casual surveillance.
- 6. Locate communal access points perpendicular to the street
- Dwellings are to be designed and laid out so that every 6m a dwelling, communal space or other high use space provides opportunities for direct surveillance of the adjacent street or public domain.
- Provision for bin storage is to be provided in a concealed location which does not face the street.



Figure 30: Residential at ground



Residential ground floors are raised for privacy



Individual entries activate the street Source: Toronto Draft Townhouse and Low-Rise Apartment Guidelines October 2015

3. 14 Materials

Character

Wollongong's cityscape and public domain is defined by its buildings, streets and public places. The quality of these places is influenced by the character and performance of the materials that make up the built fabric.

Objectives

To ensure that new buildings in Wollongong:

- a. contribute positively to the streetscape and public domain by means of high quality architecture and robust selection of materials and finishes.
- b. provide richness of detail and architectural interest especially at visually prominent parts of buildings such as lower levels and roof tops.
- c. present appropriate design responses to nearby development that complement the streetscape.
- d. maintain a pedestrian scale in the articulation and detailing of the lower levels of the building.

- 1. A materials sample board and schedule is required to be submitted with applications for development over \$1 million or for that part of any development built to the street edge.
- 2. Material choice must reflect the character of the precinct.
- Materials and finishes selection is to be appropriate to adjoining buildings (particularly heritage buildings).
- External walls should be constructed of high quality and durable materials and finishes with 'self- cleaning' attributes, such as face brickwork, rendered brickwork, stone, concrete and glass.
- To assist articulation and visual interest, avoid expanses of any single material.
- Limit opaque or blank walls for ground floor uses to 30% of 6. the street frontage.
- Maximise glazing for retail uses, but break glazing into sections to avoid large expanses of glass.
- 8. Glass at street level is to be clear to allow visual connection between inside and outside. Tinted glass of any kind will not be accepted at ground level.
- 9. The materials and design of service elements such as plant rooms, lift overruns and service entries is to be integrated into the overall architecture of the building.



Reflectivity

Reflective materials used on the exterior of buildings can result in undesirable glare for pedestrians and potentially hazardous glare for motorists. Reflective materials can also impose additional heat load on other buildings. The excessive use of highly reflective glass should be discouraged. Buildings with a glazed roof, façade or awning should be designed to minimise hazardous or uncomfortable glare arising from reflected sunlight.

Objectives

Development is to restrict the reflection of sunlight from buildings to surrounding areas and buildings.

Controls

- 1. New buildings and facades should not result in glare that causes discomfort or threatens safety of pedestrians or
- 2. Visible light reflectivity from building materials used on facades of new buildings should not exceed 20%.
- 3. Subject to the extent and nature of glazing and reflective materials used, a Reflectivity Report that analyses potential solar glare from the proposed development on pedestrians or motorists may be required.
- 4. Highly reflective finishes and curtain wall glazing are not permitted above ground floor level

Environmental Sustainability

The materials used in building construction are significant contributors to greenhouse gas emissions.

Objectives

- Building components are to be designed for, in order of priority, longevity, adaptation, disassembly, re-use and recycling.
- Development must use materials that are environmentally sustainable whenever available.
- The amount of materials used in the construction of a building is to be minimised.

- Development is to prioritise the use of building materials, fittings and finishes that:
 - have been recycled;
 - are made from or incorporate recycled materials; and
 - have been certified as sustainable or 'environmentally friendly' by a recognised third party certification scheme.
- 2. The amount of material required for a building are to be minimised through:
 - exposing structures to reduce the use of floor, ceiling and wall cladding and finishes;
 - naturally ventilating buildings to reduce ductwork;
 - providing waterless urinals to reduce piping;
 - using prefabricated components for internal fit outs;
- 3. Finishes with high maintenance costs, those susceptible to degradation or corrosion from a coastal or industrial environment are to be avoided.

3. 15 Awnings

Awnings are roof structures that project over the footpath in order to provide weather projection for passing pedestrians, entries to buildings and outdoor activities such as dining. They encourage pedestrian activity along streets and, in conjunction with active edges, support and enhance the pedestrian experience.

Objectives

- Encourage pedestrian activity along streets to support and enhance the vitality of the local area.
- Increase the usability and amenity of footpaths by providing a consistent and safe path of travel with shelter to pedestrians from sun and rain.
- Ensure street awning designs provide reasonable levels of natural and/or artificial lighting to footpaths and to ground floor spaces within buildings.
- d. Ensure street awning designs are of a high architectural merit, are consistent with surrounding streetscape elements, reduce visual clutter and provide visual continuity to the streetscape.
- Encourage the conservation, restoration, reconstruction or reinstatement of street awnings that are of heritage significance.



- Awnings are to be provided along the streets highlighted in Figure 31 Awnings
- Notwithstanding the extent of awnings shown on Figure 32 Awnings, where the building is sited on a street corner, awnings must wrap around corners for a minimum 6m.
- New awnings are to be compatible with the scale and architectural features of the building and adjacent buildings in order to maintain continuity along the entire street.
- 4. Reconstruction or renovation of existing awnings must retain any significant fabric, for example pressed metal soffits
- 5. Where the provision of an awning would have a major adverse impact on the consistency of development within a heritage conservation area or adjacent to a heritage item, they may not be required, as determined in consultation with the determining authority.
- 6. Awnings are to be cantilevered and non-trafficable.
- Provide under awning lighting to facilitate night use and to improve public safety. Lighting fixtures are to be recessed into the awning. All wiring and conduits are to be concealed.
- Gutters are to be concealed from the footpath. Downpipes are to be fully concealed within the ground floor frontage of the building.
- Steeply sloped, arched or barrel vaulted awnings are not permitted.
- The conversion of awnings to verandahs or balconies is not permitted.
- 11. Awnings are to:
- be horizontal in form
- have a minimum soffit height of 3.2m and maximum of 4.2 metres above the footpath,
- be a minimum of 2.4 metres deep (dependent on footpath width),

- ensure steps for design articulation or to accommodate sloping streets are integral with the building design and do not exceed 700mm,
- be low profile, with slim vertical fascias or eaves (generally not to exceed 350mm height)
- have a maximum slope of 5 degrees sloped towards the building so that gutters and downpipes are not required at the street edge.
- be setback at least 1.5m from the face of the kerb to accommodate street tree



Figure 32: Awning design



3. 16 Landscaping and Greening on Structures

Landscaping includes the planning, design, construction and maintenance of all utility, open space and garden areas. Greening on structures includes green roofs and walls and other landscaping not on natural ground. Good landscaping provides breathing space and enhances air quality in city centres. More importantly it delivers passive and active recreational opportunities and an improved public realm experience by activating streets, through-site links and public spaces. It is fundamental to the amenity and quality of life for residents and workers.

Greening in our urban environment can reduce energy consumption and carbon emissions, increase the value of residential property, and is key to attracting high value commercial investment to our city.



Objectives

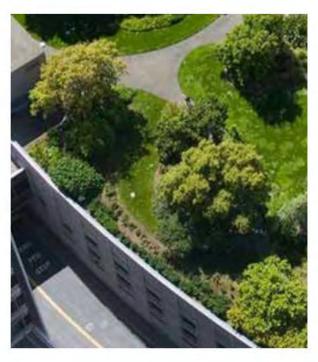
- Ensure landscaping is part of the design process from the outset to ensure it is a fully integrated part of the
- b. Ensure landscaped areas are useable and maintainable spaces that contribute to the existing landscape character of the street.
- Ensure landscaping fronting the street includes sufficient deep soil areas to establish high quality garden spaces.
- d. Include mature and substantial tree planting to improve the amenity of developments.
- Encourage the establishment and healthy growth of trees in urban areas.
- Allow for landscaping to provide screening between buildings.
- Use landscaping to contribute to the quality and amenity of open space on rooftops and in internal courtyards.
- Minimise the extent of impervious areas and facilitate rainwater infiltration.
- Improve the microclimate of open space within developments.
- j. Reduce urban heat load and increase canopy coverage and ground absorption of water.
- Preserve and enhance native wildlife populations and habitat through appropriate planting of indigenous vegetation.
- Ensure the landscape design is appropriate for the use of the building function and creates a variety of functional spaces that allow a flexibility of program for users.
- m. Ensure the landscape provides uses for various age groups associated with the type of development it is contained
- Ensure spaces are created that respond to the availability of summer shade and winter sun and that chosen vegetation complements this seasonal change.
- Ensure the location of facilities within the landscape respond to site specific micro-climate.

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- Development is to comply with the provisions of the Wollongong DCP 2009 Chapter E6 Landscaping and E17 Preservation and Management of Trees and Other Vegetation.
- Existing trees and vegetation are to be retained and protected wherever practical by locating built elements, paved areas, underground services and external structures where there will be minimum impact on the growing conditions needed by those trees.
- Tree placement on public streets must ensure excellent circulation for pedestrians.
- Tree selection and placement for public footpaths must consider the preservation of key views along streets
- A long-term landscape management plan must be provided for all landscaped areas, in particular any deep soil landscape zone. The plan must outline how landscaped areas are to be maintained for the life of the development.
- On key sites and sites with frontages exceeding 30m in width, existing underground services within the footpath shall be relocated to ensure adequate space for new street trees behind the kerb.
- Provision of all landscape components of residential development shall comply with the requirements of the Apartment Design Guide Part 4.







3. 17 Publicly Accessible Spaces

The urban environment is shaped by a complex interrelationship between a wide range of stakeholders - public and private. The public domain includes streets, footpaths, parks, plazas and some publicly owned buildings. Many publicly accessible private spaces in the city act as de-facto public domain, and extend the amenity and spatial dimension of the public domain. These spaces include building forecourts, colonnades, arcades, through site links and publicly accessible courtyards that have a connection to the

Good public spaces make people feel safe and secure. They are healthy and vibrant environments for people to enjoy. Publicly accessible areas of private developments, as well as the footpaths, lanes and other open spaces they interface with, must be positive extensions of the public domain.

Objectives

- a. Achieve desirable publicly accessible open spaces with high levels of amenity and design quality.
- b. Achieve publicly accessible open spaces that are inclusive of particular needs and desires of key community groups such as children, young people, older people, people on low incomes and people with a disability.
- c. Achieve publicly accessible open spaces that are safe.
- d. Achieve publicly accessible open spaces that reinforce and increase the permeability of the city centre to increase walkability.
- Publicly accessible private spaces visually and physically extend the street.
- f. Achieve publicly accessible open spaces that are activated throughout the day and night.
 - Paving extends the street through the block
 - Landscaping adds colour and life
 - 3. Transparent facades reveal activity
 - Operable facades extend internal space
 - Wayfinding signage is clear and simple
 - Public Art brings interest and flavour
 - Movement is safe and easy
 - Places are available to sit and rest
 - Lighting provides safety and promotes activity at night

- Achieve publicly accessible open spaces that are attractive aesthetically.
- h. Achieve publicly accessible open spaces that are attractive functionally to allow casual meeting, socialising, various activities and events.
- Achieve publicly accessible open spaces that have an appropriate mix of hard and soft landscaping based on the character of the development and precinct in which they sit.



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- Any development requiring works to be carried out in the public domain in Wollongong City Centre will be subject to compliance with the requirements of the <u>City Centre Public</u> <u>Domain Technical Manual</u>.
- 2. Publicly accessible open spaces include clear, accessible, safe and convenient linkages to each other
- Publicly accessible open spaces restrict vehicular movements except for public transit, emergency vehicles, servicing and vehicular drop-off, and special events.
- The paving treatment of publicly accessible private spaces is to comply with the <u>City Centre Public Domain Technical</u> <u>Manual</u>.



- Paving extends the street through the block
- 2. Landscaping adds colour and life
- 3. Transparent facades reveal activity
- 4. Operable facades extend internal space
- 5. Movement is safe and easy



3. 18 Car Parking Requirements

High volume traffic affects a number of streets, placing pressure on the City Centre and decreasing the quality of streets for people. Movement in the city centre is to prioritise pedestrians and their access to public and active transport.

Objectives

- a. Prioritise the city centre for pedestrians.
- Reduce the number of vehicles using the core of the city centre.
- c. Encourage mode shift to public and active transport.
- d. Provide car parking spaces that are adaptable to future uses.

- Parking rates for cars, motorcycles and bicycles for developments within the City Centre are to be provided as per Part E3 of this DCP.
- 2. Notwithstanding the above control;
 - car parking rates for commercial premises (including office premises and business premises, and excluding retail premises) in the B3 zone within Wollongong City Centre is to be provided at not more than 1 space per 60m2 and not less than 1 space per 120m2 of Gross Floor Area.
 - car parking rates on sites incorporating the adaptive use
 of heritage listed buildings may be subject to a reduction
 at the discretion of the determining authority (applied to
 the uses within the heritage building only).
- Car parking and associated internal manoeuvring areas
 which are surplus to Council's specified parking requirements
 will count towards the gross floor area, but not for the
 purpose of determining the necessary parking.
- Any car parking provided in a building above ground level is to have a minimum floor to ceiling height of 2.8m so it can be adapted to another use in the future.
- Car parking areas are to be integrated into the design of the building.
- Car parking is not to be visible at ground level, or on any level up to street wall height, from any street frontage.
- Vehicle access is to meet the requirements of Vehicular Footpath Crossings.
- 8. Ventilation grilles and associated elements are to be:
 - integrated into the overall façade and landscape design of the development,
 - not located on the primary street façade, and
 - oriented away from windows of habitable rooms and private opens space areas.





Figure 33: Reduced Car-parking rates are permitted for commercial office development in the B3 zone



3. 19 Vehicular Footpath Crossings

A vehicular footpath crossing includes any driveway or other vehicle access-way that crosses a paved pedestrian footpath.

Footpaths in the City Centre are prioritised for pedestrians. The design and location of vehicle access points should promote safe walkability and maintain the visual continuity of the streetscape.

Objectives

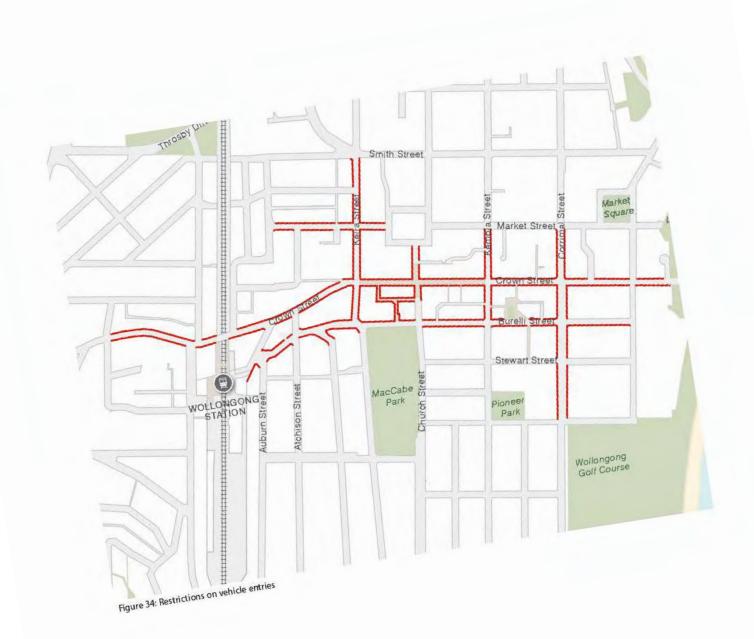
- a. Vehicle access points prioritise pedestrian movement
- Vehicle access points minimise disruptions to pedestrian
- Vehicle entry points do not dominate the design of buildings

Controls

No additional vehicle entry points will be permitted along the streets highlighted in Figure 34. Restrictions on vehicular entries.

- Redevelopment of sites with a dual frontage including one frontage impacted by the Restrictions on vehicular entries map, and one not impacted, are to remove existing entries where restrictions apply and locate entries on the alternate street frontage.
- In all areas not highlighted in the Restrictions on vehicular entries map, a maximum of one vehicle access point will be permitted.
- Vehicle access is to be provided off lanes and minor streets rather than primary street frontages to limit conflicts with pedestrian and cyclist activity.
- 7. Vehicle access to heritage building will be assessed on a case-by-case basis by the determining authority.
- 8. Vehicle access driveways and ramps are to be perpendicular to the kerb alignment.
- Driveway grades to be consistent with adjoining footpaths to ensure a continuous path of travel for pedestrians.
- 10. Changes in driveway grade may commence inside the site boundary except where a ground floor setback for wider footpaths and/or street planting is imposed. In these cases the driveway grade must be consistent with the footpath for the extent of the setback.
- 11. Any development requiring works to be carried out in the public domain in Wollongong City Centre will be subject to compliance with the requirements of the City Centre Public Domain Technical Manual.
- 12. All driveways and vehicle ramps shall comply with the relevant Australian Standards and the requirements of the Wollongong City Council Standard Engineering Drawings.







3. 21 Public Art

Public Art enhances the visual quality and cultural influence of both the private and public domain. It contributes to people feeling positive about their surroundings

Public art is a defining quality of dynamic, interesting and successful cities. The City recognises the cultural and economic benefits by integrating public art into the urban fabric. Wellintegrated ecologically sustainable public art is encouraged in new development within the City Centre. Developers, architects, landscape architects and artists play a key role in shaping the city and should be involved in producing public artworks.

Objectives

- a. To promote the inclusion and integration of site specific public artworks within developments which are accessible to the public, make a positive contribution to the urban environment and add to the culture of the City.
- b. Contribute to the physical attractiveness and diversity the public realm of Wollongong City Centre.
- Increase the number of high quality public artworks by private developments.
- d. Ensure that public art is an integrated and cohesive part of new development.
- Deliver essential infrastructure in creative and innovative ways through the use of public art.
- Provide the opportunity to interpret and express Wollongong's historical and cultural themes.
- Promote sustainability through public art in new development.

- Public Art is required in developments requiring a Site Specific DCP as defined in the Wollongong LEP 2009 Design Excellence provisions.
- 2. A detailed Public Art Plan is to be submitted with a site specific DCP. The plan is to include the provision of high quality artworks within the development in a publicly accessible or visible location
- Must be site-specific with ideas generated as a result of a deep understanding of the site, based on research and analysis, and must therefore enhance the particular site of the development as well as the city as a whole.
- Public Art should be visible to the broader community and enrich both the public and private domain.
- 5. Public Art is to be well designed and visually interesting and made by artists or organisations that are competent in the selected field. Artists should be skilled, not just competent.
- 6. Construct Public Art of materials that are hard wearing, resistant to vandalism and require minimal maintenance.
- Artwork intended for public spaces must comply with the Wollongong City Council Public Art Strategy and Guidelines.







Artist Credit: Mike Hewson

3. 22 Late Night Trading

Late night trading supports a 24-hour economy providing access to businesses offering leisure, entertainment and convenience services, as well as providing flexible employment. Activities such as late-night trading, open air markets, live music festivals, sporting and community events are part of the cultural fabric of the city and are of high value, contributing to our economic growth and the identity of the city.

These controls seek to encourage late night trading activities in priority areas in the city centre to meet the social, cultural and economic needs of the community, while managing the impacts of these activities on city centre neighbourhoods. These controls extend and supercede the Wollongong CBD Night Time Economy Council Policy.

The following provisions allow opportunities for premises to utilise late night trading hours in appropriate locations and with appropriate management actions. The provisions seek to prioritise late night trading outcomes in certain areas of the city where impacts on amenity in residential neighbourhoods are likely to be lower and are considered capable of being adequately managed.

Late trading hours are considered by Wollongong City Council to be a privilege. Late trading hours will only be approved in circumstances where an ongoing commitment to good management is evident. This commitment should be demonstrated both at the application stage and throughout the history of the operation of the premises.

Objectives

- Encourage late night trading premises that contribute to vibrancy and vitality, as appropriate for a City Centre.
- Prevent the proliferation of poorly managed high impact late night premises.
- Encourage a mix of night-time uses with broad community appeal that reflect the diverse entertainment, retail and recreational needs of people who work and live in Wollongong City Centre as well as people who visit.
- Incentivise performance, creative or cultural uses
- Ensure late night trading premises contribute to a safe City Centre.
- Identify appropriate trading hours for late night trading premises and outdoor areas.
- Concentrate late night trading premises and outdoor areas and prioritise late night activity in these areas.
- h. Ensure that late night trading premises will have minimal adverse impacts on the amenity of residential or other sensitive land uses.
- Ensure that new residential developments are designed in such a way to ameliorate any perceived negative impacts of late night trading in priority areas.
- Ensure that a commitment is made by operators of late night trading premises to good management through the monitoring and implementation of robust plans of
- k. Encourage premises with extended trading hours that are of a type that do not operate exclusively during late night hours and may be patronised both day and night.
- Ensure a consistent approach to the assessment of applications for premises seeking late night trading hours, in accordance with the specific provisions.
- m. Ensure that applications are accompanied by sufficient information so that proposals for late night trading premises can be fully and appropriately assessed.
- Provide the possibility of extensions of trading hours for premises where they have demonstrated good management over a trial period.



Ordinary Meeting of Council Item 2 - Attachment 3 - Draft Wollongong Development Control Plan 2009 -Chapter D13 Wollongong City Centre

Controls

General

- 1. These provisions apply:
 - (a) to applications made under Part 4 of the Environmental Planning and Assessment Act 1979 which includes development applications and applications to review a determination or modify a consent. Premises are categorised as A, B or C - these categories are defined in Schedule 1: Late Night Trading Definitions.
 - (b) to land in the B3 Commercial Core, B4 Mixed Use and SP3 Tourist within the Wollongong City Centre, as defined by the Wollongong Local Environmental Plan 2009.
 - (c) to businesses seeking to operate beyond 10pm, classified under Categories A, B and C in Schedule 1- Late Night Trading Definitions.
 - (d) to temporary and mobile land uses, including; special events, pop-up venues and mobile food and drink outlets.
- 2. This policy does not supersede the provisions of the Liquor Act 2007 or any State Environmental Planning Policy
- 3. Generally standard trading hours between 7am and 10pm will apply in business zones. These provisions apply to applications for new and existing Category A, B and C premises that:
 - (a) seek approval for trading hours;
 - (b) seek refurbishment, additions or extensions that will result in an intensification of an existing use;
 - (c) seek an extension or renewal of trial trading hours as prescribed in this section of the DCP; or
 - (d) seek approval for outdoor trading.
- 4. These provisions do not apply to Category B and C premises that do not trade after 10pm, and Category A premises trading only between 10am to 10pm.
- 5. These provisions are not retrospective and do not derogate from existing consents. Existing consents, and past operation under those consents, will be taken into account in assessing new applications.

Late Night Trading Areas

- Late Night Trading areas include:
 - a. B3 Commercial Core: This area includes key central streets and is dominated by existing commercial activities. This location allows for later hours of operation and for more intense late night activities such as live music, theatre and 'DJ' culture. Residents of new residential apartments in these areas must anticipate late night trading.
 - b. This area is also characterised by accessible and frequent public transport services at night.
 - c. B4 Mixed Use zone and SP3 Tourist zone: This intermediate activity area is characterised as mixed residential and commercial use with the potential to accommodate a range of lower impact late night trading premises.
 - d. This area is intended to function as a transition zone by providing a lesser intensity of use. This is generally achieved by applying more stringent operating hours.

Late Night Trading Hours

- Businesses may operate within the maximum operating hours listed in Table: Late Night Trading Extended Hours, subject to development assessment.
- In some unique circumstances, Category C (non-licenced) uses requiring extended access and operation may be permitted to operate up to 24 hours a day*, where assessed as appropriate e.g. 24-hours gyms, emergency services etc.
- Notwithstanding their classification, premises having a performance, creative or cultural use as defined in Schedule 1 -Late Night Trading definitions, may be permitted to operate up to::
 - a. B3 zone: 2am, 7 days a week, indoor and outdoor, regardless of an residential interface
 - b. B4 and SP3 zone: 2am, 7 days a week, indoor and outdoor. Midnight for outdoor areas with a residential interface.



Item 2 - Attachment 3 - Draft Wollongong Development Control Plan 2009 -Chapter D13 Wollongong City Centre

- 8. In addition to the hours provided the Table, the assessment of operating hours will be based on
 - a. Proximity to residential development, sensitive land uses and other late trading premises.
 - b. Impact on acoustic amenity.
 - Scale of proposal and patron capacity.
 - d. Suitability of Plan of Management.
 - e. Safety, security and crime prevention impacts on site and the public domain.
 - Accessibility of transport options.
 - g. Potential Social impacts.
 - h. Submissions made during exhibition period.
 - Consultation with Wollongong Police.
 - j. Cultural contribution to the Night Time Economy.

Residential Interface

A venue or premises will be considered to have a residential interface where existing approved residential accommodation is located on an adjoining or adjacent site, or where the development site adjoins a residential zone.

An acoustic report may be required where an application proposes to operate until or beyond 12am (midnight) and has a residential interface. The report must be prepared by a member of the Australian Acoustic Society or the Association of Australian Acoustic Consultants and be submitted with the development application. The report must assess the noise both indoor and outdoor and recommend a suitable attenuation plan to meet applicable noise criteria provided by the NSW Environmental Protection Agency, Independent Liquor & Gaming Authority and Liquor & Gaming NSW.

Trial Period

Where potential impacts of night trading are undetermined and a trial period is deemed necessary, a condition of consent will be placed on any consent issued limiting the operation within proposed hours to between 12 - 24 months. At the cessation of the trial period the hours will revert to reduced hours.

The applicant may apply to modify the consent to remove or extend the trial period. The assessment of the trial period will be based on;

- Site inspections by Council officers during the trial period.
- b. Consideration of formal customer complaints to Council.
- c. Submissions made during exhibition period.
- d. Consultation with Wollongong Police.
- e. Relevant crime statistics.

Venue Plan of Management

- 10. A Venue Plan of Management will be required to be submitted with the development application which seeks to operate until or beyond 12am (midnight).
- 11. The Venue Plan of Management must be developed in consultation with the Wollongong Police and must include information that addresses the following matters:

All land Uses:

- a. Description of the primary use of the premises as well as any secondary or ancillary use.
- Hours of operation for all indoor and outdoor areas.
- Maximum patron capacity.
- d. Staff numbers.
- e. Security measures, including security, CCTV, visual surveillance and lighting.
- f. Noise management measures, including internal and outdoor areas.



	Category A			Category B			Category C
	Indoor	Outdoor	Outdoor (with residential interface)	Indoor	Outdoor	Outdoor (with residential interface)	Indoor
B3 Commercial Core	2am Thurs-Sat Midnight Sun - Wed	2am Thurs-Sat Midnight Sun - Wed	midnight Thurs-Sat 10pm Sun - Wed	2am Thurs-Sat Midnight Sun - Wed	2am Thurs-Sat Midnight Sun - Wed	midnight Thurs-Sat 10pm Sun - Wed	up to 24 hours* 7 days
B4 Mixed Use and SP3 Tourist	midnight 7 days	midnight Frí-Sat 10 pm Sun-Thurs	10pm 7 days	2am Fri-Sat Midnight Sun - Thurs	midnight 7 days	10pm 7 days	up to 24 hours* 7 days

Table: Late Night Trading Extended hours

- g. Waste management, including storage and disposal procedure.
- h. Emergency procedures.
- Consultation undertaken in development of this plan of management.

Licenced Venues Only:

- j. Incident management system.
- k. Complaint management system.
- I. Current or proposed liquor licence details.
- m. Management of queuing outside the premises, including measures to mitigate impacts on local amenity and use of the footpath.
- n. Management of patron behaviour when leaving the premises, including measures to preserve local amenity.
- o. Management of patrons whom are intoxicated, violent, refused service or asked to leave.
- p. For venues operating beyond midnight, consideration of 12am or 1am last entry policy.

- Council may request further information regarding the management of premises if it is considered that the proposal will adversely impact on the amenity of the area or as required by the Wollongong Police.
- 13. The Plan of Management is to be reviewed on an annual basis in consultation with the Wollongong Police. The consultation is to be commenced at least three months before the end of the annual period.

Schedule 1 - Late Night Trading Definitions

Category A - High Impact Premises means any of the following premises:

- (i) a hotel within the meaning of the Liquor Act 2007 that is not designated as a general bar licence;
- (ii) a hotel within the meaning of the Liquor Act 2007 that has a capacity of more than 120 patrons and is designated as a general bar licence;
- (iii) an on-premises licence within the meaning of the Liquor Act 2007 where the primary business or activity carried out on the premises is that of a nightclub with a capacity of more than 120
- (iv) A dedicated performance venue, which may be licensed and includes theatres, cinema, music hall, concert hall, dance hall or other space that is primarily for the purpose of performance, creative or cultural uses, with the capacity of 250 patrons or more, but does not include a pub, bar, karaoke venue, small bar, nightclub, adult entertainment venue or registered club;
 - (iv) a club within the meaning of the Liquor Act 2007;
- (v) a premises that has a capacity of more than 120 patrons where the primary purpose is the sale or supply of liquor for consumption on the premises; or
- (vii) premises that are used as a karaoke venue where the owner or occupier sells or supplies liquor for consumption on the premises.

Category B - Low Impact Premises means any of the following

- (i) a hotel within the meaning of the Liquor Act 2007 that has a capacity of 120 patrons or less and is designated as a small bar or general bar licence;
- (ii) premises that have a capacity of 120 patrons or less where the primary purpose is the sale or supply of liquor for consumption on the premises;
- (iii) an on-premises licence within the meaning of the Liquor Act 2007:
 - (iv) any premises where the owner or occupier sells or supplies

liquor for consumption on the premises that is not a Category A Premises;

(vi) any other commercial premises, other than Category C premises, which in the opinion of the Council may impact on the amenity and safety of a neighbourhood resulting from its operation at night, including but not limited to, food and drink premises, takeaway food and drink premises, theatres, karaoke venues, convenience stores, entertainment facility and standalone gyms in buildings with residential accommodation and the

(vii) A dedicated performance venue, which may be licensed and includes theatres, cinema, music hall, concert hall, dance hall or other space that is primarily for the purpose of performance, creative or cultural uses, with the capacity of up to 250 patrons, but does not include a pub, bar, karaoke venue, small bar, nightclub, adult entertainment venue or registered club.

Category C - means any of the following premises:

(i) Any retail premises or business premises which does not sell, supply or allow the consumption of liquor on or off the premises or hold any license under the Liquor Act 2007. This may include premises selling groceries, personal care products, clothing, books/stationery, music, homewares, electrical goods and the like, or businesses such as drycleaners, banks and hairdressers and the like. It does not include convenience stores, food and drink premises, takeaway food and drink premises, gyms in buildings with residential accommodation, or adult entertainment venue or sex services premises.

Base hours are the standard range of trading hours that a late night trading premises is entitled to if an application is approved.

Convenience store is a shop that:

- primarily offers pre-packaged, processed snack food for sale in addition to soft drinks, cigarettes, magazines and other miscellaneous grocery and convenience items; and
- has a floor area generally under 200 square metres; and
- located at street level in places with medium to high volume of passing traffic.



In all cases, the discretion as to what development is considered to be a 'convenience store' for the purposes of this DCP shall be solely that of the consent authority and generally in accordance with this DCP.

Extended hours mean trading hours that may be approved above base hours on a trial basis.

Outdoor areas are any areas that are not considered an enclosed place within the meaning described in the Smoke-free Environment Regulation 2007.

Patron capacity means the maximum number of patrons permitted in a development consent. Outdoor seating is included in patron capacity calculations.

Performance, creative or cultural uses include:

- Live entertainment, being an event at which one or more persons are engaged to play or perform live or pre-recorded music, or a performance at which the performers (or at least some of them) are present in person; or
- Display, projection or production of an artwork, craft, design, media, image or immersive technology; or
- Rehearsal, teaching or discussion of art, craft, design, literature or performance.

Note: The definition of live entertainment is consistent with clause 102 of the Liquor Regulation 2018.





File: CST-100.05.061 Doc: IC20/475

ITEM 3 WEST DAPTO DEVELOPMENT CONTRIBUTIONS PLAN 2020 FOR ADOPTION

The contributions plan for the West Dapto Urban Release Area, first introduced in 2010, is subject to a biennial review process.

The West Dapto Development Contributions Plan 2020 represents a review of the current adopted West Dapto Development Contributions Plan 2017.

The draft West Dapto Development Contributions Plan 2020 has been assessed by the Independent Pricing and Regulatory Tribunal of New South Wales (IPART). Advice has also been received from the nominee of the NSW Minister for Planning and Public Spaces, advising the Council may adopt the Plan.

This report presents the findings from IPART's assessment, advice received from the Minister's nominee and subsequent amendments made to the draft document. This report recommends adoption of the West Dapto Development Contributions Plan 2020 (the 2020 Plan) (Attachment 1).

RECOMMENDATION

The West Dapto Development Contributions Plan 2020 (Attachment 1) be adopted.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

- 1 West Dapto Development Contributions Plan 2020
- 2 Advice from the Minister for Planning and Public Spaces
- 3 Response to IPART Recommendations and Minister's Advice
- 4 Council's Submission on IPART Draft Assessment Report
- 5 Response to Council Exhibition Submissions

BACKGROUND

Section 7.11 (previously Section 94) of the *Environmental Planning and Assessment Act 1979* (Act) establishes that a consent authority can require contributions where development will or is likely to require the provision of or increase the demand for public amenities and public services.

A Section 7.11 development contributions plan for the West Dapto Urban Release Area (WDURA) commenced on 23 December 2010 and was updated in 2011, 2015, and 2017. The current version of the contribution plan has been in place since 18 December 2017 following the October 2016 review by IPART and advice from the Minister for Planning which supported a contribution rate over the State's arbitrary cap of \$30,000 per lot / dwelling. A minor amendment to the 2017 Plan was adopted on 11 September 2019 in response to the potential introduction of the Low-Rise Medium Density Housing Code for Wollongong Local Government Area.

In accordance with IPART's October 2016 recommendations, the West Dapto Development Contributions Plan is required to be reviewed and updated every two years. This review will also ensure that contributions above the cap can continue to be levied.

Preparation of the West Dapto Development Contributions Plan 2020

- On 24 June 2019, Council endorsed the Draft West Dapto Development Contributions Plan 2020 (draft 2020 Plan) for exhibition
- On 2 September 2019, Council considered a report on the 33 submissions received during the exhibition, and Council resolved to submit the draft 2020 Plan as well as all submissions received, to IPART for independent review



- On 16 September 2019, the draft 2020 Plan was submitted to IPART seeking review
- On 28 February 2020, IPART released the Assessment of the draft West Dapto Contributions Plan 2020 Draft Report (IPART Draft Report) and exhibited this for public comment
- On 16 March 2020, Council considered a report detailing the key findings of IPART's Draft Report and endorsed Council staff making a submission to IPART. Council's submission to IPART on their Draft Report is provided at Attachment 4
- On 15 May 2020, IPART released the Assessment of the draft West Dapto Development Contributions Plan 2020 Final Report (IPART Final Report) and made 24 recommendations for the draft 2020 Plan. IPART submitted the Final Report to the Minister for Planning and Public Spaces (Minister) for consideration and advice to Council. IPART's final report and all information regarding their assessment is available on their website at https://www.ipart.nsw.gov.au/Home/Industries/Local-Government/Reviews/Contributions-Plan/Review-of-Wollongong-City-Councils-Contributions-Plan-West-Dapto?qDh=0
- The Department of Planning, Industry & Environment (DPIE), as the Minister's nominee, considered IPART's Final Report. On 23 September 2020, the Minister's nominee provided advice to Council. The Minister's nominee agreed with 23 out of the total 24 recommendations made by IPART. The 2020 Plan (Attachment 1) has been updated in accordance with the Minister's nominee direction.

State government imposed 'cap' on residential section 7.11 contributions

In 2009, a Ministerial Direction was issued establishing a cap of \$20,000 per lot or dwelling that could be levied towards local infrastructure contributions without prior approval. The Direction was amended in 2010 to include a cap of \$30,000 per lot or dwelling in specific greenfield release area's recognising higher costs of providing infrastructure for development in these areas. During 2020 DPIE released a series of development contributions reform papers including a discussion around the need to review the cap further. On 26 June 2020, Council officers made a submission to DIPE recommending that the cap should be increased to \$45,000 as a minimum and be subject to regular indexing.

Contributions plans seeking to levy above the cap amount are limited to infrastructure items on the Essential Works List provided in the DPIE Practice Note: Local Infrastructure Contributions (current edition, January 2019) and subject to an IPART review process.

In 2011 the Local Infrastructure Contributions Direction 2011 (Direction) included West Dapto as land subject to the \$30,000 greenfield release area cap. In 2012 the Local Infrastructure Contributions Direction 2012 was issued, and again amended in 2013, 2016, 2017, twice in 2018 and 2019.

In 2013 State Government funding through the Local Infrastructure Growth Scheme (LIGS) was introduced to meet the gap between the \$30,000 cap and IPART approved contribution rates. The contributions levied under the current 2017 Plan have been eligible for and subsidised by LIGS funding since October 2018.

The 2017 amendment of the Direction established the phasing out of the LIGS funding, and a staged increase to the contributions cap over a three-year period for 'specified contributions plans'. The current adopted 2017 Plan is noted as a 'specified contributions plan'. The staged contribution cap increase is detailed as follows -

- From 1 January 2018 the developer portion increased to \$35,000.
- From 1 July 2018 the developer portion increased to \$40,000.
- From 1 July 2019 the developer portion increased to \$45,000.
- From 1 July 2020 LIGS funding was removed and Councils are required to have an 'IPART reviewed contributions plan' in place to levy over the \$30,000 cap.

The implication of this State Government policy change are -

Councils are required to have an IPART reviewed contributions plan in place to levy over \$30,000 per lot / dwelling



- The IPART reviewed contributions plan are no longer subsidised by the LIGS funding program
- The full contribution rate in an IPART reviewed contributions plan are levied to the developer.

Council's current adopted 2017 Plan no longer meets the definition of an 'IPART reviewed plan' for the purposes of the Local Infrastructure Contributions Direction. If adopted, the 2020 Plan will be an IPART reviewed plan and the full contribution rate will be levied to the developer.

On 3 April 2020, a letter was sent to the Minister requesting a three-month extension of the contributions review deadline. On 18 June 2020, Council received confirmation from the Minister's delegate that a sixmonth extension has been granted. As a result, the IPART reviewed 2020 Plan is required to be adopted by 31 December 2020 to levy above \$30,000 per lot / dwelling.

On 5 June 2020, Council officers also wrote to the Minister seeking support for Council's adopted position of a single versus split catchment approach for the apportionment of local infrastructure costs across WDURA. IPART recommendation number 21 prefers a split catchment approach, which is discussed in more detail below under the Proposal heading. Council staff initially received a response on 7 July 2020 which provided assurance that all submissions, including Council's would be considered. The Minister's nominee advice was received on 23 September 2020 which is discussed in more detail in the section below.

PROPOSAL

The West Dapto Development Contributions Plan 2020 (2020 Plan) (Attachment 1) has been amended to incorporate 23 of the 24 recommendations from IPART's Final Report as directed by the Minister's nominee in correspondence received by Council on 23 September 2020 (Attachment 2). Each of the 24 IPART recommendations alongside the advice received from the Minister's nominee and staff comments on how the draft 2020 Plan has responded to each recommendation is provided (Attachment 3).

The revised 2020 Plan responds to submissions received during Council's exhibition process, the subsequent review by IPART and advice from the Minister's nominee. Key changes include -

- A reduction in the cost of shared use cycleways from \$843 per linear metre (as included in the draft 2020 Plan and based on IPART's Benchmark Report) to \$311 per linear metre. Such change alone results in a reduction of \$27,255,864 to the draft 2020 Plan
- Stormwater costs are to be apportioned based on an unadjusted land area. This means there will be an increase in cost for non-residential development (commercial and industrial rates)
- Secondary dwellings across the release area are to be levied at the 0-1 bedroom rate, regardless of the number of bedrooms
- Clause 2.4 has been updated to reflect recent amendments to the *Environmental Planning and Assessment Regulation*, which now requires that the adoption notice be placed on council's website, rather than a newspaper
- Figure 2 has been updated to more clearly show the staging boundaries
- The term 'seniors housing' has been updated to 'self-contained dwelling' to more accurately reflect where this levy will be applied (clause 2.8)
- The cost of infrastructure has been indexed to 30 June 2020. This means that the contribution rates levied will be indexed from this date
- Other changes as a result of submissions, for example, the maps have been enlarged so they are clearer to read, and Clause 2.18 has been updated, thereby making it clearer that the construction of a single dwelling on a single lot is not required to make a further contribution
- Itemisation of 4 local parks have been updated following gazettal of their names
- Other minor changes and formatting updates



The result of these changes is a net reduction in the overall cost included in the draft 2020 Plan of \$18 million (a reduction from \$972 million to \$954 million) representing a 1.85% reduction. The IPART Final Report recommended increases of \$23.1m, decreases of \$50.8m, which resulted in a net reduction of \$27.7m. However, the total reduction of \$18 million reflects the Minister's nominee direction and the cumulative calculation of all changes to the draft 2020 Plan.

IPART also recommended that Council comprehensively review the 2020 Plan within the next three years, which Council staff intend to do.

The table below depicts the current indexed 2017 rates, the exhibited draft 2020 Plan rates and the final rates under the revised 2020 Plan.

Type of Development	Current 2017 Plan (indexed to June 2020)	Draft 2020 Plan (as exhibited)	Final 2020 Plan (as at 30 June 2020)
Residential			
Standard Rate*			
Subdivision, dual occupancy	\$50,981.50	\$52,950.94	\$51,428.10
Multi Unit Housing Rates*			
4+ bedrooms	\$46,201.99	\$47,986.80	\$46,606.72
3 bedrooms	\$39,829.30	\$41,367.93	\$40,178.21
2 bedrooms	\$35,049.79	\$36,403.77	\$35,356.82
0-1 bedroom	\$27,083.92	\$28,130.19	\$27,321.18
Non-Residential			
Commercial – per hectare	\$465,128.57	\$367,320.21	\$371,189.35
Industrial – per hectare	\$465,128.57	\$74,003.09	\$126,513.05

^{*}refer to the 2020 Plan for further clarification on which rate applies to a specific type of dwelling.

It should be noted that the contribution rates provided in this report and the 2020 Plan are at the base date of June 2020 and will be subject to indexation from that time until the date of payment.

IPART Split Catchment Recommendation

IPART's Final Report recommended the approach adopted in the draft 2020 Plan for open space and community facilities as being reasonable. Transport, stormwater and plan administration costs where recommended by IPART to be split between stages 1-4 and stage 5.

The split catchment based approach has not been supported by Council to date. The reasons for this are included in previous Council reports and submission from Council to IPART in March 2020 (Attachment 4) which are contained in the summary of the IPART Final Report.

The Minister's nominee advice to Council agreed with 23 out of the total 24 recommendations from IPART. The Minister nominee advice did not agree with the IPART split catchment recommendation number 21. The revised 2020 Plan (Attachment 1) has therefore been updated in accordance with the Minister's nominee direction.

Increase in stormwater costs for non-residential development (commercial and industrial)

On 29 October 2018, Council resolved -

1 To assist the development of industrial land at West Dapto, an interim contribution rate of 20 per cent of the adopted industrial land contribution rate be applied on development applications subject to the West Dapto Section 94 Development Contributions Plan 2017 for a maximum period of two years, or the commencement of a new Plan.



2 The industrial lands development contribution rate be reviewed as part of the future draft West Dapto Development Contributions Plan (2019).

Since this resolution, two applications have been levied the discounted rate. DA-2017/1124 was levied \$99,660.40 (discounted from \$498,302.00) and DA-2020/300 was levied \$1,862,666.00 (discounted from \$9,313,330) however this is only a temporary development.

Development contributions for industrial land have again been considered as part of preparing the draft 2020 Plan in accordance with the 29 October 2018 Council resolution. The draft 2020 Plan considered the varying levels of land intensification and demand on infrastructure between industrial, commercial and residential land uses, and incorporated an adjustment factor to account for differences between land uses. IPART considered this approach and concluded such adjustment is reasonable for transport related costs, but found it was not reasonable for stormwater costs. As shown in the table below, this results in an increase to the industrial contribution rate when compared to the current discounted rate and the draft 2020 Plan rate. The IPART recommended approach is supported by the Minister's nominee.

Industrial land contribution (\$) / hectare

Current 2017 Plan (reviewed by IPART) Indexed to June 2020	Discounted contribution rate (expired 29 October 2020)	Draft 2020 Plan (as exhibited by Council)	Final 2020 Plan (as at 30 June 2020)
\$465,128.57	\$93,025.71	\$74,003.09	\$126,513.05

CONSULTATION AND COMMUNICATION

The draft 2020 Plan was exhibited by Council between 29 June and 2 August 2019, with late submissions accepted up to 16 August 2019. In total 33 submissions were received. These submissions were summarised and noted by Council at the 2 September 2019 meeting for submission to IPART along with the draft 2020 Plan, and a recommendation that 'A report be presented back to Council with the IPART recommendations and NSW Minister for Planning's advice in relation to the finalisation of the 2020 Plan. The report will clearly outline how all public submissions have been considered and responded to during the preparation of the Final 2020 Plan'.

Attachment 5 provides a summary of key issues raised in submissions and how each has been considered and responded to by council staff. These submissions were also considered by IPART during their assessment.

Throughout the assessment of the draft 2020 Plan, IPART regularly communicated with council staff to answer questions and provide additional information as required.

On 28 February 2020, IPART exhibited its Draft Report. IPART received 20 submissions through this process from a range of individuals, organisations and peak bodies. IPART has noted feedback was addressed in their Final Report dated May 2020.

Since finalisation of the IPART review, Council has received formal representation from at least three landowners / developers raising concern with IPART's split catchment recommendation 21. Council staff noted the concerns raised and informed each party of the process, clarifying that ultimately the Minister for Planning and Public Spaces provides advice to Council following the IPART review.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 Goal "We have an innovative and sustainable economy". It specifically delivers on the following –



Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Operational Plan Actions
2.1.5 West Dapto urban growth is effectively managed to balance employment and population growth	2.1.5.1 In collaboration with key agencies, facilitate the West Dapto Taskforce to deliver the first stages of the West Dapto Urban Release Area	In collaboration with key agencies, facilitate the West Dapto Review Committee to deliver the first stages of the West Dapto Urban Release Area

RISK MANAGEMENT

In accordance with IPART recommendation 23 Council is committed to a 3 year review process during the next 10 years to ensure assumptions about the scope, cost and apportionment of works reflect the progress of development.

Adoption of the 2020 Plan will also ensure that council can continue to levy contributions above the \$30,000 cap after 31 December 2020, noting that LIGS funding was removed on 30 June 2020. If the 2020 Plan is not adopted then council may be restricted to levying a maximum of \$30,000 per lot/dwelling which may result in a shortfall of up to \$21,428.10 per lot/dwelling.

FINANCIAL IMPLICATIONS

The IPART recommendations as supported by the Minister's nominee resulted in a net reduction in overall infrastructure costs of \$18 million. Council will be required to pursue cost savings at West Dapto in order to ensure all required infrastructure continues to be delivered. This cost savings requirement is particularly required for the shared path network.

The income from contribution plan rates has been impacted by the capped arrangement and consequently has not matched infrastructure costs. This has resulted in a current shortfall to Council of approximately \$29 million.

The removal of LIGS funding from 1 July 2020 has resulted in developers being required to pay the full development contribution rate. Prior to this, the rate had been subsidised by the State and developers only paid up to the cap threshold and Council received LIGS funding to make up the shortfall. The removal of LIGS funding may also impact upon the feasibility of development.

In accordance with IPART Recommendation 1 staff will again report to Council at a later date or at the time of the 2020 Plan's next review recommending removal of the cost of relevant transport infrastructure from the West Dapto Development Contributions Plan if grant funding is secured through the NSW Government's Housing Acceleration Fund or other sources for significant road works.

CONCLUSION

The West Dapto Development Contributions Plan 2020 is an important strategic planning document for the urban release area as it provides the mechanism to collect contributions to fund essential local infrastructure required to support new development.

This report provides a summary of exhibition and consultation processes, the outcome of IPART's assessment, advice from the Minister's nominee and implications to the draft 2020 Plan. This report recommends adoption of the West Dapto Development Contributions Plan 2020 as advised by the Minister's nominee and incorporating 23 of the 24 IPART recommendations as directed by the Minister's nominee. Such adoption will enable Council to levy development contributions through the urban release area and ensure Council may continue to plan for and deliver the infrastructure required to service the current and future West Dapto community.





WEST DAPTO DEVELOPMENT CONTRIBUTIONS PLAN

2020







WOLLONGONG CITY COUNCIL WEST DAPTO DEVELOPMENT CONTRIBUTIONS PLAN (2020)

Documer	nt Control					
Documen	t ID: West Dapto	Development Contributions Plan				
Revision No.	Date	Revision Details	Typist	Author	Verifier	Approve
1	Apr 2010	Draft for exhibition	DG	DG	DG	DG
2	Oct 2010	2 nd Draft for exhibition	DH	DH	DG	DG
3	Dec 2010	In force (2010 version)	DH	DH	DG	DG
4	Aug 2011	Draft for exhibition (2011 version)	DH	DH	DG	DG
6	Dec 2011	In force (2011 version)	DH	DH	DG	DG
7	May 2015	Draft for exhibition (2015 version)	DG	DG	DG	DG
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10	Mar 2017	Post IPART for reporting and DPE	EB/ES	EB/ES	DG	Council
11	Dec 2017	Post DPE, In force (2017 version)	EB/ES	EB/ES	DF	Council
12	27 May 2019	Draft for exhibition (2017 - Amendment 1)	MB	MB	DF	Council
13	24 Jun 2019	Draft for exhibition (2020 version)	MB	MB	DF	Council
14	11 Sept 2019	In force (2017 version – Amendment 1)	MB	MB	DG	Council
15	[insert in force date]	In force (2020 version)	MB	MB	DF	Council



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Part 1 Summary schedules

The West Dapto Development Contributions Plan (2020) enables Council to levy contributions for local public infrasfructure required as a result of development. The following tables provide a summary of the cost of infrastructure to be delivered through the Plan and the contribution rates that will be levied.

Table 1 Summary - Cost of infrastructureby category

Infrastructure category	Cost of land	Cost of works	Total cost
Open Space and Recreation	\$38,517,247	\$37,313,078	\$75,830,325
Community Facilities	\$1,757,500	N/A	\$1,757,500
Transport	\$40,586,803	\$695,385,574	\$735,972,377
Stormwater Management	\$23,763,348	\$104,391,842	\$128,155,190
Total Cost of Infrastructure	\$104,624,898	\$837,090,494	\$941,715,392
Administration			\$12,556,357
Total Cost to Plan			\$954,271,749

Table 2 Summary – Contribution rates by development type

Type of development	Levy basis	Contribution rate#
Residential		
Standard Rate		
Subdivision	per lot	\$51,428.10
Dwelling House, Dual Occupancy and other dwellings*	per dwelling	\$51,428.10
Multi Unit Housing Rates*		
4+ bedrooms	per dwelling	\$46,606.72
3 bedrooms	per dwelling	\$40,178.21
2 bedrooms	per dwelling	\$35,356.82
0-1 bedrooms, secondary dwellings	per dwelling	\$27,321.18
Non-Residential		
Commercial, e.g. development in B1, B2, B4 zones	per hectare [^]	\$371,189.35
Industrial and other, e.g. development in IN2, IN3, SP2 zones	per hectare*	\$126,513.05

[#]Contribution rates in this Plan are as at 30 June 2020 and indexation will apply from that date.

Table 3 Summary – Contribution rates by infrastructure category

Informative and some	Residential	Non-Residential		
Infrastructure category	Standard Rate*	Commercial	Industrial & Other	
Open Space and Recreation	\$4,225.06	\$0.00	\$0.00	
Community Facilities	\$97.92	\$0.00	\$0.00	
Transport	\$40,013.89	\$301,654.61	\$60,773.60	
Stormwater Management	\$6,408.54	\$64,388.24	\$64,702.60	
Administration	\$682.69	\$5,146.50	\$1,036.85	
Total	\$51,428.10	\$371,189.35	\$126,513.05	

^{*} Refer to Table 20 for the Multi Unit Housing confribution rates by infrastructure category.

^{*} Refer to clause 2.8 for further clarification on which rate applies to a specific type of dwelling.

[^] The non-residential 'per hectare' rate is calculated on the land area of the subject site.



Part 2 Administration and Operation of the Plan

2.1 Introduction

West Dapto has been established as a priority urban release area in various state and regional planning policies including the *Illawarra Urban Development Program* (NSW Government), *Growth Centres Commission* (2008) and the *Illawarra-Shoalhaven Regional Plan* (NSW Government, 2015).

The West Dapto Vision (Wollongong City Council, 2018) anticipates that the West Dapto Urban Release Area will provide around 19,500 dwellings and will house a population of about 56,500 people once fully developed over fifty plus years.

This contributions plan establishes the local infrastructure needed to support this development and ensures it is strategically planned and delivered, as well as providing an equitable funding source. It has been prepared pursuant to the provisions of Part 7 of the EP&A Act, Part 4 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), the *Development Contributions Practise Note* (Department of Infrastructure, Planning and Natural Resources, 2005), *Local Infrastructure Contributions Practise Note* (NSW Department for Planning and Environment, 2019) and relevant Ministerial Directions issued under Section 7.17 of the EP&A Act.

2.2 The name of this contributions plan

This contributions plan is called the West Dapto Development Contributions Plan (2020) (the Plan) and levies contributions under Section 7.11 (previously Section 94) of the Environmental Planning and Assessment Act 1979 No 203 (EP&A Act).

2.3 Section 7.11 development contributions

Development contributions are collected from developers to help fund the provision, extension or augmentation of public amenities and public services to be provided in the future, or towards the recoupment of the cost already incurred in providing public amenities or public services.

Section 7.11 of the EP&A Act enables a consent authority to impose a condition requiring the dedication of land free of cost or a monetary contribution where:

- The development will or is likely to require the provision of or increase the demand for public amenities and public services within the area; and
- The dedication or contribution is reasonable; and
- The contribution is allowed by and determined in accordance with a contributions plan.

2.4 Commencement of this Plan

Pursuant to clause 31(4) of the EP&A Regulation, a notice was published on council's website advising that this Plan takes effect from [INSERT DATE OF ADOPTION].

2.5 Land to which this Plan applies

This Plan applies to all land within the West Dapto Urban Release Area as shown at Figure 1.

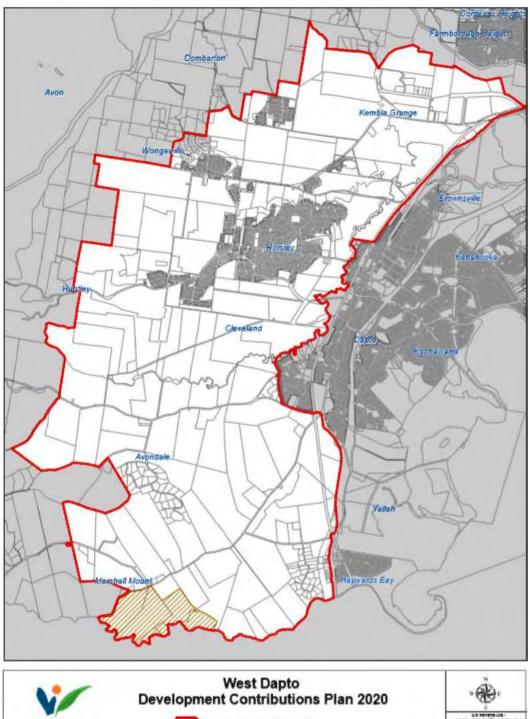
2.6 Purpose of this Plan

The purpose of this Plan is to:

- Authorise Council, an accredited certifier or other consent authority to impose conditions requiring contributions under Section 7.11 of the EP&A Act when determining an application on land to which this Plan applies;
- b. Identify the infrastructure requirements as a result of the anticipated development;
- c. Provide a tramework for the equitable calculation, collection and management of contributions;
- d. Ensure that each development makes a reasonable contribution towards the provision of infrastructure;
- Ensure that the existing community is not burdened by the cost of infrastructure required as a result of future development;
- f. Ensure Council's management of development contributions complies with relevant legislation and guidelines.



Figure 1 Land to which this Plan applies







Application of this Plan

This Plan applies to all development applications, complying development certificates or other applications determined under the EP&A Act on land to which this Plan applies.

Development to which this Plan applies

The following types of development will be levied a contribution under this Plan:

Residential development

Includes the subdivision of land and/or the construction of any type of Residential Accommodation. The rates applying to specific types of dwellings are:

Standard Rate:

- boarding houses - dual occupancies

- dwelling houses - group homes and hostels

- rural workers' dwellings

- semi-detached dwelling

Multi Unit Housing Rate:

atlached dwellings

multi dwelling housing

residential flat buildings secondary dwellings*

self-contained dwellings seniors housing

shop top housing

Non-residential development

Includes the subdivision of land and/or the construction of any non-residential development, including but not limited to:

- Commercial development including business, office and retail premises
- Industrial development including general, heavy and light industry
- Educational establishments
- Health services facilities
- Tourist and visitor accommodation, caravan parks
- Recreation facilities including indoor and outdoor

Mixed use development

Where the development includes both residential and non-residential components the contribution will be levied based on the individual uses and both a residential and non-residential contribution will apply.

Note: Unless otherwise stated in this Plan, definitions are as per the Wollongong Local Environmental Plan 2009, the EP&A Act, EP&A Regulations or other relevant legislation.

* All secondary dwellings will be levied the 0-1 bedroom multi unit housing rate.

Relationship to other contributions plans

This Plan repeals the following contributions plan:

West Dapto Development Contributions Plan (2017) – Amendment 1

Previous versions of contributions plans that applied to all or part the land to which this Plan applies are:

- West Dapto Release Area Section 94 Development Contributions Plan (2017)
- West Dapto Release Area Section 94 Development Contributions Plan (2015)
- West Dapto Release Area Section 94 Development Contributions Plan (2011)
- West Dapto Release Area Section 94 Development Contributions Plan (2010)
- Wollongong Section 94A Contributions Plan (2006 to 2014)
- Horsley Section 94 Contributions Plan (1993), as amended.

The Wollongong City-Wide Development Contributions Plan applies to the remainder of the Wollongong local government area.



2.10 Relationship to special infrastructure contributions

This Plan does not affect the determination, collection or administration of any special infrastructure contribution (SIC) levied under sections 7.22 to 7.26 of the EP&A Act in respect to development on land to which this Plan applies.

Applicants should refer to details issued by the Department of Planning, Industry and Environment in relation to whether a SIC applies to development within the West Dapto Urban Release Area.

2.11 Monetary contributions

Monetary contributions will be the most common method of payment. The contribution amount stated in the consent will be subject to indexation until the date of payment. It is therefore necessary to contact Council and obtain the current indexed contribution amount prior to payment.

The following payment methods are available:

Method	How	Payment Type	
Online	http://www.wollongong.nsw.gov.au/applicationpayments Refer to condition or contact Council for payment reference number	Credit Card	
In Person	Wollongong City Council Administration Building - Customer Service Centre Ground Floor 41 Burelli Street, WOLLONGONG	Cash EFTPOS Bank Cheque	

2.12 Non-cash contributions

In instances where an Infrastructure Item is located on or adjacent to a development site, it may be appropriate for the developer to dedicate land and/or provide a material public benefit (i.e. works) in full or partial satisfaction of the otherwise payable monetary contribution. This is known as non-cash contributions, or works in kind, and is facilitated through the application process under Sections 7.11(5) and/or 7.11(6) of the EP&A Act.

The developer should contact Council early in the application process (i.e. pre-lodgement meeting) to discuss the proposal. In assessing requests for works in kind the following will be considered:

- whether it has been demonstrated (through plans, detailed designs and other supporting information) that the works will be delivered to a suitable standard;
- · whether it is proposed that all or part of an infrastructure item will be provided;
- · the timing of completion in regards to the indicative timing for delivery as stated in this Plan;
- · the estimated value of land to be dedicated and/or estimated cost of works to be delivered;
- the amount of full or partial offset being sought (noting that the amount of any offset will be limited
 to the cost of the Infrastructure Item as stated in this Plan unless a design change is required and
 agreed to by Council or in other limited circumstances that are considered reasonable);
- details of the future dedication, handover and management arrangements.

The acceptance of works in kind and any associated offset will be determined on a case by case basis.

Depending on the value and nature of the proposed works in kind, the process will be facilitated through the development consent or in some cases may require a formal works in kind agreement.

2.13 Planning agreements

Section 7.4 of the EP&A Act states that a planning agreement is a voluntary agreement between a planning authority and a developer, under which the developer agrees to make contributions towards a public purpose. This may include the dedication of land, a monetary contribution, any other material public benefit or a combination of these. A planning agreement may exclude the application of Section 7.11 to the entire development or to part of the development that is subject to the agreement.

The provisions of Sections 7.4 to 7.10 of the EP&A Act and clauses 25B to 25H of the EP&A Regulation prescribe the contents, form, subject matter and procedures for making planning agreements.

Further information can also be found in Council's Planning Agreements Policy.



2.14 Timing for payment of contributions

The timing requirement will be set out in the condition, in accordance with the following policy:

- A Development Application involving construction prior to the issue of a Construction Certificate;
- A Development Application involving subdivision prior to the issue of a Subdivision Certificate;
- A Development Application involving building construction and subdivision (i.e. dual occupancies)
 prior to the issue of either a Construction Certificate or Subdivision Certificate;
- A Complying Development Certificate before any building or subdivision work authorised by the certificate commences.

Where a development is phased and it is reasonable for the contributions to be paid in phases, the applicable contribution for each phase must be clearly documented in the condition, otherwise the full contribution must be paid in accordance with that condition, or the condition formally amended.

2.15 Deferred or periodic payment

A request for a deferred or periodic payment of contributions may be considered in limited circumstances. For a deferred or periodic payment to be considered, the applicant must provide a written request and satisfy that:

- · Compliance with the condition is unreasonable or unnecessary in the circumstances; and
- There are valid reasons for deferred or periodic payment; and
- Deferred or periodic payment of the contribution will not prejudice the timing or the manner of the provision of public facilities included in the works program; and
- No prejudice will be caused to the efficiency and operation of this Plan.

If the request for a deferred or periodic payment is accepted, the details must be set out in the condition (and will require a modification if the application had already been determined). The applicant will be required to provide a bank guarantee on the following terms:

- a) The bank guarantee is issued for the amount of the total contribution, or the amount of the outstanding contribution, plus an amount equal to thirteen (13) months interest.
- b) Any charges associated with establishing or operating the bank security are payable by the applicant.
- c) The bank guarantee must carry specific wording identifying the exact obligation to which it relates (e.g. section 7.11 development contributions for development of Lot x DP xxx under Development Consent No. xxx)
- d) The bank unconditionally pays the guaranteed sum to the Council if the Council so demands in writing not earlier than 12 months from the provision of the guarantee or completion of the work.
- e) The bank must pay the guaranteed sum without reference to the applicant or landowner or other person who provided the guarantee, and without regard to any dispute, controversy, issue or other matter relating to the development consent or the carrying out of development.
- f) The bank's obligations are discharged when payment to the Council is made in accordance with this guarantee or when Council notifies the bank in writing that the guarantee is no longer required.
- g) Where a bank guarantee has been deposited with Council, the guarantee shall not be cancelled until such time as the original contribution and accrued interest are paid.

2.16 Construction certificates and the obligation of Certifiers

In accordance with clause 146(b) of the EP&A Regulation, a Certifier must not issue a construction certificate for building or subdivision work where the development consent imposes a condition in accordance with this Plan, unless the condition has been complied with.

In accordance with clause 142(2) of the EP&A Regulation, the Certifier must ensure that copies of receipt(s) confirming that contributions have been fully paid are provided to the Council.



2.17 Complying development and the obligation of Certifiers

In accordance with sections 4.28(9) and 7.21 of the EP&A Act and clause 136K of the EP&A Regulation, applications for a complying development certificate are also subject to the provisions of this Plan, and the Certifier (whether Council or an Accredited Certifier) must impose a condition requiring the payment of a Section 7.11 contribution in accordance with the requirements of this Plan.

The condition must include the contribution amount calculated in accordance with this Plan and require payment before any building or subdivision work authorised by the certificate commences. Further information on how to calculate and condition contributions is available on Council's website and from Council's customer services. The following template condition should be used:

Development Contributions

Pursuant to Section 4.28(9) of the Environmental Planning and Assessment Act 1979 and the West Dapto Development Contributions Plan (2020), a monetary contribution of \$[INSERT AMOUNT], subject to indexation, must be paid to Wollongong City Council before any building or subdivision work authorised by this certificate commences.

This amount has been calculated on the basis of [###] residential lots/dwellings OR [###] hectares. As the contribution amount is subject to indexation until the date of payment, contact Council for the current indexed amount prior to payment. The contribution can be paid online at http://www.wollongong.nsw.gov.au/applicationpayments (contact Council for the payment reference number) or by cash, EFTPOS or bank cheque at 41 Burelli Street, Wollongong.

In accordance with clause 27(1A) of the EP&A Regulation, the Certifier must ensure that the contribution has been fully paid before any building or subdivision work authorised by the certificate commences and submit receipt(s) confirming full payment with the complying development certificate.

2.18 Credit for existing development

A credit may be provided in limited circumstances. For example, where a contribution has been paid at subdivision, a credit will be given and the construction of a single dwelling on that lot will not be levied a further contribution. The construction of a dual occupancy on a single lot will be granted one credit for the existing lot and will be levied one contribution for the additional (second) dwelling. For non-residential development a credit will only be provided where a contribution under this plan has previously been levied and paid for based on the land area the subject of the development.

2.19 Savings and transitional arrangements

An application that has been submitted, but not determined, prior to the adoption of this Plan shall be determined in accordance with the provisions of the plan that applies at the date of determination of the application. That is, the plan in force as at the date of determination will apply.

Any modifications to an existing approval shall be determined in accordance with the plan that applied at the date of the original determination.

2.20 Pooling of contributions

This Plan authorises monetary Section 7.11 contributions paid for different purposes to be pooled and applied (progressively or otherwise) for those purposes. The indicative timing of infrastructure delivery and priorities for the expenditure of levies is provided at **Tables 9**, **10**, **11**, **15**, **16** and **17**.

2.21 Ministerial directions

A Direction issued by the NSW Minister for Planning and Public Spaces under Section 7.17 of the EP&A Act will prevail over the provisions of this Plan. Current Ministerial Directions relative fo this Plan include:

- Environmental Planning and Assessment (Local Infrastructure Contributions Timing of Payments) Direction 2020
 - Development contributions levied on certain developments (i.e. over \$10,000,000 and that don't include torrens subdivision) can be paid prior to the issue of an Occupation Certificate.
- Environmental Planning and Assessment (Local Infrastructure Contributions) Direction 2012 (amended 2013, 2016, 2017, 2018, 2018 and 2019)
 - Establishes a contributions cap on residential development in the West Dapto Urban Release Area of \$30,000 per lot or dwelling, and provides that an IPART reviewed contributions plan can levy above this amount. In accordance with correspondence from the Department of



Planning, Industry and Environment dated 23 September 2020, this Plan is considered an *IPART reviewed contributions plan* and is not subject to the contributions cap.

- Environmental Planning and Assessment Act 1979 issued 14 September 2007
 A contribution cannot be imposed on development for the purposes of any form of seniors housing as defined in the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 where the development consent is granted to a social housing provider as defined in the SEPP (Housing for Seniors or People with a Disability) 2004.
- Planning Circular No D6 Crown Development Applications and conditions of consent 1995
 Contributions levied on Crown development should be in accordance with the matrix table, which provides a guideline on appropriate categories of contributions for each Crown activity.

Further details on current Section 7.17 Directions can be found at www.planning.nsw.gov.au.

2.22 Exemptions

Requests for a full or partial exemption can be made in writing for the following types of development:

- a. An application by or on behalf of Council for community infrastructure such as libraries, community facilities, child care facilities, recreational facilities or car parks.
- b. An application by or on behalf of the NSW Government for public infrastructure such hospitals, police stations, fire stations, social housing developments and public transport infrastructure.
- c. Residential Care Facility developments carried out under the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.
- d. Community Facilities that will be owned or controlled by a public authority or non-profit community organisation.
- Development carried out by an emergency services organisation for that purpose.
- f. Any other development for which an exemption is considered warranted, where the decision is made by a resolution of the Council at a Council meeting or by a delegated council officer.

For a full or partial exemption request to be considered, it must be supported by a written submission that provides justification for the exemption and demonstrates that it meets the above criteria.

2.23 Indexation of base contributions rates

The contribution rates stated in this Plan are 'base' rates and have been calculated as at 30 June 2020. In accordance with clause 32(3)(b) of the EP&A Regulation the contribution rates stated in this Plan will be indexed quarterly using Consumer Price Index, All Groups Sydney (CPI) based on the following formula:

Indexed contribution rate = $C_{BR} \times (CP1/CP2)$

Where:

CBR is the base contribution rate as set out in this Plan

CP1 is the most recently published CPI

CP2 is the June 2020 quarter CPI

Contribution rates will be indexed quarterly and are available from Councils website. In the event that the current index is lower than the index for the previous quarter, no adjustment will be made.

2.24 Indexation of contributions levied

The contribution amount stated in a condition is current as at the date of determination and subject to indexation until the date of payment. The contribution payable will be indexed quarterly using Consumer Price Index; All Groups, Sydney (CPI) based on the following formula:

Contribution at time of payment = CDC x (CP1 / CP2)

Where:

CDC is the contribution amount as set out in the development consent

CP1 is the most recently published CPI at the time of payment

CP2 is the CPI at the time the application was determined



The current amount payable can be obtained by contacting Council. In the event that the current index is lower than the index for the previous quarter, no adjustment will be made for that quarter.

2.25 Refunds

Requests for the full or partial refund of contributions will be considered in limited circumstances and must be made in accordance with the following process:

- The development consent or complying development certificate must not have been acted on and must be formally surrendered;
- The current landowner must submit a written request to Council;
- The request for a refund must be made within 12 months of the payment.

A delegated council officer may approve requests for refunds, in part or full, that are made in accordance with the above provisions, or on other circumstances considered reasonable.

2.26 Review and monitoring of plan

This Plan will be subject to regular review in accordance with the provisions of clause 33A of the EP&A Regulation. The purpose of such a review is to ensure that:

- Levels of infrastructure provision are consistent with population trends and community needs;
- Contribution rates are updated to reflect changes to construction costs and land values; and
- · The works program remains responsive to development trends.

The following variables will be monitored to ensure the Plan remains current:

- · The rate of lot production and dwelling construction;
- · The costs of constructing infrastructure and acquiring land; and
- · Actual and anticipated household types, occupancy rates and population.

Any changes to the Plan, apart from indexation and minor typographical corrections, will be placed on public exhibition in accordance with the requirements of the EP&A Act and EP&A Regulation.

2.27 Contributions register

In accordance with clause 34 of the EP&A Regulation a contributions register is maintained for this Plan and is available on councils website. This register includes the following details:

- a) details of each consent for which a Section 7.11 condition has been imposed;
- b) the nature and extent of the contribution required by the condition;
- c) the name of the contributions plan the condition was imposed under;
- d) the date any contribution was received and its nature and extent.

2.28 Accounting for Contributions

In accordance with clause 35 of the EP&A Regulation and the *Local Government Code of Accounting Practice and Financial Reporting* (Office of Local Government), council maintains accounting records of contributions and distinguishes these from other accounts through the use of separate restricted accounts. Funds held are invested in accordance with Council's *Investment* Policy.

At the end of the each financial year, council includes a Statement of Developer Contributions in its Annual Financial Statements that includes the following information:

- a) opening and closing balances of money held by the Council for the accounting period;
- b) total amounts received by way of monetary contribution under this Plan;
- c) fotal amount spent in accordance with this Plan; and
- d) outstanding obligations of the Council fo provide works for which contributions have been received.



2.29 Definitions and acronyms

Generally, terms used in this Plan should be taken to have the same meaning as in the Wollongong Local Environmental Plan 2009 or other relative legislation. Specific terms used in this Plan are:

Bedroom	means a room designed or intended for use as a bedroom or any room capable of being adapted to or used as a separate bedroom.		
Certifier	means a council or an Accredited Certifier.		
Contribution	means the dedication of land, the making of a monetary contribution or the provision of a material public benefit, as referred to in Section 7.11 of the EP&A Act.		
Contribution per person	means the contribution rate derived in calculating the residential per lot/dwelling contribution rate. The contribution per person rate is not used to calculate the contribution payable for a development.		
Contributions Plan	means a contributions plan adopted by a Council in accordance with EP&A Act and EP&A Regulation.		
Council	means Wollongong City Council.		
СРІ	Consumer Price Index, All Groups CPI, Sydney (series ID A2325806K) as published by the Australian Bureau of Statistics.		
DPIE	NSW Department of Planning, Industry and Environment		
Essential Works List	means the list of items as published by the NSW Department of Planning and Environment to which this Plan is limited.		
EP&A Act	Environmental Planning and Assessment Act 1979.		
EP&A Regulation	Environmental Planning and Assessment Regulation.		
GFA	Gross floor area.		
ha	Hectare of land area.		
Infrastructure Item	means any public amenity or service, as referred to in section 7.11 of the EP&A Act, that is included in Schedules 1 to 5 of this Plan and for which contributions are levied for under this Plan.		
IPART	Independent Pricing and Regulatory Tribunal.		
m²	Square metres of land area		
Multi Unit Housing Rate	means the residential contribution rate that applies to secondary dwellings and residential development involving the construction of 3 or more dwellings (whether attached or detached) on one or more lots of land (refer to clause 2.8 for a full list of residential accommodation /dwelling types to which this rate applies).		
Non-residential development	Includes commercial, industrial and other non-residential development (see also clause 2.8).		
Plan	means this West Dapto Development Contributions Plan (2020)		
Recoupment	means the recovery of the cost of public amenities and services that have already been provided in anticipation of development.		
Residential development	means the development of any land where dwellings are permissible		
SIC	Special Infrastructure Contributions (section 7.24 of the EP&A Act).		
Standard Rate means the residential contribution rate that applies to the su of land and/or the construction of dual occupancies and oth dwellings (refer to clause 2.8 for a full list of residential accommodation types to which this rate applies).			
wcc	Wollongong City Council.		



Part 3 Expected development and demand for infrastructure

3.1 Existing Development

This contributions plan was first adopted in 2010. At that time the area was significantly rural, however some development had occurred under the provisions of previous and since repealed contributions plans. This includes the Horsley release area and some industrial and other minor developments.

The Horsley release area was largely developed between 1993 and 2010, and in 2011 had a population of approximately 7,015 people and 2,292 dwellings (.id profile community, 2019). The local infrastructure requirements for this area were delivered under the *Horsley Section 94 Development Contributions Plan* (1993) (as amended). The Horsley Section 94 Plan was repealed in 2010 when this contributions plan was first adopted. The area of Horsley is now generally established, with some remaining growth expected to occur as infill development. These assumptions are included in this Plan (stages 1-2) to ensure that adequate provision is made for any additional population in Horsley.

In addition, existing development as at 2010 when this plan was first prepared and adopted (and is therefore excluded from the growth projections in this Plan) include:

- Approximately 100 hectares of industrial land within Stages 1-2;
- Two residential developments within Stages 1-2;
- Two residential developments at Stage 4 Avondale;
- · Approximately 4.4 hectares of industrial land within Stage 5;
- · Approximately 4 hectares of residential land in Stage 5.

3.2 Expected development - residential

The majority of development within the West Dapto Urban Release Area will be residential, which is expected to house around 57,000 people in almost 20,000 dwellings once fully developed.

Whilst the demographic characteristics of the area will develop and evolve over time, the projected population change and future characteristics are expected to be generally reflective of new release areas. These characteristics are indicative in nature and include:

- Remaining rural populations of West Dapto are likely to be displaced by the population attributed to the expected development in those precincts.
- A high proportion of first and second time buyers in their late 20s to 30s, with young children or about to start a family.
- A proportion of empty nesters is expected which may increase over time given the proposed diversity in housing, community facilities and public transport network.
- Over time, the peaks in the age distribution associated with a predominance of young families will reduce and the population will become more diverse.
- · Low levels of single person households and group households are estimated.
- Most dwellings are likely to be owner-occupied (around 90%).
- The numbers of young children aged 0-4 are likely to increase over the first ten years of each
 major stage and then decline. The number of children aged 5-11 is likely to be higher than the
 number of 0-4 year olds, whereas the proportion of 12-17 year olds is likely to be less than
 younger age groups.
- Adults aged 25-39 are likely to be the biggest age group.
- The proportion of older people is likely to initially be low and then increase over time.
- Over time, it can be expected that the population profile will come to more closely approximate
 that of an established area with a variety of age and household characteristics, particularly if
 there are a range of housing types and affordability available in the release area.

The anticipated population projections are shown at **Table 4** (note that Stages 1-2 includes an assumed additional 77 people at Horsley).



Table 4 Residential development assumptions - population

	Actual	Forecast				Total	
Stage	2010/11 to 2017/18	2018/19 to 2027/28			2048/49 to 2057/58	2010/11 to 2057/58	
Stages 1 and 2	3,119	9,450	3,894	1,950	0	18,413	
Stage 3	0	4,071	3,772	5,577	589	14,009	
Stage 4	0	1,149	3,111	3,525	4,866	12,651	
Stage 5	0	1,889	4,120	3,850	2,501	12,360	
Total	3,119	16,559	14,897	14,902	7,956	57,433	

A diverse range of housing types will be delivered through a mixture of density and lot sizes as well as a mixture of dwelling types including single dwellings, dual occupancies, townhouses and apartments. The projected dwellings that have informed this Plan are shown at **Table 5** (note that Stages 1-2 includes 31 dwellings at Horsley). These projections will be continuously monitored and reviewed to account for the changing nature of housing types, designs and densities that will occur over time.

Table 5 Residential development assumptions – dwellings

Stage	Actual		Total			
	2010/11 to 2017/18	2018/19 to 2027/28	2028/29 to 2037/38	2038/39 to 2047/48	2048/49 to 2057/58	2010/11 to 2057/58
Stages 1 and 2	1,075	3,257	1,342	672	0	6,346
Stage 3	0	1,403	1,300	1,922	203	4,828
Stage 4	0	396	1,072	1,215	1,677	4,360
Stage 5	0	651	1,420	1,327	862	4,260
Total	1,075	5,707	5,134	5,136	2,742	19,794

The Calderwood Urban Development Project (Calderwood) is a State Significant Site with approval to develop approximately 4,800 dwellings over 700 hectares of land. 103 hectares of the site is within the Wollongong LGA and is included in the land to which this Plan applies (see Figure 1). The anticipated population and dwellings within Calderwood are excluded from the assumptions in this Plan.

To secure contributions from Calderwood, Council has entered into a Planning Agreement for the provision of monetary contributions towards road upgrades in the Wollongong LGA and the developer will deliver public open space in accordance with the approvals. In the event that a Planning Agreement does not apply to a specific future development application, this Plan will be used as the basis to levy and collect contributions.

3.3 Expected development - non-residential

Within the West Dapto Urban Release Area there are a range of non-residential land use zonings providing employment opportunities including commercial, industrial and special purpose. This non-residential land supports housing and employment and allows business and employers to base themselves within the physical and economic landscape of the release area. There is also minor housing potential within the commercial lands.

It is expected that traditional industries such as light industrial and retail will continue to play a significant part in the regional economy. Kembla Grange is identified in the Illawarra-Shoalhaven Regional Plan as a regionally important industrial land area that would benefit from additional infrastructure to support development. This Plan identifies key local infrastructure including local transport and stormwater management required to support the future development of this area.

The developable non-residential land expected to be developed between 2010 and 2060 is shown at **Table 6**.



Table 6 Non-residential development assumptions - hectares

Land Zone	Stages 1-2	Stage 3	Stage 4	Stage 5	Total
Commercial	9.21	6.2	4.12	3.16	22.69
Industrial & other	174.36	0	0	6.08	180.44
Total	183.57	6.20	4.12	9.24	203.13

3.4 Apportionment between residential and non-residential development

It is necessary to apportion the cost of providing infrastructure under this Plan between the residential and non-residential development. Based on the nexus between the expected development and infrastructure items for each of the categories of infrastructure, the following apportionment applies:

Open Space and Recreation - the need for public open space is generated wholly from residential development, and therefore these costs will be apportioned 100% to residential development.

Community Facilities - the need for community facilities is generated wholly from residential development, and therefore these costs will be apportioned 100% to residential development.

Transport - the need for transport items is generated by both residential and non-residential development and therefore these costs will be apportioned based on the adjusted land area.

Stormwater Management - the need for stormwater management is generated by all built form development and therefore these costs will be apportioned based on the unadjusted land area.

Administration - the need to prepare and administer this Plan is generated by both residential and non-residential development, and these costs will be apportioned based on the adjusted land area.

To recognise the varying levels of land intensification and demand on transport intrastructure it is reasonable to adjust the land area when calculating the apportionment. A rate of 100% for residential, 75% for commercial and 15% for industrial has been applied. This calculation and the resulting adjusted and adjusted apportionment between residential and non-residential land uses are shown at **Table 7**.

Table 7 Apportionment between residential and non-residential land uses

Land Use	Total land area (ha)	Unadjusted Apportionment	Adjustment factor (Transport & Administration)	Adjusted Apportionment (Transport & Administration)
Residential	1,778.22	89.75%	1.00	97.58%
Commercial	22.69	1.14%	0.75	0.93%
Industrial & other	180.44	9.11%	0.15	1.49%
Total	1,981.35	100.00%		100.00%

The apportionment between land uses by infrastructure category is shown at Table 8.

Table 8 Apportionment between residential and non-residential land uses by category

Category of Infrastructure	Residential Development	Non-residential – Commercial	Non-residential – Industrial & other	Total	
Open Space and Recreation	100%	0%	0%	100%	
Community Facilities	100%	0%	0%	100%	
Transport	97.58%	0.93%	1.49%	100%	
Stormwater Management	89.75%	1.14%	9.11%	100%	
Administration	97.58%	0.93%	1.49%	100%	

3.5 Infrastructure requirements

The development of West Dapto will require significant state and local intrastructure to support the needs of the future population. The NSW Government will provide state and regional infrastructure, and Council will be required to plan, deliver and fund local infrastructure. This Plan considers the local infrastructure requirements.



A number of studies have informed the local intrastructure requirements (as listed at clause 3.8).

These studies have been prepared, reviewed and updated over the past decade and have identified that the expected development will generate an increased demand for the following infrastructure:

- Open space and recreation local active and passive recreation such as parks, playgrounds and both formal and informal sports fields;
- Community facilities community centres and libraries;
- Transport intrastructure that will support safe and convenient travel such as new roads, bridges and intersections, public transport facilities and shared use pathways;
- Stormwater management water cycle management facilities as a result of the extra sformwafer runoff generafed by impervious surfaces associated with urban development;

In accordance with the Ministerial Direction dated 18 December 2018 the Intrastructure Items included in this Plan are limited to those that are included in the Essential Works List. Contributions will also be sought towards the direct costs of plan preparation, management and administration

The local infrastructure required to support the future population and development in the West Dapto Urban Release Area for each of the above categories is detailed in Part 4 of this Plan.

The location of each infrastructure item included in the Plan is shown by category on the maps in Part 4 (**Figures 3 to 14**) and a comprehensive map is provided in Part 5 (**Figures 15 to 22**). Part 5 of this Plan provides a set of schedules that detail the costs of each infrastructure item (**Schedules 1 to 5**).

It should be noted that the majority of infrastructure items in this Plan are based on high-level strategic planning and therefore the provision standards, proposed location, design and delivery timeframe are indicative and subject to change as more detailed planning and design is undertaken.

3.6 Cost of infrastructure items

The construction costs for infrastructure items included in this Plan were derived from either the actual construction costs, the services of a qualified quantity surveyor, expertise of Council staff or the IPART Local Infrastructure Benchmark Costs (Final Report, 2014).

The land acquisition costs are based on a recent land valuation (MMJ, August 2018) and a rate for various types of land uses have been applied to relevant infrastructure items based on the land use.

At the time this Plan was prepared, the planning for most of the infrastructure had been carried out at a strategic level only. That is, there are only a small number of items that have been constructed or that have had detailed designs upon which a detailed cost estimate could be prepared. As a result, a contingency allowance has been added to the estimated construction costs for Open Space and Recreation (20%), Transport (20%) and Stormwater Management (30%).

The contingency allowance is considered reasonable given the early stage of planning of most items included in the Plan and is in accordance with (or less than) IPART recommendations (2014). Where an item has been constructed and the actual cost known, no contingency is included.

A reasonable allowance for design (5%) and project management (5%) has also been included for most items.

3.7 Timing of infrastructure delivery

The West Dapto Urban Release Area has been divided into five areas, or stages. These stages are a reference to area (only) and do not represent a sequential staging of the development. Stages 1 and 2 were zoned for urban development in 2010, Stage 5 in 2018 and part of Stage 3 in March 2019. Therefore, the infrastructure planning is further progressed, and delivery will be required sooner, for these stages.

A number of factors will determine the actual delivery timeframes including the rate of development, rate of contributions income, preparation of detailed design and where required the approvals process.

The infrastructure items will form part of Councils capital works budget, which is reported annually to council and publicly available. Similarly, any adjustments to the budget will be reported to council.

The anticipated timing of infrastructure delivery is shown at **Tables 9, 10, 11, 15, 16 and 17**. The Staging Plan is shown at **Figure 2**.



3.8 Supporting Documentation

The following strategic documents informed the preparation of this Plan:

- West Dapto Vision 2018 (Wollongong City Council, 2018)
- Places for People: Wollongong Social Infrastructure Planning Framework 2018-2028 (Wollongong City Council, 2018)
- Mullet Creek Flood Model Update (BMT WBM, 2018)
- Illawarra-Shoalhaven Regional Plan (NSW Government, 2015)
- Duck Creek Flood Study (BMT WBM, 2012)
- Mullet Creek Flood Model Update Mapping Compendium (BMT WBM, 2018)

The following documents were completed after Council's adoption of the NSW Growth Centres Commission recommendation in 2008:

- Mullet and Brooks Creek Floodplain Risk Management Study and Plan (Bewsher, 2010)
- Road Infrastructure (Section 94) Estimates Review (GHD, 2010)
- Mullet Creek, West Dapto Extension of Flood Model (Bewsher, 2011)
- Marshall Mount and Yallah Road Upgrade Strategic Concept design (SMEC, 2015)
- West Dapto Development Area Mullet Creek Flood Modelling (Bewsher December, 2009)
- TRACKS Land Use/Transport models
- West Dapto Urban Release Area Integrated Transport Plan (Aecom, October 2010)
- West Daplo Urban Release Area Stages 1 & 2 Road Network Infrastructure needs Study Transport Modelling & Analysis (WCC, Oct 2010)
- Yallah Marshall Mt Precinct Draft Structure Plan and Infrastructure Costs Report (WCC, 2015)
- Mullet and Brooks Creeks Flood Study (Bewsher, 2010)

The following documents were prepared as part of the NSW Growth Centres Commission Review:

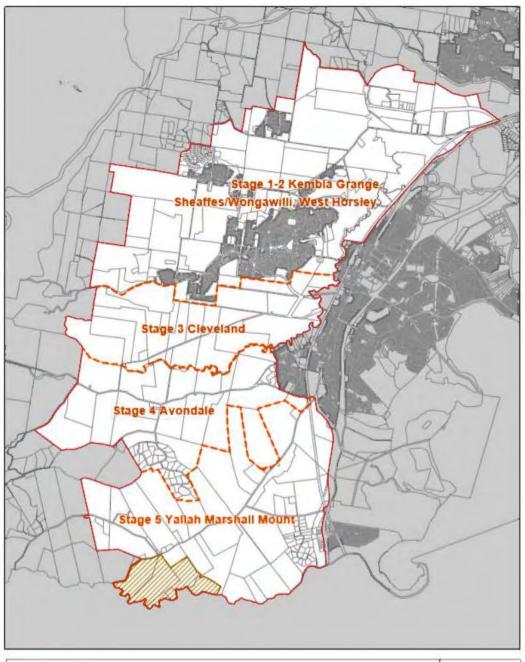
- West Dapto Market Assessment and Demographics Peer Review (Colleen Coyne Property Research Pty Ltd, 2008)
- West Dapto Land Value Assessment (Hill PDA, 2008)
- West Dapto Release Area Urban Design Analysis (Urbis, 2008)
- West Dapto Review Flooding & Stormwater Strategy (Bewsher Consulting Pty Ltd, 2008)
- West Dapto Retail Study Peer Review (SGS Economics & Planning, 2008)
- West Dapto Masterplan Traftic & Transport Review (Urbanhorizon Pty Ltd, 2008)
- West Dapto Release Area Access Review (Cardno, 2008)
- West Dapto Transport Link Review (Cardno, 2008)
- Peer Review (Urbanhorizon Traftic & Transport Report (Northrop, 2008)
- Flood Access Sfrategy for West Dapto (Molino Stewart Pty Ltd, 2008)
- · Review of the West Dapto Section 94 Contributions Plan (Newplan, 2008)

The following documents were prepared for the original West Dapto Vision and Master Plan:

- West Dapto Local Environmental Study (Wollongong City Council, 2007).
- · Social, Cultural and Recreation Needs Study (Elton Consulting, 2007)
- Energy and Communications Study (Maunsell Australia Pty Ltd, 2004)
- Water Cycle Management Study (URS, 2004)
- Transport Management and Access Plan (KBR Pty Ltd, 2007)
- · West Dapto T-Map extension Study (Connell Wagner 2008)
- Infrastructure & Economic Assessment Report (GHD, 2006)



Figure 2 Staging Plan







Part 4 Infrastructure Items by category and contribution rates

4.1 Open Space and Recreation

4.1.1 Demand for Open Space and Recreation

The residential development and expected increase in population in West Dapto will result in additional demands for open space and recreation facilities, including:

- · Parks and playgrounds;
- · Ovals and fields for a variety of sports and other active recreation uses;
- Passive open space areas, including bushland; and
- · Community recreation and leisure centres.

This Plan identifies the formal open space and recreation facilities required to support the future population. In addition, informal public open space areas such as the land surrounding detention basins, riparian corridors and bushland may be provided through subdivision developments.

4.1.2 Existing Open Space and Recreation

Within the existing Horsley release area there is approximately 176.2 ha of public open space (including 106 ha of natural areas), which was delivered through the now repealed *Horsley Section 94 Contributions Plan* and subdivision developments. These open space areas include:

- Reed Park (Bong Bong Road) includes 4 cricket fields / rugby league fields and 3 tennis courts;
- Dirnond Bros Park (Bong Bong Road) includes a skate park;
- Horsley Park (Homestead Drive) includes a basketball court;
- Purrungully Woodland (Brindabella Drive) provides bushland reserve for passive open space;
- Integral Energy Recreation Park (Darkes Road) includes a running trail, passive recreation bushland, picnic facilities and a motor museum;
- · The land surrounding a number of detention basins provides passive open space; and
- A network of shared use pathways provides connectivity between public open spaces.

4.1.3 Proposed Open Space and Recreation

There are a number of planning studies that have identified the need, type and quantum of open space and recreation for the urban release area and these have informed the preparation of this Plan.

Planning People Places – A Strategic Framework for Open Space, Recreation Facilities and Community Facilities (Suter & Associates, April 2006) provides an overall assessment of existing open space and recreation facilities currently provided in the wider area and future demand for facilities.

The Social, Cultural and Recreational Needs Study (Elton Consulting, 2007) establishes a set of principles for open space and recreation facilities as a result of the expected development including:

- · A high demand for recreation facilities to be provided for all age groups;
- Ensuring that adequate public and active transport to open space areas is available:
- Flexible designs to allow for changing community needs, priorities and preferences; and
- A high demand for walking and cycle networks that provide linkages to other open spaces.

The West Dapto Vision (Wollongong City Council, 2018) establishes four inter-related open space principles: functionality; accessibility; connectivity, movement and flow; value and amenity. Based on these principles the following open space and recreation hierarchy is established:

Local open space will provide locally available open space to residents. These spaces will generally be 2ha in size and provide for both active and passive recreation. The design of local open space areas should be flexible, catering for diverse functions and provide an area suitable for one informal playing field as well as passive recreation embellishment such as playgrounds and seating.

Local open space areas are planned based on a catchment of around 400-600 metre walking distance, aiming to ensure that most residents will be within walking distance to local open space.



Neighbourhood open space will provide both active and passive recreational uses to a broader catchment area of around 2km. The active component would be in the form of formal sports fields to accommodate local sport training and competition and therefore may include multipurpose fields, amenities, lighting and car parking. The passive component would provide for a variety of passive recreation and also playgrounds that cater for a range of ages and abilities.

Neighbourhood open space will generally be around 4ha, with a minimum of 2ha for sporting fields.

District community leisure centres will cater to a broader population, including both within and outside the release area. These facilities may include swimming pools, indoor and outdoor active opportunities and may be co-located with other community facilities and/or open spaces areas.

City wide sports parks will provide high level sporting facilities that will cater to a broader population, including both within and outside the release area.

Further analysis of the exact quantum, location, levels of embellishment and design guidelines for each open space area will form part of the detailed planning process.

The open space provision included in this Plan, together with the existing open space already provided at Horsley, is in line with the generally accepted standard rate 2.83 ha per 1,000 persons.

4.1.4 Nexus and apportionment

The need for open space and recreation within the release area is generated wholly by residential development and therefore these costs will be apportioned 100% to residential development.

The following item has been identified to serve a population both within and outside of the West Dapto Urban Release Area, and therefore the cost has been apportioned as follows:

OS01 City wide sports park (adjacent to Darkes Town Centre) – based on this city wide sports
park catering fo both the West Dapto and broader population, only 50% of the cost of this item is
apportioned to the Plan.

4.1.5 Schedule and maps

A description of the open space and recreation items included in this Plan and their indicative location and delivery timeframes is provided at **Table 9**. The cost and apportionment is shown at **Schedule 1**.

The exact quantum, location and design of open space will be subject to detailed planning and design though the Planning Proposal, Neighbourhood Plan and Development Application processes. The proposed (indicative) locations for open space are provided at **Figure 3**.

4.1.6 Contribution rate formula

The formula used to calculate the residential per person contribution rate for open space and recreation is:

Contribution per person	=	Cost of Item x Apportionment		
		Demand		

Where:

Cost of ItemTotal actual or estimated cost attributed to this Plan (from **Schedule 1**)

ApportionmentPortion of fotal cost attributed to residential development (from **Table 8**)

DemandNumber of persons (from **Table 4**)

Contribution per person = \$\frac{\$75,830,325 \times 100\%}{57,433}

= \$1,320.33



Table 9 Open Space and Recreation

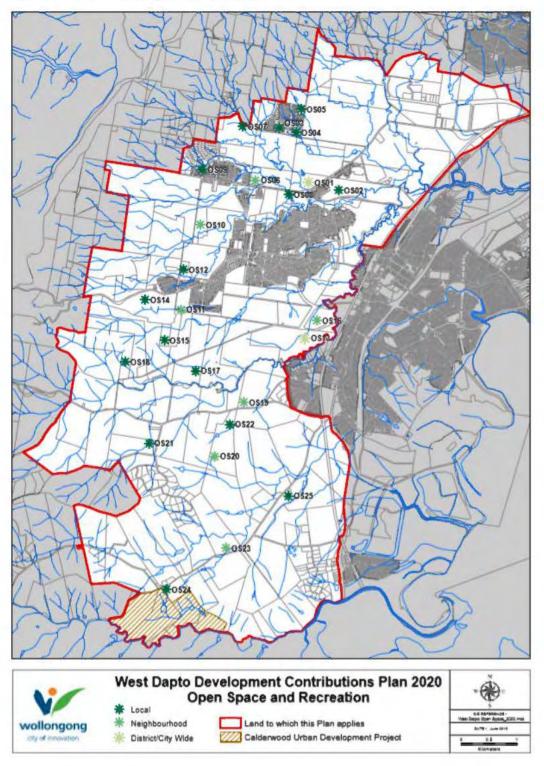
Reference	Infrastructure Item	Indicative location	General Description	Indicative land area (ha)	Indicative Timing
Stage 1-2 Da	arkes Town Centre				
OS01	City wide sports park	Adjacent to Darkes Town Centre and conservation land	City wide competitive sporting facilities including 2 AFL/cricket fields or 4 rugby fields and passive recreation	9.40	2021/22 - 2025/26
OS02	Local park	On ridge to east of Darkes Town Centre	Passive open space including path ways and seating	10.23	2019/20 – 2022/23
Stage 1-2 S	heaffes - Wongawilli				
OS03	Stane Dyke Park	Within residential area - northern end of Saddleback Cres & corner of Paynes Rd	Local park providing active and passive open space including 1 informal playing field	2.09	Completed – 2018/19
OS04	McPhail Reserve	Within residential area - corner of Sheaffes & Paynes Roads	Local park providing passive open space including path ways and seating	2.81	Completed – 2018/19
OS05	Mogomorra Park	Within residential area along Sheaffes Road and to the west of Local Park OS04	Local park providing passive open space including play equipment and seating	1.71	Completed – 2019/20
OS06	Neighbourhood park	Adjacent to Wongawilli Village Centre - along West Dapto Road	Active (2ha formal playing fields) and passive (2ha) open space	4.00	2019/20 – 2022/23
OS07	Local park	Within residential area - western end of Sheatfes Road	Active and passive open space including 1 informal playing field	2.00	2021/22 – 2025/26
OS08	Local park	Within residential area - along West Dapto Road & south of the railway line	Active and passive open space including 1 informal playing field	2.00	2021/22 – 2025/26
OS09	Bankbook Park	Within residential area - along Bankbook Drive	Local Park providing passive open space including play equipment and seating	1.79	Completed – 2018/19
Stage 1-2 W	est Horsley				
OS10	Neighbourhood park	Adjacent to Jersey Farm Village Centre	Active (2ha formal playing fields) and passive (2ha) open space	4.00	2026/27 - 2028/29
OS11	Neighbourhood park	Adjacent to Bong Bong Town Centre	Active (1-2ha formal playing fields) and passive (1-2ha) open space	3.00	2036/37 - 2040/41
OS12	Local park	Within residential area - along Haynes Lane	Active and passive open space including 1 informal playing field	2.00	2021/22 - 2025/26



Reference	Infrastructure Item	Indicative location	General Description	Indicative land area (ha)	Indicative Timing
Stage 3 Clev	veland				
OS13	Community leisure and recreation centre (part only)	Southern side of Cleveland Road adjacent Daisy Bank Drive	Active open space including 12 Netball Courts and 8 Tennis Courts	N/A	2036/37 – 2040/41
OS14	Local Park	Within residential area - south of the western end of Bong Bong Road	Active and passive open space including 1 informal playing field	1.50	2026/27 – 2030/31
OS15	Local Park	Within residential area - north of the western end of Cleveland Road	Passive open space including embellishment	1.00	2026/27 – 2030/31
OS16	Neighbourhood park	Adjacent to Community Leisure & Recreation Centre	Active (2ha formal playing fields x 4) and passive (2ha) open space	4.00	2036/37 – 2040/41
OS17	Local Park	Within residential areas - south of Cleveland Road	Active and passive open space including 1 informal playing field	2.00	2046/47 – 2050/51
OS18	Local Park	Within residential areas - northern side, far western end of Cleveland Road	Active and passive open space including 1 informal playing field	2.00	2046/47 – 2050/51
Stage 4 Avo	ndale				
OS19	Neighbourhood park	Adjacent to Huntley Village Centre and residential area	Active (2ha formal playing fields) and passive (2ha) open space	4.00	2045/46 – 2050/51
OS20	Neighbourhood park	Adjacent to Avondale Village Centre and residential area	Active (2ha formal playing fields) and passive (2ha) open space	4.00	2045/46 – 2050/51
OS21	Local park	Within residential areas - along Avondale Road & west of South Avondale Road	Active and passive open space including 1 informal playing field	2.00	2046/47 – 2051/52
OS22	Local park	Within residential areas - southern side along Avondale Road	Active and passive open space including 1 informal playing field	2.00	2046/47 – 2051/52
Stage 5 Yall	ah - Marshall Mount				
OS23	Neighbourhood park	North side along Marshall Mount Road & adjacent to Marshall Mount Town centre	Active (2ha formal playing fields) and passive (2ha) open space	4.00	2031/32 - 2035/36
OS24	Local park	Within residential areas - along the western end of Marshall Mount Road	Active and passive open space including 1 informal playing field	2.00	2031/32 - 2035/36
OS25	Local park	Within residential areas - along the northern end of Marshall Mount Road	Active and passive open space including 1 informal playing field	2.00	2031/32 - 2035/36



Figure 3 Map - Open Space and Recreation





4.2 Community Facilities

4.2.1 Demand for Community Facilities

Community facilities support the delivery of services, build inclusive, capable communities and activate suburbs. Community facilities can include community centres, libraries, neighbourhood centres, childcare facilities, youth centres and performing arts centres and are considered by the NSW Government as essential infrastructure when planning for new communities (2018).

Goal 3 of the *Illawarra-Shoalhaven Regional Plan* (DPE, 2015) promotes 'a region with communities that are strong, healthy and well connected'. In implementing this goal, Council plans for social infrastructure to address community needs and seeks to include sites for social infrastructure as part of planning for new residential development.

The residential development in the West Dapto Urban Release Area will result in additional demands for a range of community facilities to meet the expected future population needs, including:

- · child care centres and facilities;
- · community meeting rooms;
- library spaces; and
- spaces for organised activities, cultural events and private functions.

4.2.2 Existing Community Facilities

The following existing community facilities are currently located in the area covered by the Plan:

- Horsley Community Hall (Bong Bong Road, Horsley) was constructed to serve the existing Horsley community, and cannot be expanded to serve the future population.
- The Wongawilli Community Hall (Wongawilli Road, Wongawilli) is a small facility that serves the local rural population. The Hall in its current form cannot serve the expected future population.
- Marshall Mount Progress Association Hall (Marshall Mount Road, Marshall Mount) is a small privately owned facility.

The Dapto Ribbonwood Centre and Library is located in Dapto, to the east and outside of the area covered by this Plan.

4.2.3 Proposed Community Facilities

The requirements for community facilities were initially determined through the Social, Cultural and Recreational Needs Study for the West Dapto Urban Release Area prepared by Elton Consulting (July 2007) with further revision undertaken by the Growth Centres Commission (2008).

The West Dapto Vision (WCC, 2018) promotes the concept of a community hub that incorporates colocation and multi-purpose, joint use design, and that these uses are best provided for in a multipurpose community centre that can incorporate a variety of large and smaller spaces suitable for a range of social, leisure and cultural activities.

In 2018 Council adopted *Places for People: Social Infrastructure Planning Framework* (SIPF), part of (WCC, 2018), which further establishes the community facilities requirements for West Dapto. The SIPF identifies that the planning and delivery of social infrastructure must ensure that the provision keeps pace with population growth and the diverse needs of existing and future communities.

The key strategies to provide for the incoming community needs of West Dapto are as follows:

- A sub-district level multipurpose community centre and library (with optional childcare facility) is to be centrally located in Stages 1-2.
- Two neighbourhood level multi-purpose community centres are proposed to be located in stages
 1-2 and one each in stages 3 and 5. Both the stage 3 and 5 centres will service stage 4.
- Each of the multipurpose community centres may have a different focus such as art, recreation, technology or health, with the specific focus to be determined when emerging community characteristics and needs are more clearly recognised.
- · The multipurpose community centres will provide the function of a community resource hub.



- The hierarchy and population sizes within the SIPF framework provides that the sub-district facility
 will cater to a catchment of 20,000-30,000 people, while the neighbourhood level centres will cater
 to a catchment of around 1,000 5,000 people.
- Each of the multi-purpose community centres will include cultural components within them.
- A multipurpose childcare facility is an option for the sub-district centre. This may contain a full range of childcare options from long day care, pre-school, occasional care and playgroups.

4.2.4 Nexus and apportionment

The need to provide the community facilities identified in this plan is generated wholly by the residential development of the West Dapto Urban Release Area. It is therefore appropriate that the full cost of providing the land required tor these centres is apportioned to residential development.

4.2.5 Schedule and maps

Details on each of the community facilities required to support the development of West Dapto is provided at **Table 10**. This includes the type, location and size of each of the proposed facilities.

There are both land acquisition and construction costs to deliver these items to the community, however as this Plan is limited to intrastructure in the Essential Works, List, the construction costs for these items are not included in this Plan and will need to be funded through other sources. In addition, Wongawilli Hall is an existing owned council facility and therefore council does not need to acquire additional land to deliver the upgrade to this facility.

The cost of land that is included in this Plan is shown at Schedule 2.

Indicative locations for the proposed multi-purpose community centres are shown in Figure 4.

4.2.6 Contribution rate formula

The formula used to calculate the residential per person contribution rate for community facilities is:

Contribution per person	=	Cost of Item x Apportionment		
		Demand		

Where:

Cost of Item	Total actual or estimated cost attributed to this Plan (from Schedule 2)
Apportionment	Portion of lotal cost attributed to residential development (from Table 8)
Demand	Number of persons (from Table 4)

Contribution per person = \$1,757,500 x 100% 57,433

= \$30.60



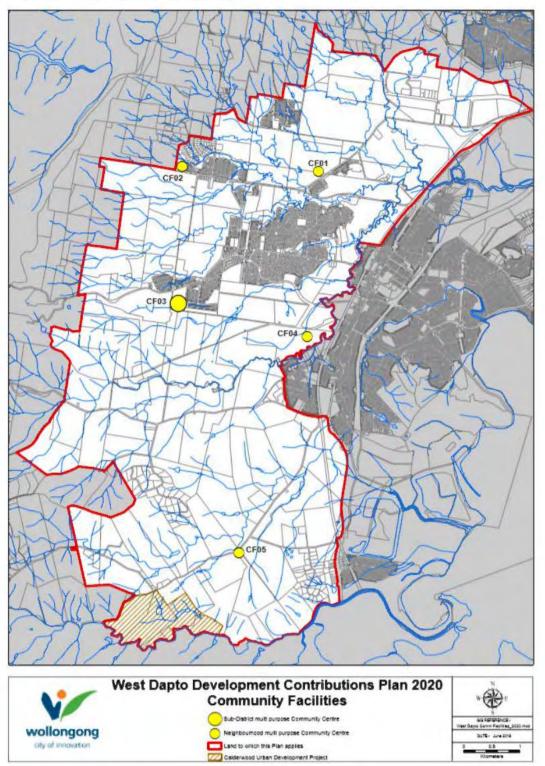
Table 10 Community Facilities

Reference	Infrastructure Item	Indicative location	General Description	Gross floor area	Land area	Indicative Timing
Stage 1-2 Ke	embla Grange, Sheaffes-Wonga	willi, West Horsley				
CF01	Neighbourhood multi-purpose community centre	Darkes Town Centre	New facility	1,500m²	3,500m²	2020/21 – 2023/24
CF02	Neighbourhood community centre	Wongawilli Hall – western end of Wongawilli Road	Upgrade and extension to existing community hall.	350m²	N/A	2020/21 – 2020/21
CF03	Sub-district multi-purpose community centre and library	Bong Bong Town Centre	New facility with optional child care centre.	3,600m²	10,000m²	2020/21 – 2023/24
Stage 3 Clev	veland					
CF04	Neighbourhood multi-purpose community centre	Co-located with Community Leisure & Recreation Centre	New facility	350m²	1,500m²	2041/42 – 2045/46
Stage 5 Yall	ah Marshall Mount					
CF05	Neighbourhood multi-purpose community centre	Marshall Mount Town Centre	New facility	1,500m²	3,500m²	2021/22 – 2024/25

Note: As this Plan is restricted to infrastructure in the Essential Works List, only the land component of Community Facilities is included in the Schedule.



Figure 4 Map - Community Facilities





4.3 Transport

4.3.1 Demand for Transport

A key principle of the *Illawarra-Shoalhaven Regional Plan* (DPE, 2015) is to integrate transport and land use planning, and support improvements in active transport (walking and cycling), public transport and transport infrastructure (including freight).

Wollongong City Council has developed a local government area wide traffic model to assist in establishing the required transport networks to service the future population of the West Dapto Urban Release Area. This model, combined with practical planning experience establishes the need for infrastructure works resulting from the development of the West Dapto Urban Release Area, namely:

- · Capacity improvements to existing road and intersection infrastructure;
- Intersection treatment upgrades (e.g. priority controls, roundabouts, or traffic signals);
- Bridging structures over creek lines, railway corridors and major roads;
- Bus accessible routes through West Dapto with connections to Dapto Town Centre and the regional road network; and
- Optimising public fransport routes and infrastructure.

The majority of the existing road network in the West Dapto release area is dominated by east west road alignments (following topographic ridgelines) and was largely developed to cater for rural traffic volumes only. The works identified in this Plan are considered necessary to facilitate development, whilst ensuring an acceptable level of access, safety and convenience for all road users within the release area

Based on the traffic modelling, the major road network proposed for the West Dapto Release Area consists of three road types; major collectors, minor collectors and sub-arterial. All of these road types are suitable to cater for bus routes. The proposed road network has taken into consideration the heavily constrained nature of the release area, including flooding and existing road and rail corridor infrastructure. The future road network will be designed to provide flood accessible routes for the residential areas, including the provision of bridges over watercourses and railway corridors.

4.3.2 Existing Transport

The existing Horsley residential area has an urban standard road network to service it, whilst the remaining West Dapto Area generally relies on existing roads that are predominantly a rural standard.

The development of West Dapto will require a full upgrade to the transport network; existing roads will need to be significantly upgraded from rural to urban standard, and new roads will be required along with a high level of public and active transport provision, as limited bus services are currently in operation.

4.3.3 Proposed Transport

Through the revised Structure Plan that informed the West Dapto Vision (2018), an integrated transport system is proposed that caters for private vehicles as well as freight, public transport, pedestrians and cyclists. Road types have been developed based on a functional hierarchy, where the road designs support the transport modes in various ways. The road network has been developed to cater for planned land use and deliver a safe, connected and efficient transport framework that compliments the natural environment and facilitates sustainable transport outcomes.

The establishment of efficient and attractive public transport options for West Dapto is imperative to achieve sustainable growth outcomes. Bus routes have been considered when planning road types, and the provision of bus shelters and kiosks will support public transport options.

Active Transport, including walking and cycling, will be an important component of the future West Dapto transport system, contributing significantly to achieving the vision of a 'sustainable' community.

Transport infrastructure is a major component of this Plan and includes:

 A total of 52.75km of funded road network, including the construction of new roads and the significant upgrade of existing rural roads to an urban standard. A detailed list of the roads including length and number of lanes is provided at Table 12.



- A total of 65 bridges (over watercourses) and six rail crossings to support the road network. A list
 of bridges and rail crossings including length and type is included at Table 13.
- A total of 62 funded intersections including roundabouts and signalised (traffic lights) intersections. Details of each intersection, including the adjoining sections of road and the type of intersection, are provided at **Table 14**.
- Public transport, including 218 bus shelters and eight bus kiosks, as shown at Table 15.
- Approximately 42km of shared use paths and five shared use path bridges that will provide whole
 of release area connectivity. Note, a sixth pedestrian bridge included in the West Dapto Vision
 2018 is shown as PB6 at Figure 9. This bridge is not currently included in Schedule 3 but may
 be included in the future. Further details on active transport items are provided at Table 16.

As each stage is developed the required transport intrastructure will be planned and delivered. To date, the following transport items have been provided in full:

TR05 Smiths Lane.

In addition, the following sub-items have been completed in part, or are currently under construction:

- TR02 West Dapto Road rail crossing (IN11 constructed, WDR1 partially constructed);
- TR04 Paynes Road (half road constructed);
- TR06 Wongawilli Road upgrade (under construction);
- TR08 Shone Avenue (S1, S2, S3, S4, B31 and IN25 constructed);
- TR10 Bong Bong Road (BB6, BB7, BB8, IN30 and IN63 constructed);
- TR13 Cleveland Road (C1, C2 and B45 constructed);
- TR20 Iredell Road (NR20 constructed);
- TR22 Fairwater Drive (F1, F3 and B38 constructed, IN31 and IN32 under construction);
- TR23 Fowlers Road Extension and the railway overpass bridge (under construction);
- TR25 Western Ring Road Shone Avenue to Yallah Road (NR30, NR32 and IN49 under construction);
- TR32 Stages 1-2 Shared use pathway (various sections partly constructed).

4.3.4 Nexus and apportionment

The new transport network is required wholly to support the urban development. All of the roads are specifically required to support the West Dapto Urban Release Area development and are apportioned 100% to the Plan, with the exception of three roads that also have an apportionment to the adjoining Calderwood development. The items and apportionment to Calderwood (by section) are:

- TR16 Yallah Road B63 (13%), B64, Y4 and IN62 (34%) overall cost apportionment to Calderwood (24.25%);
- TR17 Marshall Mount Road MM1 (92%), IN56 (88%), IN57 (86%), B65 (68%), IN55 (34%), B67 (35%), B66 (35%) overall cost apportionment to Calderwood (55.73%);
- TR29 Marshall Mount Town Centre Bypass (NR59 NR61) IN61 (34%), NR56, NR57, NR58, B68 and B69 (77%) - overall cost apportionment to Calderwood (75.34%).

The need to provide transport infrastructure as identified in this Plan is predominately generated by the residential development of West Dapto. The future employment (non-residential) development within the proposed industrial and business zonings will also generate demand for this critical infrastructure. It is therefore appropriate that the costs be apportioned between residential and non-residential land uses based on the adjusted land areas, as shown at **Table 8**.

4.3.5 Schedule and maps

Details on each transport item including indicative delivery time frames are provided at **Tables 11 to 16**. Each road item includes a number of road sections, bridges and intersections, as shown at **Table 11**. Further details, including map references, are provided for road sections (**Table 12**), Bridges and Rail Crossings (**Table 13**) and Intersections (**Table 14**).



The proposed location of transport items (where appropriate to map) is shown at **Figures 5 to 12**. Details on the cost and apportionment for each transport item are provided at **Schedule 3**.

4.3.6 Contribution rate formula - Residential

The formula used to calculate the residential per person contribution rate for transport infrastructure is:

Contribution per person = Cost of Item x Apportionment

Demand

Where:

Cost of Item	Total actual or estimated cost attributed to this Plan (from Schedule 3)
Apportionment	Portion of total cost attributed to residential development (from Table 8)
Demand	Number of persons (from Table 4)

Contribution per person = \$\frac{\$735,972,377}{57,433} \times \frac{97.58\%}{97.58\%}

\$12,504.34

4.3.7 Contribution rate formula - Non-residential

The formula used to calculate the non-residential confribution rate for transport infrastructure is:

Contribution per hectare = Cost of Item x Apportionment

Demand

Where:

Cost of Item	Total actual or estimated cost attributed to this Plan (from Schedule 3)
Apportionment	Portion of total cost attributed to non-residential development (from Table 8)
Demand	Total land area (zoned) in hectares (from Table 6)

Commercial development:

Contribution per hectare = \$\frac{\$735,972,377}{22.69} \times 0.93\frac{9}{22}

\$301,654.61

Industrial and other development:

Contribution per hectare = $\frac{\$735,972,377}{1.49\%}$

180.44

= <mark>60,773.60</mark>



Table 11 Transport - Summary of road items

Reference	Infrastructure Item	Location (Stage)	Road Sections	Bridges & Rail crossings	Intersections	Indicative Timing
Existing Ro	ads					
TR01	West Dapto Road	1-2	WD1 to WD17	B15, B16, B17, B18, B19, B20, B21, B22, B23	IN10, IN12, IN13, IN14, IN15, IN16, IN17, IN18	2020/21 - 2030/31
TR02	West Dapto Road Rail Crossing	1-2	WDR1	N/A	IN11	2010/11 - 2031/32
TR03	Sheaffes Road	1-2	SH1 to SH3	N/A	IN7, IN20, IN21	2021/22 - 2025/26
TR04	Paynes Road	1-2	P1 to P4	B10, B27	IN6	2026/27 - 2030/31
TR05	Smiths Lane	1-2	N/A	B28	N/A	Completed - 2015/16
TR06	Wongawilli Road	1-2	W1, W2, W3	B29	N/A	2018/19 - 2020/21
TR07	Darkes Road	1-2	D1 to D6	B24, B25, B26, DRC	IN22, IN23	2027/28 - 2031/32
TR08	Shone Avenue	1-2	S1 to S5	B30, B31	IN19, IN24, IN25, IN26	2012/13 - 2026/27
TR09	Bong Bong Road rail crossing	1-2	N/A	BBRC, B32	N/A	2045/46 - 2050/51
TR10	Bong Bong Road	1-2	BB1 to BB8	B33	IN27, IN28, IN29, IN30, IN63	2035/36 - 2040/41
TR11	Reddalls Road	1-2	R1	N/A	N/A	2027/28 - 2031/32
TR12	Wyllie Road	1-2	WY1	N/A	N/A	2031/32 - 2035/36
TR13	Cleveland Road	3	C1 to C12	B45, B46, B47, B48, B49, B50, B51	IN36, IN37, IN38, IN39, IN40	2013/14 - 2031/32
TR14	Avondale Road	4	A1 to A6	B53, B54, AVRC	IN41, IN43, IN44, IN45, IN46	2040/41 – 2050/51
TR15	Huntley Road	4	H1 to H3	B52	IN58, IN59, IN60	2035/36 - 2040/41
TR16	Yallah Road	5	Y1 to Y4	B63, B64	IN62	2031/32 - 2035/36
TR17	Marshall Mount Road	5	MM1 to MM6	B65, B66, B67	IN55, IN56, IN57	2031/32 - 2055/56
New Roads						
TR18	Northcliffe Drive extension - east	1-2	NR1 to NR12, R2, R3	B1, B3, B4, B5, B6, B7, B8, B9	IN1, IN2, IN5, IN3, IN4	2031/32 - 2035/36



TR19	Northcliffe Drive extension - west	1-2	NR13 to NR19	B11, B12, B13, B14	IN8, IN9	2025/26 - 2034/35
TR20	Iredell Road	1-2	NR20	B34	N/A	2025/26 - 2029/30
TR21	Brooks Reach to Cleveland (east)	1-2	N/A	B41	N/A	2025/26 - 2030/31
TR22	Fairwater Drive	3	F1 to F3	B38	IN31, IN32	Completed - 2012/13
TR23	Fowlers Road Extension	3	NR21 to NR25	B36, B37	IN33, IN34, IN35	2016/17 - 2022/23
TR24	Eastern Link Road (Bong Bong Road to Fowlers Road)	3	NR26, NR27	B35	N/A	2046/47 - 2050/51
TR25	Western Ring Road - Shone Avenue to Yallah Road	1-5	NR28 to NR44	B56, B57, B58, B59, B60, B61, B62	IN47, IN48, IN49, IN50, IN51, IN52, IN53, IN54	2021/22 - 2050/51
TR26	Brooks Reach to Huntley Link	3	NR45 to NR49	B42, B43, B44	IN42	2035/36 - 2055/56
TR27	Eastern Link Road (Fairwater Drive to Avondale Road)	4	NR50 to NR53	B39, B40	N/A	2046/47 - 2050/51
TR28	Eastern spine road - Western Ring Road to Huntley Road	4	NR54, NR55	B55	N/A	2046/47 - 2050/51
TR29	Marshall Mount Town Centre Bypass (Marshall Mount Road to Yallah Road)	5	NR56 to NR58	B68, B69	IN61	2035/36 - 2040/41

Table 12 Transport - Road sections

Road Item Reference	Infrastructure item	Map References	Lanes	Length (m)
Existing roads				
TR01	West Dapto Road	WD1 to WD17	2 lanes / 4 lanes	5,008
TR02	West Dapto Road Rail Crossing	WDR1	2 lanes	87
TR03	Sheaffes Road	SH1 to SH3	2 lanes	1,455
TR04	Paynes Road	P1 to P4	2 lanes / 4 lanes	788
TR05	Smiths Lane	N/A	2 lanes	93
TR06	Wongawilli Road	W1, W2, W3	2 lanes	336
TR07	Darkes Road	D1 to D6	2 lanes	1,554



Road Item Reference	Infrastructure item	Map References	Lanes	Length (m)
TR08	Shone Avenue	S1 to S5	2 lanes / 4 lanes	1,365
TR10	Bong Bong Road	BB1 to BB8	2 lanes	1,288
TR11	Reddalls Road	R1	2 lanes	490
TR12	Wyllie Road	WY1	2 lanes	480
TR13	Cleveland Road	C1 to C12	2 lanes / 4 lanes	4,862
TR14	Avondale Road	A1 to A6	2 lanes / 4 lanes	3,302
TR15	Huntley Road	H1 to H3	4 lanes	1,169
TR16	Yallah Road	Y1 to Y4	4 lanes	1,720
TR17	Marshall Mount Road	MM1 to MM6	2 lanes	5,600
lew roads				
TR18	Northdiffe Drive extension - Princes Hwy to Paynes Road	NR1 to NR12, R2, R3	4 lanes	4,148
TR19	Northcliffe Drive extension - Sheaffes Road to West Dapto Road	NR13 to NR19	4 lanes	1,108
TR20	Iredell Road	NR20	2 lanes	500
TR22	Fairwater Drive	F1 to F3	2 lanes	758
TR23	Fowlers Road Extension	NR21 to NR25	4 lanes	1,227
TR24	Eastern Link Road (Bong Bong Road to Fowlers Road)	NR26, NR27	2 lanes	615
TR25	Western Ring Road - Shone Avenue to Yallah Road	NR28 to NR44	4 lanes	7,419
TR26	Brooks Reach to Huntley Link	NR45 to NR49	2 lanes	2,109
TR27	Eastern Link Road (Fairwater Drive to Avondale Road)	NR50 to NR53	2 lanes / 4 lanes	1,390
TR28	Eastern spine road - Western Ring Road to Huntley Road	NR54, NR55	2 lanes	1,425
TR29	Marshall Mount Town Centre Bypass (Marshall Mount Road to Yallah Road)	NR56 to NR58	2 lanes	2,300



Table 13 Transport - Bridges and rail crossings

Road Item Reference	Map Reference	Road Name	Link Description	Lanes	Length (m)	Width (m)	Туре
Bridges ove	r watercourse	es for existing roads					
TR01	B15	West Dapto Road (2 x Mullet Creek tributaries)	Wyllie Road to Reddalls Road	2	10	14	Culvert
TR01	B16	West Dapto Road (2 x Mullet Creek tributaries)	Wyllie Road to Reddalls Road	2	10	14	Culvert
TR01	B17	West Dapto Road (between WD5-WD6)	Reddalls Road to Sheaffes Road	2	8	14	Culvert
TR01	B18	West Dapto Road (between WD6-WD7)	Reddalls Road to Sheaffes Road	2	34	14	super T over 20m upgrade
TR01	B19	West Dapto Road (tributary n/o Sheaffes Road)	Reddalls Road to Sheaffes Road	4	10	21	Culvert
TR01	B20	West Dapto Road (tributary n/o Darkes Road)	Sheaffes Road to Darkes Road	4	10	21	Culvert
TR01	B21	West Dapto Road (3 x Mullet Creek tributaries)	Darkes Road to Shone Avenue	2	15	14	super T over 20m upgrade
TR01	B22	West Dapto Road (3 x Mullet Creek tributaries)	Darkes Road to Shone Avenue	2	10	14	Culvert
TR01	B23	West Dapto Road (3 x Mullet Creek tributaries)	Darkes Road to Shone Avenue	4	22	21	super T over 20m upgrade
TR04	B10	Paynes Road	Sheaffes Rd to Paynes Rd (North)	2	10	14	Culvert
TR04	B27	Paynes Road	Paynes Road (west of Northdiffe Drive Extension)	2	6	14	Culvert
TR05	B28	Smiths Lane	North of West Dapto Road	2	93	14	super T over 20m new
TR06	B29	Wongawilli Road	Shone Avenue to Smiths Lane	4	6	21	Culvert
TR07	B24	Darkes Road (Mullet Creek western tributary)	West Dapto Road to Princes Hwy	2	29	14	super T over 20m upgrade
TR07	B25	Darkes Road (Mullet Creek eastern tributary)	West Dapto Road to Princes Hwy	2	12	14	Culvert



Road Item Reference	Map Reference	Road Name	Link Description	Lanes	Length (m)	Width (m)	Туре
TR07	B26	Darkes Road (Mullet Creek eastern tributary)	West Dapto Road to Princes Hwy	4	16	21	Culvert
TR08	B30	Shone Ave (Robins northern tributary)	West Dapto Road to Bong Bong Road	2	47	14	super T over 20m upgrade
TR08	B31	Shone Ave (Robins Creek southern tributary)	West Dapto Road to Bong Bong Road	2	63	14	plank up to 20m upgrade
TR10	B33	Bong Bong Road	Between Horsley & Dapto	2	33	14	super T over 20m upgrade
TR13	B45	Cleveland Road (2 x Mullet Creek tributaries)	Princes Hwy to Daisybank Drive	2	27	14	plank up to 20m upgrade
TR13	B46	Cleveland Road (2 x Mullet Creek tributaries)	Princes Hwy to Daisybank Drive	2	20	14	super T over 20m upgrade
TR13	B47	Cleveland Road (2 x Mullet Creek tributaries)	NR46 to Western Ring Road	2	6	14	Culvert
TR13	B48	Cleveland Road (2 x Mullet Creek tributaries)	NR46 to Western Ring Road	2	6	14	Culvert
TR13	B49	Cleveland Road (Mullet Creek tributary)	Western Ring Road to Avondale Road	2	6	14	Culvert
TR13	B50	Cleveland Road (Mullet Creek tributary)	Western Ring Road to Avondale Road	2	32	14	plank up to 20m upgrade
TR13	B51	Cleveland Road (Mullet Creek tributary)	Western Ring Road to Avondale Road	2	6	14	Culvert
TR14	B53	Avondale Road (Mullet Creek tributary)	Western Ring Road to NR49	2	10	14	plank up to 20m upgrade
TR14	B54	Avondale Road (Mullet Creek tributary)	Cleveland Road to Western Ring Road	2	17	14	plank up to 20m upgrade
TR16	B63	Yallah Road (3 x Duck Creek tributaries)	Marshall Mount Road to Princes Hwy	4	50	21	RMS Plank
TR16	B64	Yallah Road (3 x Duck Creek tributaries)	Marshall Mount Road to Princes Hwy	4	16	27	Culvert



Road Item Reference	Map Reference	Road Name	Link Description	Lanes	Length (m)	Width (m)	Туре
TR17	B65	Marshall Mount Road	Yallah Road to LGA boundary	2	63	14	RMS Plank
TR17	B66	Marshall Mount Road (2 x Duck Creek tributaries)	Yallah Road to Huntley Road	2	125	14	RMS Plank
TR17	B67	Marshall Mount Road (2 x Duck Creek tributaries)	Yallah Road to Huntley Road	2	63	14	RMS Plank
Bridges ove	r watercours	es for new roads					
TR18	B1	Northcliffe Drive Extension	Wyllie Road to Northcliffe Drive (existing)	4	11.5	21	Culvert
TR18	В3	Northcliffe Drive Extension	Northcliffe Drive (existing) to Wyllie Road	4	19	21	Culvert
TR18	B4	Northcliffe Drive Extension (2 x tributaries)	Reddalls Road to Wyllie Road	4	24	21	plank up to 20m new
TR18	B5	Northcliffe Drive Extension (2 x tributaries)	Reddalls Road to Wyllie Road	4	45	21	plank up to 20m new
TR18	В6	Northcliffe Drive Extension	Reddalls Road (east) to Reddalls Road (west)	4	11	21	Culvert
TR18	В7	Northcliffe Drive Extension (southern tributary)	Reddalls Road (west) to Paynes Road	4	127	21	super T over 20m new
TR18	В8	Northcliffe Drive Extension (northern tributary)	Reddalls Road (west) to Paynes Road	4	24	21	super T over 20m new
TR18	В9	Northcliffe Drive Extension (northern tributary)	Reddalls Road (west) to Paynes Road	4	45	21	super T over 20m new
TR19	B11	Northcliffe Drive Extension	Sheaffes Road to West Dapto Road	2	6	14	Culvert
TR19	B12	Northcliffe Drive Extension	Sheaffes Road to West Dapto Road (Bridge adjacent to ESA)	2	24	14	Culvert
TR19	B13	Northcliffe Drive Extension	Sheaffes Road to West Dapto Road	2	96	14	Culvert
TR19	B14	Northcliffe Drive Extension	Sheaffes Road to West Dapto Road	2	24	14	Culvert
TR20	B34	Iredell Road	Western Ring Road to Bong Bong Road	2	70	14	super T over 20m new



Road Item Reference	Map Reference	Road Name	Link Description	Lanes	Length (m)	Width (m)	Туре
TR21	B41	New road (not in Plan) (Brooks Reach east)	Brooks Reach to Cleveland Road	2	100	14	super T over 20m new
TR22	B35	Mullet Creek tributary	Bong Bong Road to Fowlers Road	2	50	14	super T over 20m new
TR22	B38	Fairwater Dr (Reed Creek tributary)	Sierra Drive to Fowlers Road Extension	2	48	14	super T over 20m new
TR23	B37	Fowlers Road Extension	Princes Hwy to Eastern Link Road	4	36	21	super T over 20m new
TR25	B56	Western Ring Road	Shone Avenue to Iredell Road	2	110	14	plank up to 20m new
TR25	B57	Western Ring Road	Iredell Road to Bong Bong Road	2	70	14	super T over 20m new
TR25	B58	Western Ring Road	Bong Bong Road to Cleveland Road (Stockland Stage 3)	2	68.4	14	super T over 20m new
TR25	B59	Western Ring Road	Avondale Road to Cleveland Road	2	33	14	super T over 20m new
TR25	B60	Western Ring Road	Avondale Road to Cleveland Road	2	65	14	super T over 20m new
TR25	B61	Western Ring Road	Avondale Road to Marshall Mount Road	4	63	21	RMS Plank
TR25	B62	Western Ring Road	Avondale Road to Marshall Mount Road	5	75	21	RMS Plank
TR26	B42	Brooks Reach to Huntley Link	Brooks Reach to Cleveland Road	4	70	21	super T over 20m new
TR26	B43	Brooks Reach to Huntley Link	Cleveland Road to Avondale Road	2	25	14	plank up to 20m new
TR26	B44	Brooks Reach to Huntley Link	Cleveland Road to Avondale Road	2	70	14	super T over 20m new
TR27	B39	Eastern Link Road (Daisybank Drive)	Fairwater Dr to Cleveland Road	2	6	14	plank up to 20m new
TR27	B40	Eastern Link Road	Avondale Road to Cleveland Road	2	24	14	super T over 20m new
TR28	B55	Eastern Spine Road	Avondale Rd to Western Ring Road	2	55	14	super T over 20m new
TR29	B68	Marshall Mount Town Centre Bypass	Marshall Mount Road to Yallah Road	2	12	44	Culvert
TR29	B69	Marshall Mount Town Centre Bypass	Marshall Mount Road to Yallah Road	2	45	14	RMS Plank



Road Item Reference	Map Reference	Road Name	Link Description	Lanes	Length (m)	Width (m)	Туре
Rail crossin	gs						
TR02	BBRC	Bong Bong Road	Eastern Link Road to Station Street	2	N/A	N/A	Level crossing upgrade
TR07	DRC	Darkes Road	West Dapto Road to Princes Hwy	3	N/A	N/A	Level crossing upgrade
TR09	B32	Bong Bong Road (switchback bridge over rail line)	Eastern Link Road to Station Street	2	16	14	Rail 3
TR14	AVRC	Avondale Road	Eastern Link Road to Princes Hwy	N/A	N/A	N/A	Level crossing upgrade
TR15	B52	Huntley Road (rail bridge)	Princes Highway to Marshall Mount Road	4	55	21	Rail 1
TR23	B36	Fowlers Road Extension (rail bridge)	Princes Hwy to Eastern Link Road	4	197	21	super T over 20m new

Table 14 Transport - Intersections

Road Item Reference	Map Reference	Road 1	Road 2	Intersection Treatment
ntersections f	or existing roads			
TR01	IN12	Wyllie Road	West Dapto Road	Small roundabout
TR01	IN14	Industrial Access Road	West Dapto Road	Small roundabout
TR01	IN15	Darkes Road	West Dapto Road	Large signals
TR01	IN16	New road (not in Plan) (south of Darkes Road)	West Dapto Road	Small roundabout
TR01	IN17	New road (not in Plan) (south of Darkes Road)	West Dapto Road	Large signals
TR01	IN18	Rainbird Drive / New road (not in Plan)	West Dapto Road	Large signals
TR01	IN13	Reddalls Road	West Dapto Road	Small roundabout
TR01	IN10	Northcliffe Drive Extension	West Dapto Road	Large signals
TR02	IN11	Princes Hwy	West Dapto Road	Large signals



Road Item Reference	Map Reference	Road 1	Road 2	Intersection Treatment
TR03	IN20	Sheaffes Road	New Road (not in Plan) (east of Paynes Road)	Small roundabout
TR03	IN21	Sheaffes Road	New Road (not in Plan) (west of Paynes Road)	Small roundabout
TR03	IN7	Sheaffes Road	Paynes Road	Large signals
TR04	IN6	Paynes Road	Northcliffe Drive Extension / Paynes Road	Large signals
TR07	IN22	Darkes Road	New Road (not in Plan)	Small roundabout
TR07	IN23	Darkes Road	Princes Hwy	Large signals
TR08	IN19	Shone Avenue	West Dapto Road	Large signals
TR08	IN24	Shone Avenue	Western Ring Road	Large signals
TR08	IN25	Horsley Drive	Shone Avenue	Small roundabout
TR08	IN26	Bong Bong Road	Shone Avenue	Small signals
TR10	IN27	Bong Bong Road	Station Street	Small signals
TR10	IN28	Bong Bong Road	Eastern Link Road	Small signals
TR10	IN30	Fairwater Drive (west)	Bong Bong Road	Small roundabout
TR10	IN29	Bong Bong Road	Sierra Drive	Mini roundabout
TR10	IN63	Bong Bong Road	Glenlee Drive	Small roundabout
TR13	IN37	Cleveland Road	New Road (not in Plan) (Brooks Reach east)	Large signals
TR13	IN40	Cleveland Road (dog-leg)	New Road (not in Plan)	Small roundabout
TR13	IN36	Cleveland Road	Eastern Link Road (Daisybank Drive)	Large signals
TR13	IN38	Cleveland Road	Brooks Reach to Huntley Link	Large signals
TR13	IN39	Cleveland Road	Western Ring Road	Large signals
TR14	IN41	Cleveland Road	Avondale Road	Small roundabout
TR14	IN45	Avondale Road	Brooks Reach to Huntley Link	Small roundabout
TR14	IN46	Avondale Road	Western Ring Road	Large signals
TR14	IN43	Avondale Road	Eastern Link Road (NR53)	Small signals



Road Item Reference Map Reference		Road 1	Road 2	Intersection Treatment	
TR14	IN44	Avondale Road	Huntley Road	Large signals	
TR15	IN58	Huntley Road	Princes Hwy	Large signals	
TR15	IN59	Huntley Road	Marshall Mount Road	Small signals	
TR15	IN60	Huntley Road	Penrose Drive	Small signals	
TR16	IN62	Yallah Road	Princes Hwy	Large signals	
TR17	IN55	Yallah Road	Marshall Mount Road	Large signals	
TR17	IN56	Marshall Mount Road	North Marshall Mount Road	Small signals	
TR17	IN57	Marshall Mount Road	Marshall Mount Town Centre Bypass	Small signals	
tersections f	or new roads				
TR18	IN1	Northcliffe Drive extension	Church/lan McLennan Park access	Large signals	
TR18	IN2	Northcliffe Drive extension	Wyllie Road	Large signals	
TR18	IN5	Northcliffe Drive extension	Industrial Access Road	Large roundabout	
TR18	IN3	Northcliffe Drive extension	Reddalls Road (east)	Large signals	
TR18	IN4	Northcliffe Drive extension	Reddalls Road (west)	Large roundabout	
TR19	IN8	Northcliffe Drive extension	New Road (not in Plan)	Small roundabout	
TR19	IN9	Northcliffe Drive extension	New Road (not in Plan)	Small roundabout	
TR22	IN31	Fairwater Drive	Sierra Drive	Small roundabout	
TR22	IN32	Fairwater Drive	Fowlers Road Extension & Eastern Link Road (Daisybank Drive)	Large signals	
TR23	IN33	Fowlers Road Extension	Princes Hwy	Large signals	
TR23	IN34	Fowlers Road Extension	Marshall Street	Large roundabout	
TR23	IN35	Fowlers Road Extension	Eastern Link Road (NR27)	Large roundabout	
TR25	IN47	Western Ring Road	New Road (not in Plan) (Jersey Farm Road)	Small signals	
TR25	IN48	Western Ring Road	Iredell Road	Large roundabout	



Road Item Reference	Map Reference	Road 1	Road 2	Intersection Treatment
TR25	IN49	Western Ring Road	Bong Bong Road	Large signals
TR25	IN50	Western Ring Road	New Road (not in Plan) (Brooks Reach west)	Small signals
TR25	IN51	Western Ring Road	New Road (not in Plan)	Large roundabout
TR25	IN52	Western Ring Road	New Road (not in Plan)	Large roundabout
TR25	IN53	Western Ring Road	Eastern Spine Road (NR55)	Large signals
TR25	IN54	Western Ring Road	New Road (not in Plan)	Large signals
TR26	IN42	Brooks Reach to Huntley Link	Stockyard Crescent	Small roundabout
TR29	IN61	Marshall Mount Town Centre Bypass	Yallah Road	Large signals

Table 15 Transport – Public transport

Reference	Infrastructure item	Indicative Location	Quantity	Indicative Timing
TR30	Bus shelters	Throughout release area, along concept bus routes	218	2019/20 - 2059/60
TR31	Bus transport kiosks	Throughout release area, along concept bus routes	8	<mark>2024/25</mark> – 2059/60

Table 16 Transport - Active transport

Reference	Map Reference	Infrastructure Item	Indicative Location	Quantity	Indicative Timing
TR32	N/A	Shared use paths - Stage 1-2	Throughout Stages 1-2	18.33klm	2018/19 – 2047/48
TR33	N/A	Shared use paths - Stage 3	Throughout Stage 3	9.51klm	2021/22 - 2059/60
TR34	N/A	Shared use paths - Stage 4	Throughout Stage 4	9.51klm	2035/36 - 2059/60
TR35	N/A	Shared use paths - Stage 5	Throughout Stage 5	4.65klm	2031/32 - 2059/60
TR36	PB1 to PB5	Shared use path bridge crossings	Throughout Stages 1 - 5	5	2023/24 - 2059/60



Figure 5 Map - Transport (Sheet 1)

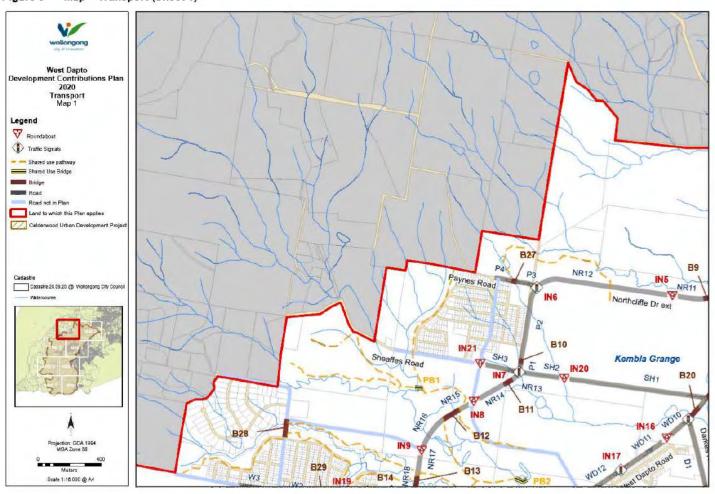




Figure 6 Map - Transport (Sheet 2)

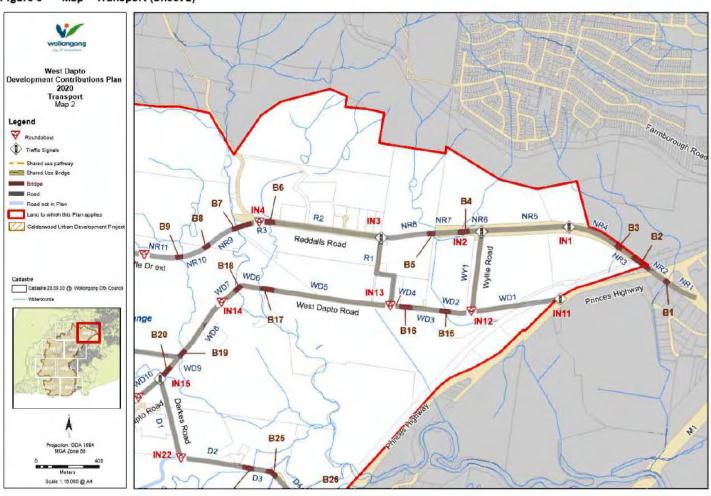




Figure 7 Map - Transport (Sheet 3)

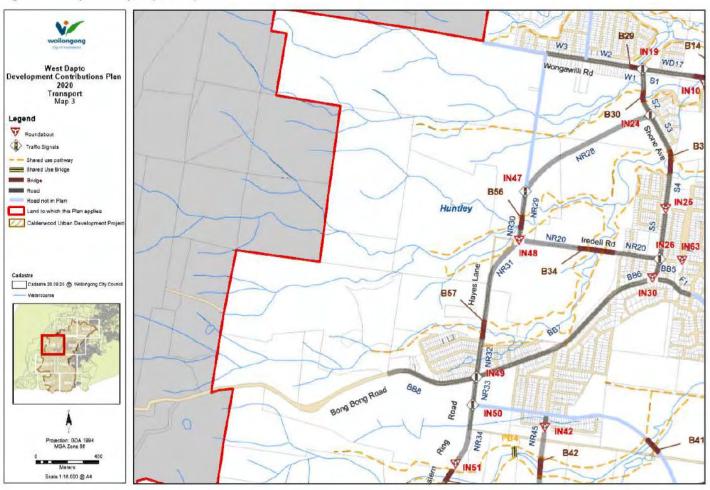


Figure 8 Map - Transport (Sheet 4)

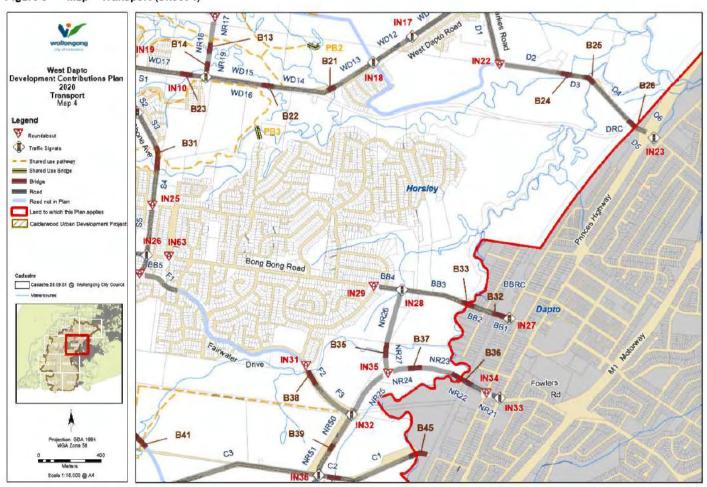




Figure 9 Map - Transport (Sheet 5)

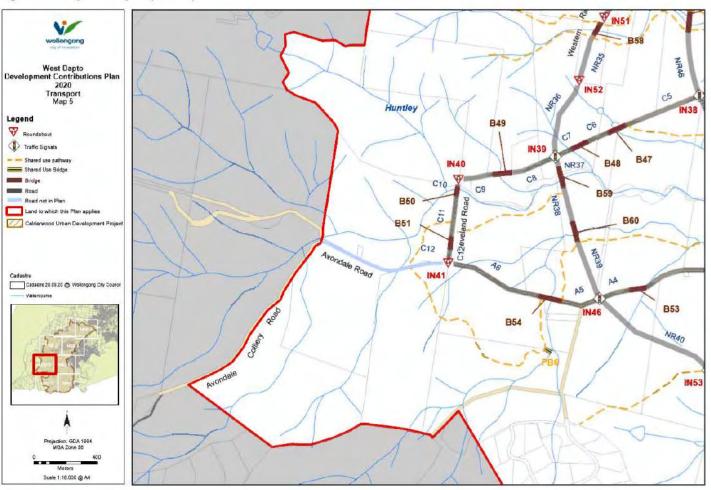




Figure 10 Map - Transport (Sheet 6)

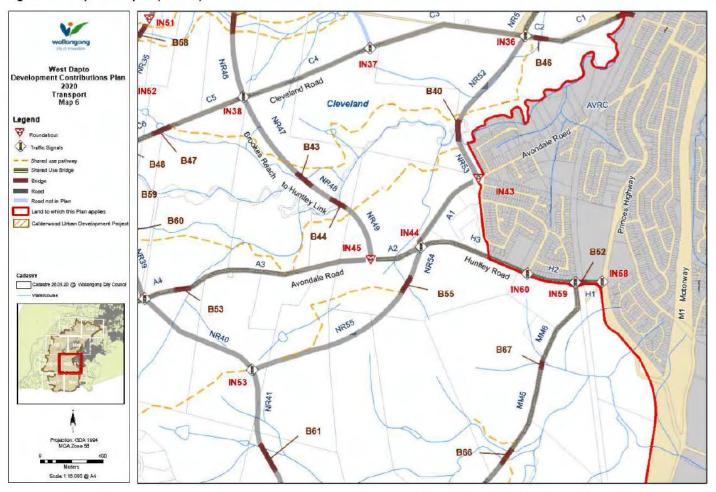




Figure 11 Map - Transport (Sheet 7)

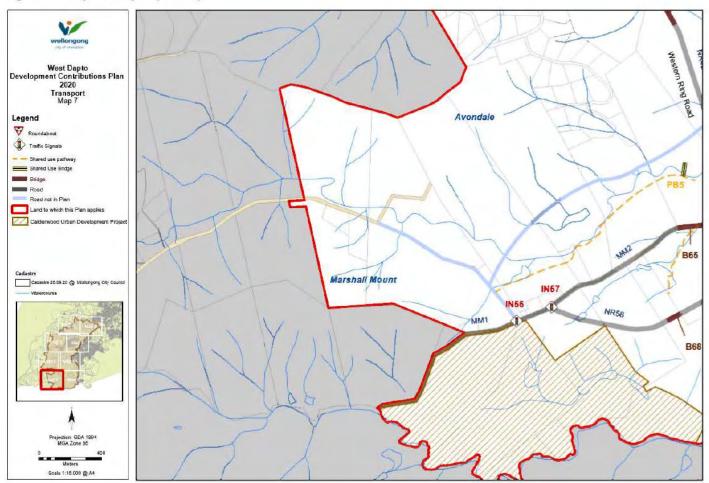
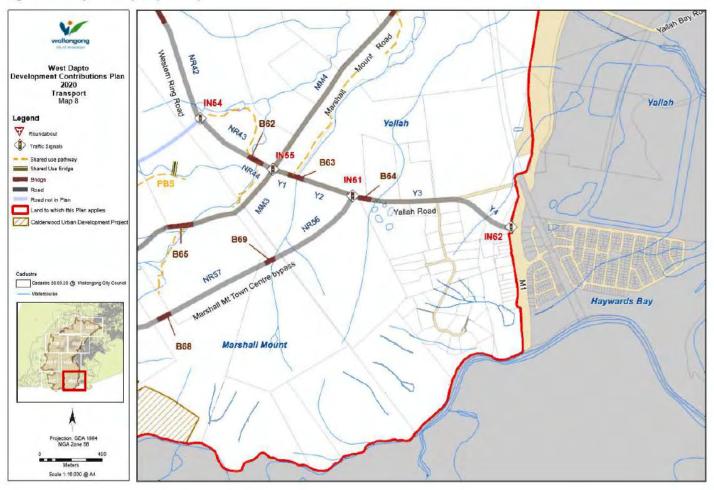




Figure 12 Map - Transport (Sheet 8)



4.4 Stormwater Management

4.4.1 Demand for Stormwater Management

The development of the West Dapto Urban Release Area will require significant investment in a new, comprehensive water cycle management system to cater for the increase of impervious surfaces that affect the hydrological cycle.

The flood studies and modelling carried out by Bewsher Consulting (2008, 2009, 2010 and 2011) identified the tollowing objectives of stormwater management for the West Dapto Urban Release Area:

- Minimise the impact of flooding;
- · Reduce the impacts of urbanisation on receiving streams, creeks and Lake Illawarra;
- · Remove stormwater pollulants to improve overall storm water quality;
- · Retain and enhance riparian habitats;
- · Reduce potable water demand to conserve potable water supply; and
- · Recognise the importance of stormwater as a valuable resource.

The stormwater management strategy for the release area focuses on minimising the impacts of the development on the total water cycle and maximising the environmental, social and economic benefits achievable by utilising responsible and sustainable stormwater management practices.

4.4.2 Existing Stormwater Management

Existing development in the release area provided site specific stormwater management solutions that do not have the capacity to meet the demand of the proposed additional development. The West Dapto Urban Release Area is primarily a greenfield release area and new stormwater infrastructure is required to meet the demand of the development.

4.4.3 Proposed Stormwater Management

To manage stormwater quantity and quality to acceptable levels, a multi treatment approach is proposed to detain and treat stormwater flows as a result of urban development. The devices that have been selected to mitigate the expected pollutant loads and stormwater volumes are conscious of land take requirements, future maintenance requirements, and to ensure water quality that discharges into Lake Illawarra meet the prescribed targets. Infrastructure to be provided under this Plan includes:

- Detention basins including wetlands;
- Gross pollutant traps;
- Enhanced storage areas; and
- Trunk drainage.

Further detail on each of these items is provided at Table 17.

4.4.4 Nexus and apportionment

The need to provide the stormwater management infrastructure included in this Plan is generated by both the residential and non-residential development of West Dapto. It is therefore appropriate that the costs be apportioned between residential and non-residential land uses based on the unadjusted land area as shown at **Table 8**.

4.4.5 Schedule and maps

Details on each stormwater management infrastructure item are provided at Table 17.

The sub catchment areas identified for detention basins (SM01) are shown at Figure 13.

The proposed locations of the enhanced storage areas (SM02 to SM06) are shown at Figure 14.

Trunk drainage (SM07) is not identified on a map due to the uncertainty of locations, which will be determined throughout the detailed planning and development application processes.

Detail on the cost and apportionment for stormwater management is provided at Schedule 4.



4.4.6 Contribution rate formula - Residential

The formula used to calculate the residential per person contribution rate for stormwater management is:

Contribution per person = Cost of Item x Apportionment

Demand

Where:

Contribution per person = \$\frac{\$128,155,190 \times 89.75\%}{57,433}\$

\$2,002.67

4.4.7 Contribution rate formula - Non-residential

The formula used to calculate the non-residential confribution rate for stormwater management is:

Contribution per hectare = Cost of Item x Apportionment

Demand

Where:

Cost of Item Total actual or estimated cost attributed to this Plan (from **Schedule 4**)

Apportionment Portion of total cost attributed to non-residential development (from **Table 8**)

Demand Total land area (zoned) in hectares (from **Table 6**)

Commercial development:

Contribution per hectare = $\frac{$128,155,190 \times 1.14\%}{}$

22.69

\$64,388.24

Industrial and other development:

Contribution per hectare = $\frac{$128,155,190 \times 9.11\%}{}$

180.44

\$64,702.60



Table 17 Stormwater Management

Reference	Infrastructure Item	Quantity	Description	Indicative Timing
Detention basins with wetlands and			Detention basins will temporarily store floodwater from upper catchment areas during floods, releasing the water at a controlled rate. This treatment reduces the peak flows and levels downstream of the basin sites. There are 54 detention basins to be constructed within the release area. Wetlands will also be provided within the detention basin to provide secondary treatment to the stormwater prior to it flowing out of the detention basin.	
SM01 Deterition basins with wedarius and gross pollutant traps	54	Gross pollutant trap (GPT) devices are to be provided at the outlet to stormwater pipes leading to stormwater detention basins. These systems operate as a primary treatment to remove litter, vegetative matter, free oils and grease and coarse sediment prior to discharge to downstream treatment devices. It is envisage each detention basin will contain one GPT.	2020/21 - 2059/60	
			Figure 13 provides a map of the 54 catchment areas and corresponding catchment number.	
SM02	Enhanced storage area – Forest Creek	12ha	There are five proposed enhanced storage areas. Each will be	2026/27 - 2030/31
SM03	Enhanced storage area – Robins Creek	9ha	on-line and largely confined to land zoned for riparian corridor. The design will involve embankments across the floodplain to	2036/37 - 2040/41
SM04	Enhanced storage area – Reed Creek	10.5ha	the tops of the banks of the existing low flow channel, so that the ecological connectivity of the low flow channel and its	2036/37 - 2040/41
SM05	Enhanced storage area – Mullet Creek	14ha	habitat would not be comprised.	2041/42 - 2045/46
SM06	Enhanced storage area – Duck Creek	19ha	The proposed location of the enhanced storage areas is shown at Figure 14 .	2046/47 – 2050/51
SM07	Trunk drainage	25,000,000m²	Trunk drainage will be provided to deliver stormwater between development areas and receiving waters where catchments generally exceed 15 hectares.	2020/11 - 2059/60



Figure 13 Map - Stormwater management detention basin catchment areas

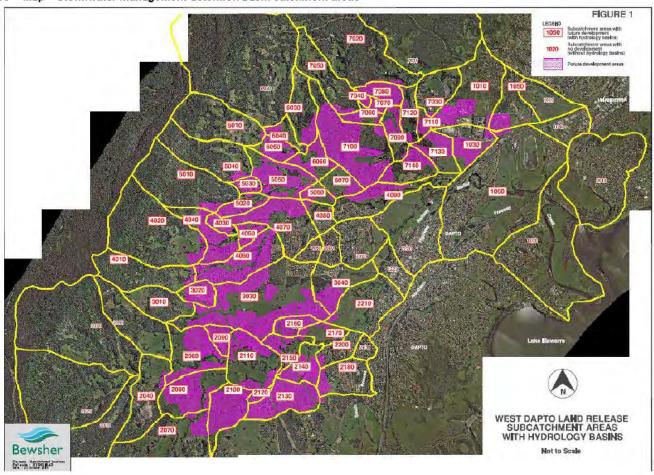
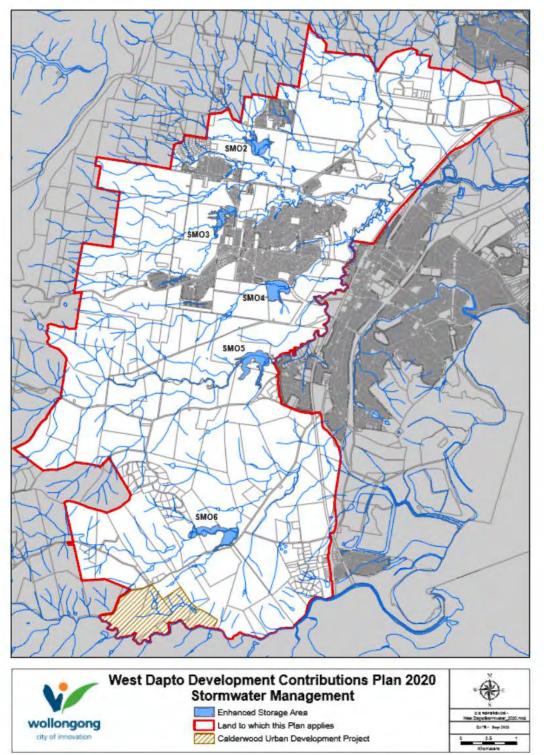




Figure 14 Map - Stormwater management enhanced storage areas



4.5 Administration

4.5.1 Administration

The cost of preparing and implementing the Plan, as well as the ongoing administration and management of the Plan requires specifically designated staff resources. The duties for these roles include plan preparation, calculating contributions on developments, indexing contributions, assessing requests for exemptions and monitoring rates of development, contributions received and expenditure. In addition, there may be direct costs incurred for studies that are required to inform a review of the plan. In accordance with IPART's recommendations this contributions plan will be reviewed every 3 years. As these costs are directly associated with the Plan it is reasonable that they be funded through the Plan.

Administration costs have been calculated at a rate of 1.5% of the total cost of works in this Plan.

4.5.2 Nexus, apportionment and schedule

There is a direct nexus between the staff resources required for the preparation and administration of the plan, with only the direct staff costs (or the relevant proportion of a staff cost) funded by the Plan. In addition, there is a direct nexus with any planning studies required to inform the plan preparation.

As these costs are generated by both the residential and non-residential development it is therefore appropriate that the costs be apportioned between the land uses as shown at **Table 8**.

The cost of Plan Administration is shown at Schedule 5.

4.5.3 Contribution rate formula - Residential

The formula used to calculate the residential per person contribution rate for administration is:

Contribution per person	=	Cost of Item x Apportionment
		Demand

Where:

Cost of Item	Total actual or estimated cost attributed to this Plan (from Schedule 5)
Apportionment	Portion of fotal cost attributed to residential development (from Table 8)
Demand	Number of persons (from Table 4)

Contribution per person = \$\frac{\$12,556,357}{57,433} \times \frac{97.58\%}{20}

\$213.34

4.5.4 Contribution rate formula - Non-residential

The formula used to calculate the non-residential contribution rate for administration is:

Contribution per hectare	=	Cost of Item x Apportionment
		Demand

Where:

Commercial development:

Contribution per hectare = \$\frac{\$12,556,357}{22.69} \times 0.93\%

= **\$5,146.50**

Industrial and other development:

Contribution per hectare = \$\frac{\$12,556,357 \times 1.49\%}{180.44}\$

\$1,036.85



4.6 Contribution Rates

The contribution rates calculated on a per person or per hectare basis in clauses 4.1 to 4.5 are summarised at **Table 18**. The non-residential contribution rates are levied on a per hectare basis as shown at **Table 18**. The residential per person rates are converted to per lot/dwelling rates at **Table 19**. All contribution rates are subject to indexation from June 2020 until the date of payment.

Table 18 Summary of contribution rates calculated in clauses 4.1 to 4.5

No. of Contract of the Contrac	Residential	Commercial	Industrial and other	
Infrastructure Category	Contribution rate per person	Contribution rate per hectare	Contribution rate per hectare	
Open Space and Recreation	\$1,320.33	\$0.00	\$0.00	
Community Facilities	\$30.60	\$0.00	\$0.00	
Transport	\$12,504.34	\$301,654.61	\$60,773.60	
Stormwater Management	\$2,002.67	\$64,388.24	\$64,702.60	
Administration	\$213.34	\$5,146.50	\$1,036.85	
Total	\$16,071.28	\$371,189.35	\$126,513.05	

As shown at **Table 18**, the per person contribution rate is \$16,071.28, however contributions on residential development are levied on a per lot/dwelling (not per person) basis. The per person contribution rate is therefore multiplied by the assumed occupancy rate to give a per lot/dwelling contribution rate. The assumed occupancy rates and per lot/dwelling contribution rates are shown at **Table 19**. The residential contribution rates by infrastructure category are shown at **Table 20**.

Table 19 Residential contribution rates by dwelling type

Type of Development	Contribution per person Occupancy Rate		Contribution Rate per lot/dwelling	
Residential				
Standard rate:				
Subdivision	\$16,071.28	3.2	\$51,428.10	
Dwelling house, dual occupancy*	\$16,071.28	3.2	\$51,428.10	
Multi Unit Housing rate*:				
4+ bedrooms	\$16,071.28	2.9	\$46,606.72	
3 bedrooms	\$16,071.28	2.5	\$40,178.21	
2 bedrooms	\$16,071.28	2.2	\$35,356.82	
0-1 bedrooms	\$16,071.28	1.7	\$27,321.18	

^{*} Refer to clause 2.8 for further clarification on which rate applies to a specific type of dwelling.

Table 20 Residential contribution rates by dwelling type and infrastructure category

	Otan dans	Multi Unit Housing Rate					
Infrastructure category	Standard Rate	4+ bedrooms	3 bedrooms	2 bedrooms	0-1 bedrooms		
Open Space and Recreation	\$4,225.06	\$3,828.96	\$3,300.83	\$2,904.73	\$2,244.56		
Community Facilities	\$97.92	\$88.74	\$76.50	\$67.32	\$52.02		
Transport	\$40,013.89	\$36,262.59	\$31,260.85	\$27,509.55	\$21,257.38		
Stormwater Management	\$6,408.54	\$5,807.74	\$5,006.68	\$4,405.87	\$3,404.54		
Administration	\$682.69	\$618.69	\$533.35	\$469.35	\$362.68		
Total	\$51,428.10	\$46,606.72	\$40,178.21	\$35,356.82	\$27,321.18		



Part 5 Schedules and Maps

Schedule 1 Open Space and Recreation

Reference	Infrastructure Item		ost of Land	Co	st of Works	1	Total Cost	Apportionment to Plan		Cost to Plan	
Stage 1/2	Darkes Town Centre										
OS01	City wide sports park	\$	1,748,400	\$	5,384,348	\$	7,132,748	50%	\$	3,566,374	
OS02	Local park	\$	4,422,623	\$	1,271,304	\$	5,693,928	100%	\$	5,693,928	
Stage 1/2	Sheaffes - Wongawilli										
OS03	Stane Dyke Park	\$	634,512	\$	833,355	\$	1,467,867	100%	\$	1,467,867	
OS04	McPhail Reserve	\$	1,420,098	\$	910,557	\$	2,330,655	100%	\$	2,330,655	
OS05	Mogomorra Park	\$	916,517	\$	783,224	\$	1,699,741	100%	\$	1,699,741	
OS06	Neighbourhood park	\$	2,200,000	\$	1,794,783	\$	3,994,783	100%	\$	3,994,783	
OS07	Local park	\$	1,900,000	\$	1,121,739	\$	3,021,739	100%	\$	3,021,739	
OS08	Local park	\$	1,900,000	\$	1,121,739	\$	3,021,739	100%	\$	3,021,739	
OS09	Bankbook Park	\$	124,296	\$	862,500	\$	986,796	100%	\$	986,796	
Stage 1/2	West Horsley										
OS10	Neighbourhood park	\$	3,800,000	\$	1,794,783	\$	5,594,783	100%	\$	5,594,783	
OS11	Neighbourhood park	\$	1,650,000	\$	4,412,174	\$	6,062,174	100%	\$	6,062,174	
OS12	Local park	\$	1,900,000	\$	1,121,739	\$	3,021,739	100%	\$	3,021,739	
Stage 3	Cleveland										
OS13	Community leisure and recreation centre (part only)	\$	-	\$	2,683,008	\$	2,683,008	100%	\$	2,683,008	
OS14	Local Park	\$	825,000	\$	841,304	\$	1,666,304	100%	\$	1,666,304	
OS15	Local Park	\$	550,000	\$	560,870	\$	1,110,870	100%	\$	1,110,869	
OS16	Neighbourhood park	\$	2,200,000	\$	1,944,348	\$	4,144,348	100%	\$	4,144,348	
OS17	Local Park	\$	1,100,000	\$	1,121,739	\$	2,221,739	100%	\$	2,221,739	
OS18	Local Park	\$	1,100,000	\$	1,121,739	\$	2,221,739	100%	\$	2,221,739	



Reference	eference Infrastructure Item		Cost of Land			Total Cost	Apportionment to Plan		ost to Plan
Stage 4	Avondale						1000		
OS19	Neighbourhood park	\$	2,200,000	\$	1,944,348	\$ 4,144,348	100%	\$	4,144,348
OS20	Neighbourhood park	\$	2,200,000	\$	1,944,348	\$ 4,144,348	100%	\$	4,144,348
OS21	Local park	\$	1,100,000	\$	1,121,739	\$ 2,221,739	100%	\$	2,221,739
OS22	Local park	\$	1,100,000	\$	1,121,739	\$ 2,221,739	100%	\$	2,221,739
Stage 5	Yallah - Marshall Mount								
OS23	Neighbourhood park	\$	2,200,000	\$	1,944,348	\$ 4,144,348	100%	\$	4,144,348
OS24	Local park	\$	1,100,000	\$	1,121,739	\$ 2,221,739	100%	\$	2,221,739
OS25	Local park	\$	1,100,000	\$	1,121,739	\$ 2,221,739	100%	\$	2,221,739
	Total Open Space & Recreation	\$	39,391,447	\$	40,005,252	\$ 79,396,700		\$	75,830,325

Note: Cost of works includes provision for design, project management and contingency.

Schedule 2 Community Facilities

Reference	Infrastructure Item	Cc	st of Land	Cost of Works	Apportionment to Plan	Cost to Plan
	Darkes Town Centre					
CF01	Neighbourhood Multi-Purpose Community Centre	\$	332,500	N/A	100%	\$ 332,500
	Wongawilli					
CF02	Neighbourhood Community Centre	\$	-	N/A	100%	\$ -
	Bong Bong					
CF03	Sub-District Multi-Purpose Community Centre & Library	\$	950,000	N/A	100%	\$ 950,000
	Cleveland precinct	44				
CF04	Neighbourhood Multi-Purpose Community Centre	\$	142,500	N/A	100%	\$ 142,500
	Yallah - Marshall Mount					
CF05	Neighbourhood Multi-Purpose Community Centre	\$	332,500	N/A	100%	\$ 332,500
	Total Community Facilities	\$	1,757,500			\$ 1,757,500

Note: As the cost of works for community facilities is not included in the Essential Works List they are not included in this Plan.



Schedule 3 Transport

	Infrastructure Item						Cost of	W	orks				Less:			Apportionment	
Reference			Cost of Land		Pavement		ersections	Bridges & Rail Crossings			On Costs	Grants Received		Total Cost		to Plan	Cost to Plan
xisting Ro	ads																
TR01	West Dapto Road	\$	712,129	\$	27,624,402	\$ 4	4,535,905	\$	11,853,218	\$	8,802,705	\$	-	\$	53,528,359	100%	\$ 53,528,359
TR02	West Dapto Road Rail Crossing	\$	6,175	\$	517,734	\$:	1,790,415	\$	101	\$	103,547	\$	-	\$	2,417,871	100%	\$ 2,417,870
TR03	Sheaffes Road	\$	207,694	\$	8,658,661	\$:	1,309,467	\$	18	\$	1,993,626	\$	-	\$	12,169,448	100%	\$ 12,169,448
TR04	Paynes Road	\$	898,750	\$	4,558,443	\$	958,486	\$	258,095	\$	1,155,005	\$	-	\$	7,828,779	100%	\$ 7,828,779
TR05	Smiths Lane	\$	-	\$	-	\$	- 1	\$	3,542,826	\$		\$	- 1	\$	3,542,826	100%	\$ 3,542,826
TR06	Wongawilli Road	\$	127,723	\$	3,048,922	\$	-	\$	145,178	\$	638,820	(\$3,000,000)	\$	960,643	100%	\$ 960,643
TR07	Darkes Road	\$	384,927	\$	8,670,563	\$:	1,133,976	\$	7,614,507	\$	3,483,809	\$		\$	21,287,782	100%	\$ 21,287,782
TR08	Shone Avenue	\$	991,050	\$	10,924,083	\$:	2,584,078	\$	6,545,368	\$	2,490,759	(\$	13,300,000)	\$	10,235,338	100%	\$ 10,235,338
TR09	Bong Bong Road rail crossing	\$	- 4	\$	-	\$		\$	35,872,193	\$	7,174,439	\$		\$	43,046,632	100%	\$ 43,046,632
TR10	Bong Bong Road	\$	55,860	\$	4,453,688	\$:	2,190,305	\$	4,328,761	\$	1,921,935	\$		\$	12,950,549	100%	\$ 12,950,549
TR11	Reddalls Road	\$	221,235	\$	2,915,975	\$	-	\$		\$	583,195	\$	-	\$	3,720,405	100%	\$ 3,720,405
TR12	Wyllie Road	\$	16,800	\$	2,856,466	\$		\$	-	\$	571,293	\$	-	\$	3,444,559	100%	\$ 3,444,559
TR13	Cleveland Road	\$	2,334,692	\$	26,927,816	\$.	4,009,434	\$	9,845,006	\$	6,908,534	\$		\$	50,025,482	100%	\$ 50,025,482
TR14	Avondale Road	\$	1,496,540	\$	19,489,426	\$	2,926,864	\$	3,218,335	\$	5,126,925	\$	-	\$	32,258,090	100%	\$ 32,258,090
TR15	Huntley Road	\$	566,115	\$	6,629,380	\$	2,276,309	\$	9,144,079	\$	3,609,954	\$	-	\$	22,225,837	100%	\$ 22,225,83
TR16	Yallah Road	\$	1,782,773	\$	15,727,418	\$	958,486	\$	5,051,539	\$	5,434,360	\$	-	\$	28,954,576	75.76%	\$ 21,934,987
TR17	Marshall Mount Road	\$	6,077,473	\$	38,424,965	\$:	1,943,344	\$	15,423,091	\$	13,947,850	\$		\$	75,816,723	44.28%	\$ 33,571,557
lew Road					-												
TR18	Northcliffe Drive extension - Princes Hwy to Paynes Road	\$	662,476	\$	25,980,352	\$:	3,610,339	\$	28,271,621	\$	11,572,462	\$		\$	70,097,250	100%	\$ 70,097,250
TR19	Northcliffe Drive extension - Sheaffes Road to West Dapto Road	\$	1,635,655	\$	6,630,140	\$	350,981	\$	2,419,639	\$	1,880,152	\$		\$	12,916,567	100%	\$ 12,916,567
TR20	Iredell Road	\$	860,207	\$	3,083,913	\$	-	\$	4,963,362	\$	1,569,790	\$		\$	10,477,272	100%	\$ 10,477,272
TR21	Brooks Reach to Cleveland (East)	\$	6,120	\$	-	\$		\$	7,090,517	\$	1,418,103	\$		\$	8,514,740	100%	\$ 8,514,74
TR22	Fairwater Drive	\$	347,177	\$	10,613,227	\$	815,490	\$		\$	162,601	\$	-	\$	11,938,495	100%	\$ 11,938,49
TR23	Fowlers Road Extension	\$	690,345	\$	26,557,166	\$:	1,693,367	_	60,374,390	\$	2,297,623	15	32,600,000)	\$		100%	\$ 59,012,89
TR24	Eastern Link Road (Bong Bong to Fowlers Rd)	\$	521,220	\$	3,791,527		-	\$		\$	1.1		-	\$		100%	\$ 9,325,363



							Cost of	W	/orks				Less:			Apportionment		- 5/1
Reference	Infrastructure Item		Cost of Land		Pavement		Intersections		ridges & Rail Crossings		On Costs		Grants Received	Total Cost		to Plan	Co	st to Plan
TR25	Western Ring Road - Shone Avenue to Yallah Road	\$	15,531,183	\$	46,321,058	\$	5,295,603	\$	38,009,196	\$	17,925,171	\$		\$:	123,082,211	100%	\$1	23,082,21
TR26	Brooks Reach to Huntley Link	\$	3,522,661	\$	12,734,063	\$	175,490	\$	11,477,775	\$	4,877,466	\$	-	\$	32,787,455	100%	\$:	32,787,455
TR27	Eastern Link Road (Fairwater Dr to Avondale Rd)	\$	1,989,998	\$	9,126,509	\$		\$	2,260,102	\$	2,277,322	\$		\$	15,653,931	100%	\$:	15,653,93
TR28	Eastern spine road - Western Ring Road to Huntley Road	\$	2,853,899	\$	9,193,615	\$		\$	3,899,784	\$	2,618,680	\$		\$	18,565,978	100%	\$:	18,565,978
TR29	Marshall Mount Town Centre Bypass (Marshall Mt Rd to Yallah Rd)	\$	4,809,185	\$	13,565,416	\$	818,284	\$	2,967,818	\$	4,337,880	\$		\$	26,498,583	24.66%	\$	6,534,502
Public Tran	rsport																	7 7
TR30	Bus Shelters	\$	-	\$	4,154,136	\$	-	\$	-	\$	1,246,241	\$	-	\$	5,400,377	100%	\$	5,400,37
TR31	Bus Transport Kiosk	\$		\$	1,519,397	\$		\$. 1=	\$	-	\$		\$	1,519,397	100%	\$	1,519,397
Active Tran	rsport																	
TR32	Stage 1/2 Shared Use Pathway	\$	137,438	\$	4,987,275	\$	-	\$	-	\$	699,940	\$	-	\$	5,824,653	100%	\$	5,824,653
TR33	Stage 3 Shared Use Pathway	\$	71,303	\$	2,570,978	\$	-	\$,	\$	385,647	\$		\$	3,027,928	100%	\$	3,027,928
TR34	Stage 4 Shared Use Pathway	\$	71,303	\$	2,570,978	\$	-	\$	- 1-	\$	385,647	\$	14	\$	3,027,928	100%	\$	3,027,928
TR35	Stage 5 Shared Use Pathway	\$	34,845	\$	1,256,418	\$		\$	-	\$	188,463	\$		\$	1,479,726	100%	\$	1,479,726
TR36	Shared Use Pathway Bridges	\$	- 6	\$	-	\$	-	\$	1,636,569	\$		\$		\$	1,636,569	100%	\$	1,636,569
	Total Transport	\$	49,624,951	\$	366,084,110	\$3	9,376,623	5	279,758,228	\$	119,257,300	(\$4	8.900.000)	5	805,201,212		\$ 7	35,972,37

Note: On costs includes design, project management and contingency.

Note: The 'Apportionment to Plan' for TR16, TR17 and TR29 shows the overall percentage of the total cost that is apportioned to the Plan. The apportionment at a road segment, bridge and intersection level is shown at clause 4.3.4.

Note: Although the Public Transport construction costs are shown within the 'pavement' column, additional construction work components apply.



Schedule 4 Stormwater Management

Reference	Infrastructure Item	c	ost of Land	C	ost of Works	Total Cost	Apportionment to Plan	10	ost to Plan
Detention E	Basins Comments of the Comment						,		
SM01	Detention Basins (including Gross Pollutant Trap)	\$	21,828,348	\$	52,850,643	\$ 74,678,990	100%	\$	74,678,990
nhanced S	torage Areas								
SM02	Forest Creek	\$	360,000	\$	5,697,737	\$ 6,057,737	100%	\$	6,057,73
SM03	Robins Creek	\$	270,000	\$	3,798,491	\$ 4,068,491	100%	\$	4,068,49
SM04	Reed Creek	\$	315,000	\$	3,165,409	\$ 3,480,409	100%	\$	3,480,41
SM05	Mullet Creek	\$	420,000	\$	4,431,573	\$ 4,851,573	100%	\$	4,851,57
SM06	Duck Creek	\$	570,000	\$	7,596,983	\$ 8,166,983	100%	\$	8,166,983
runk Drain	age								
SM07	Trunk Drainage	\$	-	\$	26,851,005	\$ 26,851,005	100%	\$	26,851,00
	Total Stormwater Management	\$	23,763,348	\$	104,391,842	\$ 128,155,190		\$	128,155,19

Schedule 5 Administration

Reference	ltem	Tota	l Cost of Works in Plan	Percentage	1	otal Cost	Apportionment to Plan	Cc	st to Plan
AD01	Administration of Contributions Plan	\$	837,090,494	1.50%	\$	12,556,357	100%	\$	12,556,357
	Total Administration							\$	12,556,357



Figure 15 Comprehensive Maps (Sheet 1)

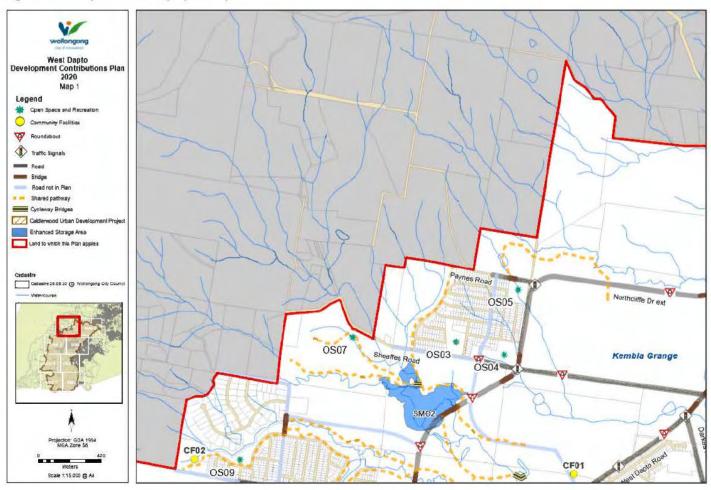




Figure 16 Comprehensive Maps (Sheet 2)

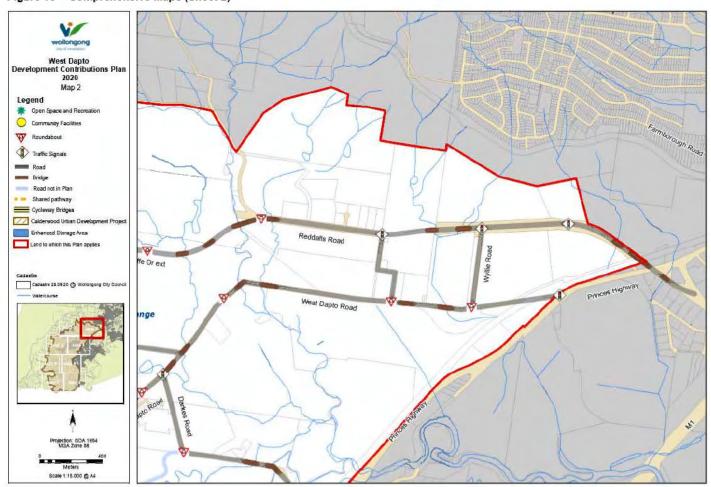




Figure 17 Comprehensive Maps (Sheet 3)

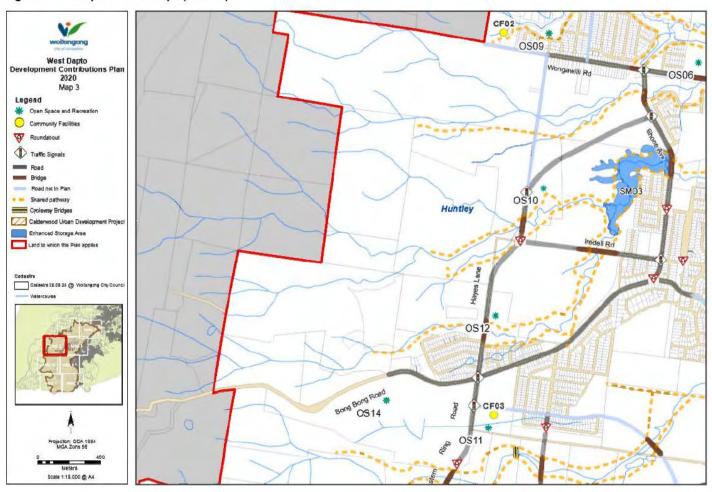




Figure 18 Comprehensive Maps (Sheet 4)

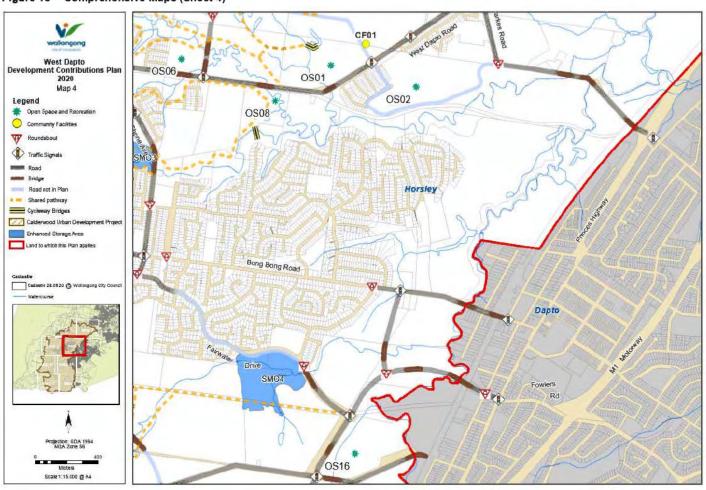




Figure 19 Comprehensive Maps (Sheet 5)

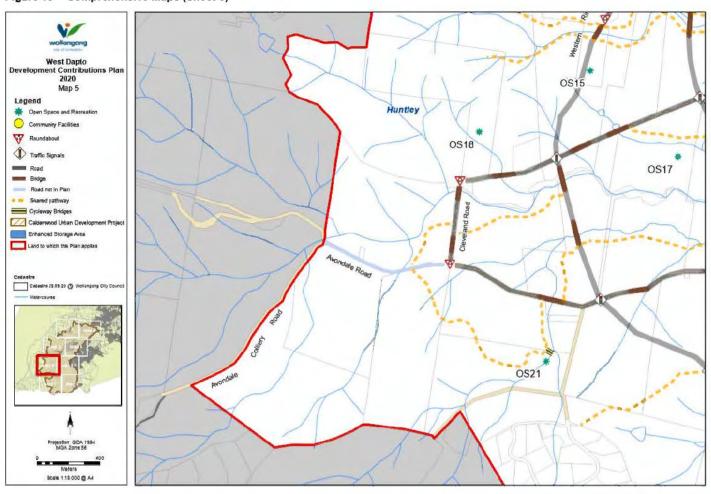




Figure 20 Comprehensive Maps (Sheet 6)

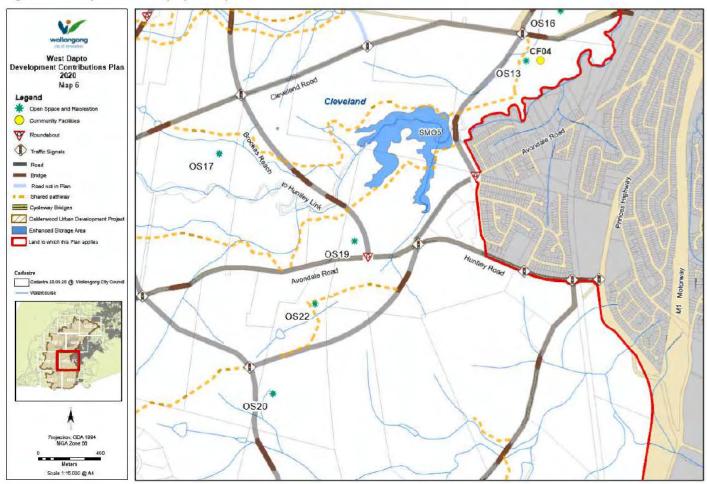




Figure 21 Comprehensive Maps (Sheet 7)

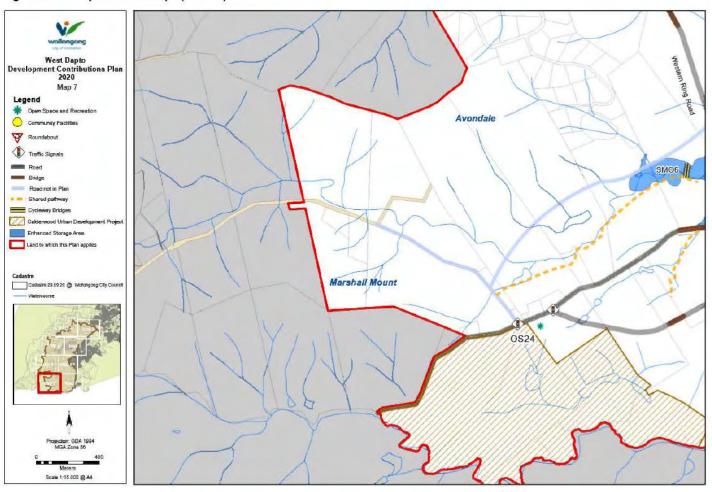
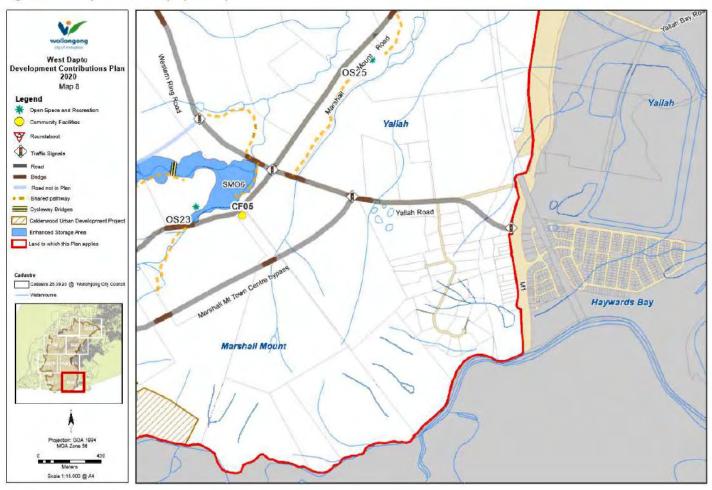




Figure 22 Comprehensive Maps (Sheet 8)







IRF20/4114

Mr Greg Doyle General Manager Wollongong City Council Locked Bag 8821, Wollongong DC NSW 2500

Dear Mr Doyle,

I am writing in relation to the proposed West Dapto Development Contributions Plan 2020 (the Plan), which Council submitted to the Independent Pricing and Regulatory Tribunal (IPART) for assessment. Upon completion of its assessment, IPART made twenty-four (24) recommendations in relation to the Plan.

On behalf of the Minister for Planning and Public Spaces, I have considered IPART's recommendations and require Council to amend the Plan by making twenty-three (23) changes to the plan.

I have not agreed with IPART Recommendation 21 to create two separate contribution catchments in recognition of the need for whole of release area strategies for transport and a consistent approach to water quality infrastructure to protect Lake Illawarra. Council is encouraged to continue to work with developers across all five stages to ensure a coordinated and consistent approach to the delivery of infrastructure.

All the required changes to the contributions plan are listed in Attachment A to this letter. When Council has adopted the amended plan it will be considered as having met the requirements of Clause 5(3) of the Environmental Planning and Assessment (Local Infrastructure Contributions) Direction (2012) as amended, and the Plan will be deemed an IPART reviewed contributions plan.

I would be grateful if you could advise the Department of Planning, Industry and Environment (the Department) once this process is completed and provide evidence that the changes have been made.

Should you have any questions in relation to this matter, please contact Mr Geoff Thompson, Director, Infrastructure Programs and Coordination at the Department, on 9274 6235.

23 September 2020

Brett Whitworth

Deputy Secretary

Greater Sydney Place and Infrastructure

Encl: Endorsed IPART recommendations



Attachment A: List of required amendments to the West Dapto Development Contributions Plan 2020

IPART No.	Required amendments to the West Dapto Development Contributions Plan 2020		
1.	Remove the cost of transport infrastructure from the plan if grant funding is secured through the NSW Government's Housing Acceleration Fund (HAF) or other sources. (IPART Report, Page 31)		
2.	Increase the cost of transport land by \$382,125 by adding the actual cost of land for three transport projects where a land component was not included in the plan. (IPART Report, Page 31)		
3.	Increase the cost of transport works by \$944,191 by adding the cost of part of Iredell Road (NR50) and the intersection of Bong Bong Road and Glenlee Drive, which were omitted from the plan. (IPART Report, Page 32)		
4.	Reduce the cost of transport works by an estimated \$10,982,422 by updating cost estimates in the plan for actual expenditure incurred. (IPART Report, Page 35-37)		
5.	Reduce the cost of the cycleway network yet to be completed by \$27,255,864, based on a per linear metre unit rate of \$311, which includes a 15% contingency allowance. (IPART Report, Page 39)		
6.	Reduce the cost of the five cycleway bridges by \$21,124 to properly account for indexation to the base period of the plan. (IPART Report, Page 41)		
7.	For the next review of the plan, ensure that the scope and location of stormwater management infrastructure is consistent with the revised flood risk management strategy for the WDURA, which the council expects to complete in 2021. (IPART Report, Page 49)		
8.	Include land and works in four additional sub-catchments for which nexus is established, increasing the cost of land by \$7,616,765 and the cost of works by \$12,315,430. (IPART Report, Page 49)		
9.	Reduce the contingency allowance applied to detention basins (including wetland areas) from 30% to 25%, reducing the cost in the plan by \$1,260,497. (IPART Report, Page 51)		
10.	Amend the cost of three gross pollutant traps (GPTs) based on supplier estimates of infrastructure and installation costs, including a 25% contingency on works and 20% contingency on installation, increasing the cost in the plan by \$137,334, comprising: • A decrease of \$105,472 for the GPT in sub-catchment 6010 • An increase of \$87,528 for the GPT in sub-catchment 7140 • An increase of \$155,278 for the GPT in sub-catchment 4060. (IPART Report, Page 53)		
11.	In the next version of the plan, use updated estimates to provide a more accurate basis for estimating the cost of remaining GPT works. (IPART Report, Page 53)		
12.	Apportion stormwater management costs between residential and non-residential development based on each land use's relative share of (unadjusted) net developable area (NDA). (IPART Report, Page 54)		
13.	For the next review of the plan, ensure that the scope and location of open space land and embellishment reflect the progress of development in the release area and ensure that the plan includes: • Sufficient accessible recreation opportunities for all residents. • Sufficient formal recreation facilities (sports grounds) for the release area. (IPART Report, Pages 63-64)		



IPART No.	Required amendments to the West Dapto Development Contributions Plan 2020			
14.	For the next review of the plan, update the cost estimates of all parks to be delivered using more recent actual costs or cost estimates for similar parks. (IPART Report, Page 67)			
15.	Remove the cost of a consultant study for the Darkes Town Centre sporting facility, reducing the cost in the plan by \$30,000.			
16.	Apportion 100% of the cost of the Cleveland outdoor sports facility (OS13) to development within the WDURA. (IPART Report, Page 68)			
17.	Calculate the cost of plan administration for West Dapto CP (2020) based on 1.5% of the adjusted cost of works, which would reduce the cost of plan administration by an estimated \$372,422. (IPART Report, Page 75)			
18.	Amend the plan to include the agreed acquisition cost or dedication value of all land acquired, including through VPAs, as actual costs, indexed to the base year of the plan. This would decrease the cost in the plan by \$603,754, comprising: • An increase of \$288,559 for transport land • A decrease of \$892,313 for stormwater land. (IPART Report, Page 80)			
19.	Update the estimated cost of land for stormwater basins in areas of the WDURA with adopted neighbourhood plans, based on the relevant underlying zoning and any constraint applying to the land. (IPART Report, Page 84)			
20.	Reduce the cost of land for enhanced stormwater storage areas by \$9,922,500 to reflect the flood constrained nature of the land. (IPART Report, Page 85)			
22.	Include land for state schools in the residential NDA and apportion costs to residential development on a per person basis. (IPART Report, Page 92)			
23.	Comprehensively review the plan within the next three years to ensure assumptions about the scope, cost and apportionment of works reflect the progress of development in the release area. (IPART Report, Page 93)			
24.	Amend the plan to provide that secondary dwellings will be levied contributions at the 0-1 bedroom rate. (IPART Report, Page 93)			



Response to IPART Recommendations and Minister's Advice

	IPART Final Report Recommendation	Advice from Minister's Nominee	Council response
1	Remove the cost of transport infrastructure from the plan if grant funding is secured through the NSW Government's Housing Acceleration Fund (HAF) or other sources.	Agreed with IPART recommendation.	Noted. All grant funding that has been secured has been included. This is shown in Schedule 3 of the Plan. At each plan review this data will be updated with any subsequently secured grants.
2	Increase the cost of transport land by \$382,125 by adding the actual cost of land for three transport projects where a land component was not included in the plan.	Agreed with IPART recommendation.	These projects have been included in the 2020 Plan.
3	Increase the cost of transport works by \$944,191 by adding the cost of part of Iredell Road (NR50) and the intersection of Bong Road and Glenlee Drive, which were omitted from the plan.	Agreed with IPART recommendation.	These projects have been included in the 2020 Plan.
4	Reduce the cost of transport works by an estimated \$10,982,422 by updating cost estimates in the plan for actual expenditure incurred.	Agreed with IPART recommendation.	These cost estimates have been updated and reduced accordingly in the 2020 Plan.
5	Reduce the cost of the cycleway network yet to be completed by \$27,255,864, based on a per linear metre unit rate of \$311, which includes a 15% contingency allowance.	Agreed with IPART recommendation.	This cost estimates have been updated and reduced accordingly in the 2020 Plan.
6	Reduce the cost of the five cycleway bridges by \$21,124 to properly account for indexation to the base period of the plan.	Agreed with IPART recommendation.	This has been adjusted and reduced accordingly in the 2020 Plan.
7	For the next review of the plan, ensure that the scope and location of stormwater management infrastructure is consistent with the revised flood risk	Agreed with IPART recommendation.	Noted. This will be included in the next review of the plan.



	IPART Final Report Recommendation	Advice from Minister's Nominee	Council response
	management strategy for the WDURA, which the council expects to complete in 2021.		
8	Include land and works in four additional sub- catchments for which nexus is established, increasing the cost of land by \$7,616,765 and the cost of works by \$12,315,430.	Agreed with IPART recommendation.	These additional catchments have been added in to the 2020 Plan.
9	Reduce the contingency allowance applied to detention basins (including wetland areas) from 30% to 25%, reducing the cost in the plan by \$1,260,497.	Agreed with IPART recommendation.	The contingency for detention basins, wetlands and GPTs has been reduced in the 2020 Plan.
10	Amend the cost of three gross pollutant traps (GPTs) based on supplier estimates of infrastructure and installation costs, including a 25% contingency on works and 20% contingency on installation, increasing the cost in the plan by \$137,334, comprising: - A decrease of \$105,472 for the GPT in subcatchment 6010	Agreed with IPART recommendation.	These cost estimates have been updated and increased or reduced accordingly in the 2020 Plan.
	 An increase of \$87,528 for the GPT in subcatchment 7140 An increase of \$155,278 for the GPT in subcatchment 4060. 		
11	In the next version of the plan, use updated estimates to provide a more accurate basis for estimating the cost of remaining GPT works.	Agreed with IPART recommendation.	Noted. This will be included in the next review of the plan.
12	Apportion stormwater management costs between residential and non-residential development based on each land use's relative share of (unadjusted) net developable area (NDA).	Agreed with IPART recommendation.	The adjustment factor has been removed for the apportionment of stormwater costs in the 2020 Plan.



	IPART Final Report Recommendation	Advice from Minister's Nominee	Council response
13	For the next review of the plan, ensure that the scope and location of open space land and embellishment reflect the progress of development in the release area and ensure that the plan includes: - Sufficient accessible recreation opportunities for all residents. - Sufficient formal recreation facilities (sports grounds) for the release area.	Agreed with IPART recommendation.	Noted. This will be included in the next review of the plan.
14	For the next review of the plan, update the cost estimates of all parks to be delivered using more recent actual costs or cost estimates for similar parks.	Agreed with IPART recommendation.	Noted. This will be included in the next review of the plan.
15	Remove the cost of a consultant study for the Darkes Town Centre sporting facility, reducing the cost in the plan by \$30,000.	Agreed with IPART recommendation.	This cost component has been removed in the 2020 Plan.
16	Apportion 100% of the cost of the Cleveland outdoor sports facility (OS13) to development within the WDURA.	Agreed with IPART recommendation.	The apportionment of this item has been updated in the 2020 Plan.
17	Calculate the cost of plan administration for West Dapto CP (2020) based on 1.5% of the adjusted cost of works, which would reduce the cost of plan administration by an estimated \$372,422.	Agreed with IPART recommendation.	The administration cost has been updated based on 1.5% of the final cost of works in the 2020 Plan.
18	Amend the plan to include the agreed acquisition cost or dedication value of all land acquired, including through VPAs, as actual costs, indexed to the base year of the plan. This would decrease the cost in the plan by \$603,754, comprising: - An increase of \$288,559 for transport land - A decrease of \$892,313 for stormwater land.	Agreed with IPART recommendation.	These cost estimates have been updated and increased or reduced accordingly in the 2020 Plan.



	IPART Final Report Recommendation	Advice from Minister's Nominee	Council response
19	Update the estimated cost of land for stormwater basins in areas of the WDURA with adopted neighbourhood plans, based on the relevant underlying zoning and any constraint applying to the land.	Agreed with IPART recommendation.	The cost of land for stormwater basins in catchments where there is an approved Neighbourhood Plan has been reviewed. This review found that there were 14 sub catchments where cost savings could be achieved by updating the zoning and constraint assumptions. This resulted in a cost reduction of \$3,203,388 and the 2020 Plan has been updated accordingly.
20	Reduce the cost of land for enhanced stormwater storage areas by \$9,922,500 to reflect the flood constrained nature of the land.	Agreed with IPART recommendation.	This has been adjusted and reduced accordingly in the 2020 Plan.
21	For the apportionment of costs across stages, create two separate contribution catchments for the apportionment of transport, stormwater management and plan administration costs: Catchment 1 comprising Stages 1-4 of the release area; and Catchment 2 comprising Stage 5 of the release area.	Did not agree with IPART recommendation and not required to be implemented.	Council has maintained the existing approach, consistent with advice received from the Minister's Nominee.
22	Include land for state schools in the residential NDA and apportion costs to residential development on a per person basis.	Agreed with IPART recommendation.	Noted. The land for schools is included in the total land area of the Plan.
23	Comprehensively review the plan within the next three years to ensure assumptions about the scope, cost and apportionment of works reflect the progress of development in the release area.	Agreed with IPART recommendation.	Noted. The Plan will be reviewed within the next three years from adoption.
24	Amend the plan to provide that secondary dwellings will be levied contributions at the 0-1 bedroom rate.	Agreed with IPART recommendation.	The 2020 Plan has been updated accordingly to reflect this method.





WOLLONGONG CITY COUNCIL

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Mr Cameron Shields Principal Analyst PO Box K35 Haymarket Post Shop NSW 1240

Our Ref: File: Date:

Z20/51576 CST-100.05.061 27 March 2020

Dear Mr Shields

IPART DRAFT REPORT - ASSSESMENT OF THE WEST DAPTO DEVELOPMENT CONTRIBUTIONS PLAN 2020

Thank you for providing Council an opportunity to respond to IPART's draft assessment of the proposed West Dapto Development Contribution Plan 2020. Council welcomes the report and findings. Please accept this letter as a submission to the exhibition.

On 16 March 2020 Council's elected representatives resolved that:

- The IPART draft Report Assessment of draft West Dapto Development Contributions Plan, 2020 be noted.
- Council support staff making a formal public submission in response to the IPART draft report consistent with the advice provided in this report.

Council's report can be read in detail at:

https://www.wollongong.nsw.gov.au/ data/assets/pdf file/0026/91178/Item-6-IPART-Draft-Findings-Review-of-West-Dapto-Development-Contributions-Plan-2020.pdf

Council staff have considered the IPART draft report in detail. Attachment 1 provides a summary of our response to each draft recommendation. Overall we generally support 22 of the 24 recommendations. Council requests that IPART reconsiders the following two draft recommendations:

Recommendation 22

Council maintains our position outlined in our initial application to IPART. It is our position that one flat residential contribution rate should apply to the release area. This position was also detailed in Council's 24 June 2019 Council report, endorsed by Councillors. The detailed reasoning is again provided at Attachment 2 of this letter.

Council's proposed Draft 2020 Plan did not divide the release area into staged or catchment based contribution rates due to:

- 1. The shared demand nexus nature of infrastructure.
- Whole release area planning benefits. All 5 stages of West Dapto will experience value uplift benefit from being part of a single release area. One contribution rate for all 5 stages recognises this shared benefit and therefore socialises the contribution to essential infrastructure.
- 3. Ensuring consistency throughout Contributions Plan reviews. Council has been collecting contributions based on one flat rate for the release area since 2010. Introducing a two-catchment approach at this stage in development of the release area would create an inequitable approach compared to the established approach. It will also result in a shortfall to Council which will impact on the delivery of infrastructure required for the release area.
- 4. The limitations of the indicative rates provided by IPART in the October 2016 findings report.
- 5. The views raised in the more recent IPART 2019 discussion paper "Inclusion of roads in contributions plans". The paper refers to a stakeholder workshop where it was generally agreed that the benefits of apportioning road costs across a broad catchment outweigh the complexity of accurately apportioning the costs within smaller catchments.



Item 3 - Attachment 4 - Council's Submisison on IPART Draft Assessment Report

It is noted that IPART has not costed the separate contributions catchment recommendation and would like to work with Council to calculate the separate rates. We appreciate IPART's invitation to work together. Indicative rates based on the IPART recommended two-catchment approach are provided below to assist with this discussion. It is important to note that the calculation undertaken by Council staff has been done to test the implications of Recommendation 22 only. Council does not support the recommendation but is willing to work with IPART to inform the rates that IPART considers.

Recommendation 5

The reduced cycleway provision proposed by IPART would not allow Council to feasibly deliver this essential infrastructure item for the West Dapto community. Council considers a higher per linear metre unit rate is justified based on three recent comparable projects in the Wollongong LGA as summarised in the table below. Based on our review of these projects within the LGA we recommend that IPART supports the use of a \$679 per lineal metre rate. This rate is less than the IPART benchmark proposed to be used in our draft contributions plan.

	Suburb	Footpath	New	Final Project Costs (\$)	Rate (\$/m)	14-	Lineal metre
а.	Bulli	Shareway	New	\$ 162,380.00	\$232.39	\$	580.97
b.	Dapto	Shareway	New	\$ 336,459.00	\$281.66	\$	704.15
c.	Dapto	Shareway	New	\$ 46,668.00	\$300.71	\$	751.77
				-	Average	\$	678.96

Council would be happy to continue to review rates based on actual projects as West Dapto develops over time. This ongoing review would inform subsequent revisions of the Contributions Plan.

Calculating the implications of IPART draft recommendations

Council has made an initial update to our West Dapto financial model to calculate the implications of the draft IPART recommendations and to quantify the change in residential and non-residential contribution rates. We have provided a summary below for IPART's consideration.

Type of Development	Levy Basis	Draft 2020 Plan as exhibited by Council	Indicative Rates in IPART Draft Report*	Indicative rates based on IPART Draft Report Recommendations*	Indicative rates based on Council submission	
Residential						
Standard Rate - Stages 1-4	Per lot or dwelling	050.054	#E0.0E2	\$56,484*	450.044	
Standard Rate - Stage 5	Per lot or dwelling	\$52,951	\$50,953	\$29,600*	\$52,018	
Non-Residential**						
Commercial – Stages 1-4	Per hectare	#207 DOG	#000 F70	\$501,574	#070 500	
Commercial - Stage 5	Per hectare	\$367,320	\$368,570	\$120,489	\$376,592	
Industrial – Stages 1-4	Per hectare	274.000	2407.400	\$171,051	****	
Industrial – Stage 5	Per hectare	\$74,003	\$127,433	\$40,636	\$129,038	

^{*}IPART indicated a general saving of infrastructure cost resulting in a single catchment levy of \$50,953. Council has calculated the rate based on all 24 recommendations and considers the overall savings would result in a single rate of \$52,018.

**Stage 1-4: 174ha industrial, Stage 5: 6ha industrial. Stage 1-4: 19.5ha commercial, Stage 5: 3ha commercial.
***Note that the Residential Multi Unit Housing Rates would also be adjusted accordingly.



Council offers the following clarification regarding draft Recommendation 20

Council's approach to provide the estimated cost of land for stormwater basins with adopted Neighbourhood Plans (NPs) is to identify the total number of basins and sizes within each sub-catchment and apply the rates based on their respective zonings/constraints.

Where the basin has already been built or received formal approval (ie DA, Subdivision Certificate, Land & Environment Court approval), the actual/approved basin size will be used to estimate the cost of land.

Where the basin has not been built or approved, the size will be estimated from the contributing catchment area.

The cost estimates from multiple basins within a sub-catchment will be proportioned from the costs currently identified for each sub-catchment (which is based on 1 basin per sub-catchment).

Also during our initial investigation into basins associated with adopted NPs, it was found that the adopted development area for sub-catchment 2040 was underestimated when compared with one of the more recent adopted NPs. Accordingly, this development area will need to be increased in the final contribution plan to reflect the approved NP. Council is seeking IPART's support to proposed increase for this sub-catchment.

Additional minor items raised

Secondary dwellings

The Draft 2020 Plan proposes to levy secondary dwellings on the per bedroom rate, based on the number of bedrooms in the dwelling. Secondary dwellings were raised in a public submission received by Council during exhibition of the Draft 2020 Plan and specifically referred to in a staff report to Council on 2 September 2019.

Council officers have further considered public submission received during the Draft 2020 Plan exhibition in relation to the levying of secondary dwellings and found that:

- it is still considered reasonable that secondary dwellings are levied a contribution as they are a dwelling type that will accommodate part of the population at West Dapto, and therefore contribute to generating the demand for infrastructure
- it is acknowledged that secondary dwellings have different planning controls to the other types of dwellings that are levied the per bedroom rate, specifically, that they cannot be subdivided and have size (floor space) limitations; and
- it would be appropriate to levy the 0-1 bedroom rate for all secondary dwellings (including 2 bedroom secondary dwellings).

Council staff therefore propose to update the Draft 2020 Plan prior to adoption to reflect the intention that secondary dwellings will be levied the 0-1 bedroom multi-unit housing rate.

Residential Development

The Draft 2020 Plan includes the term 'seniors housing', clause 2.8 on page 8. To better reflect the definitions of the *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* and to better reflect the intention of where the contribution will be applied this term will be updated to 'self-contained dwelling'.

Council staff welcome the opportunity to work directly with IPART to review all contributions calculations. Noting that council maintains our position that we prefer a single flat rate approach for the release area and not a split catchment approach (Recommendation 22).

I would like to thank IPART and your project staff for continuing to work well with Council staff during your assessment process. We appreciate the working relationship that has been formed by both parties.

This letter is authorised by

Linda Davis

Director Planning & Environment - Future City and Neighbourhoods

Wollongong City Council Telephone (02) 4227 7111

Attach



ATTACHMENT 1

No.	Description Staff response				
Trans	sport				
1.	Remove the cost of transport infrastructure from the plan if grant funding is secured through the NSW Government's Housing Acceleration Fund (HAF) or other sources	Generally support			
2.	Increase the cost of transport land by \$382,125 by adding the actual cost of land for three transport projects where a land component was not included in the plan.	Generally support			
3.	Increase the cost of transport works by \$944,191 by adding the cost of part of Iredell Road (NR50) and the intersection of Bong Bong Road and Glenlee Drive which were omitted from the plan.	Generally support			
4.	Reduce the cost of transport works by an estimated \$10,982,422 by updating cost estimates in the plan for actual expenditure incurred.	Generally support. Council staft to work with IPART on specific costings			
5.	Reduce the cost of the cycleway network yet to be completed by \$27,255,864, based on a per linear metre unit rate of \$311, which includes a 15% contingency allowance	Disagree. Staff will provide further justification for higher per linear metre unit rate.			
6.	Reduce the cost of the five cycleway bridges by \$21,124 to properly account for indexation to the base period of the plan.	Generally support			
Storm	nwater				
7.	For the next review of the plan, ensure that the scope and location of stormwater management infrastructure is consistent with the revised flood risk management strategy for the WDURA, which the council expects to complete in 2021.	Generally support			
8.	Include land and works in four additional sub-catchments for which nexus is established, increasing the cost of land by \$7,616,765 and the cost of works by \$12,816,346.	Generally support			
9.	Reduce the contingency allowance applied to detention basins (including wetland areas) from 30% to 25%, reducing the cost in the plan by \$1,260,497.	Generally support			
10.	O. Amend the cost of two gross pollutant traps based on the council's estimates and a 30% contingency, increasing costs in the plan by \$1,038,223, comprising: — An increase of \$871,251 for the GPT in sub-catchment 5050 — An increase of \$166,972 for the GPT in sub-catchment 6070.				
		Generally support			
12.	In the next version of the plan, use updated estimates to provide a more accurate basis for estimating the cost of remaining GPT works	Generally support			
13.	Apportion stormwater management costs between residential and non-residential development based on each land use's relative share of (unadjusted) net developable area (NDA).				
Open	Space				
14.	For the next review of the plan, ensure that the scope and location of open space land and embellishment reflect the progress of	Generally support			



ATTACHMENT 1

Report

	development in the release area and ensure that the plan includes: - Sufficient accessible recreation opportunities for all residents Sufficient formal recreation facilities (sports grounds) for the release area.	
15.	For the next review of the plan, update the cost estimates of all parks to be delivered using more recent actual costs or cost estimates for similar parks.	Generally support
16.	Remove the cost of a consultant study for the Darkes Town Centre sporting facility, reducing the cost in the plan by \$30,000.	Generally support
17.	Apportion 100% of the cost of the Cleveland outdoor sports facilities (OS13) to development within the WDURA.	Generally support
Plan a	administration	
18.	Calculate the cost of plan administration for West Dapto CP (2020) based on 1.5% of the adjusted cost of works, which would reduce the cost of plan administration by an estimated \$368,757.	Generally support subject to final adjusted cost.
Cross	-category issues (land)	
19.	Amend the plan to include the agreed acquisition cost or dedication value of all land acquired, including through VPAs, as actual costs, indexed to the base year of the plan. This would decrease the cost in the plan by \$603,754, comprising: — An increase of \$288,559 for transport land — A decrease of \$892,313 for stormwater land	Generally support
20.	Update the estimated cost of land for stormwater basins in areas of the WDURA with adopted neighbourhood plans, based on the relevant underlying zoning and any constraint applying to the land.	Generally support
21.	Reduce the cost of land for enhanced stormwater storage areas by \$9,922,500 to reflect the flood constrained nature of the land. Generally support. Staff further review the costings IPART	
Cross	-category issues (other)	
22.	For the apportionment of costs across stages: – Maintain the current approach of having the same contribution rates across all stages for open space and community facilities costs. – Create two separate contribution catchments for the apportionment of transport, stormwater management and plan administration costs: Catchment 1 comprising Stages 1-4 of the release area; Catchment 2 comprising Stage 5 of the release area.	Disagree. Staff recommends Council maintains preferred approach for one single residential contribution rate apply to stages 1-5.
23.	Include land for state schools in the residential NDA and apportion costs to residential development on a per person basis.	Generally support
24.	Comprehensively review the plan within the next three years to ensure assumptions about the scope, cost and apportionment of works reflect the progress of development in the release area.	Generally support. Staff recommend an additional sentence at the end of the recommendation: "subsequent plan reviews are undertaken every three to five years".



Attachment 2 Summary of staff previous responses to IPART 2016 recommendation 29

IPART Recommendation	Response
29: To improve the links between demand for infrastructure and contributions in different stages in the plan, WCC consider either:	
a) removing Stages 4 and 5 from the plan for inclusion in a new or another section 94 contributions plan, or b) introducing separate contributions in the West Dapto CP for developments in Stages 1 to 3 and developments in Stages 4 and 5, which are more	The two potential scenarios described in the IPART recommendation have been considered in some detail. The overall conclusion is that the suggestion that dividing the release area into stages may result in contribution rates being "more reflective of the cost of facilities to meet demand from the new development in each of the stages" is not apparent. This is due to a number of reasons, each outlined below.
reflective of the cost of facilities to meet demand from the new development in each of the stages.	Shared demand nexus The road, public and active transport networks that make up the Transport category are, by some magnitude, the most expensive at \$761m, or 78% of the total cost of the Draft Plan. Transport is the category of infrastructure with the most significant shared demand nexus.
	A key example of the shared nexus nature of the road network is the "ring road" collector function presented by the network from the Northcliffe Drive extension in the north, which will ultimately connect to the M1 to the Yallah Road connection in the south, which will also link the release area to the M1.
	Another example is the public and active transport networks, which provide whole of release area connectivity both within each stage and across the release area.
	In addition to the shared nature of Transport as outline above, the shared nexus nature of the other infrastructure categories has also become apparent. For example, open space at various levels (i.e. local, neighbourhood and city wide) is provided to service all residents across the whole of the release area and are intended to provide a variety of services. Similarity the new and upgraded multi purpose community centres further justify a release area shared nexus approach as they have been planned across the whole site, not for individual stages. All of the open space and community facilities will provide cross stage benefits.



The contributions plan has been prepared based on the release area in its entirety, If Council were to divide the release area into several parts or stages as a basis to set different contributions rates an equitable division of cost responsibility would be difficult to achieve due to the shared nature of most infrastructure requirements.

Whole of release area planning

West Dapto was identified for inclusion on the NSW Urban Development Program in the 1980's. It has been since this time that the value of the release area as a whole has been continually recognised. Within the same competitive housing market neighbourhood planning areas and individual subdivisions will benefit from urban zoning uplift and all stages will play a role.

The West Dapto Vision 2018 includes a Structure Plan, which is not presented in stages as it represents a spatial interpretation of the release area as ultimately developed. The traditional five separate stages of West Dapto were an initial indication of how rezoning of the release area could be phased from rural to urban land uses over a fifty plus year timeframe. Since the initial identification of five stages, rezoning has occurred in varied sequence. Stage 1 and 2 were rezoned as one in 2009, stage 5 was rezoned in June 2018 and part of Stage 3 (referred to and known as "Stockland Stage 3") was rezoned for urban development on 8 March 2019.

IPART indicative rates

IPART's inclusion of indicative contribution rates for grouped stages 1-3 and 4-5 in the October 2016 report indicated that contribution rates might be affected by a different approach to apportionment of costs by stage in the release area. The IPART example showed lower costs for stage 4 and 5 however, after further analysis by Council, this is not considered accurate due to the reasons outlined in this table.

Further, the indicative nature of IPART's example is important to note. IPART acknowledged that broad assumptions were made about which stage would be affected by their recommendations for amendments to infrastructure items and costs in the plan. IPART acknowledged that they did not reapportion any costs, including roadworks, to account for any shared demand between stages. Shared demand nexus infrastructure, in particular the transport network is the main contributing factor to the existing approach being maintained.



Consistency throughout Plan reviews

The West Dapto Contribution Plan has been levying and collecting contributions across the whole release area for almost ten years. Although the plan is regularly reviewed to account for changing infrastructure needs, cost estimates and delivery timeframes, these changes are considered minor in that they do not affect the overall fundamental structure of how the contributions plan is prepared and implemented.

Any significant change, such as dividing the release area by stages, would require equitable redistribution of contributions collected to date as development that has been charged to date in stages 1 and 2 have been contributing toward infrastructure across the entire release area. It may also result in an unnecessary shortfall to the Plan, should a staged rate for Stages 1 and 2, which have largely been developed, be higher than the alreedy levied contributions.

IPART 2019 Discussion Paper "Inclusion of roads in contributions plans"

As part of the consideration of IPART's 2016 recommendation number 29, it is also important to note the 18 April 2019 IPART discussion paper: "Inclusion of Roads in Contributions Plans", This discussion paper refers to a workshop held in April 2019 with a number of Councils and Development Industry representatives in attendance. The discussion paper acknowledges that during the workshop stakeholders generally agreed that the benefits of apportioning road costs across a broad catchment outweigh the costs and complexity of accurately apportioning the costs within smaller catchments. This finding is consistent with the approach taken for West Dapto - as outlined above the justification for apportioning the transport infrastructure category equitably across the entire release area outweighs the risks associated with attempting to accurately apportion costs within smaller stage based catchments.

Summary

On 10 December 2018 Council adopted the West Dapto Vision. The Vision document is a Council policy statement that sets the strategic planning direction for the urban release area. The Vision Document includes a Structure Plan that will guide all spatial planning decisions. The local contributions plan the subject of this application reflects the adopted structure plan.

Based on all the above factors it is considered that development within the release area has a shared responsibility to contribute to local infrastructure requirements as all stages, neighbourhood planning areas and individual subdivisions will benefit from urban zoning uplift



and all stages will play a role in meeting the region's housing supply needs within the same competitive housing market.



Response to Submissions

Summary of issue raised in submission	Response to issue raised in submission		
Not directly informed of the proposed changes or exhibition period.	Unfortunately, it was not practical to directly notify each individual landowner within the release area, rather, the standard notification procedures were followed. This included council meeting business paper, newspaper advertisements, council's website (have your say) as well as presentations at Neighborhood Forum 8 and other industry meetings. All submitters were then regularly informed directly of milestones throughout the contributions plan preparation.		
- Provision and location of open space.	 The indicative locations for all of the open spaces areas are based on a number of policy positions that have informed the need for the item and formed the basis for their inclusion. This includes the Elton Report 2007 and the West Dapto Vision 2018. 		
	 As noted in the Plan, the final location for all open space areas will be subject to detailed planning with the Neighborhood / Precinct Plans. 		
Objects to a flat contribution rate being levied across all stages. Supports IPARTs 2016 recommendation 29 being implemented.	This was considered during the preparation of the Draft Plan, however, was not proposed to be implemented by Council for the reasons outlined in the 24 June 2019 Council Report. This issue was also considered by IPART and the Minster for Planning and Public Spaces.		
 A number of submissions raised concerns regarding traftic generation, including movement of traftic between stages, and infrastructure requirements as well as specific transport items such as bridge lengths and access requirements. 	 All of the transport related submissions were reviewed by councils traffic engineer. The transport infrastructure included in the Plan is based on the updated Structure Plan and West Dapto Vision, 2018. Landowners will be consulted throughout future planning processes such as neighborhood plans and development applications. The transport infrastructure was also be reviewed by IPART to ensure reasonableness. 		
- Objects to the payment of Section 94 (7.11) contributions;	The levying of Section 7.11 contributions to development in the West Dapto Urban Release Area is a well-established principle to fund local infrastructure and is accepted throughout release areas in NSW.		



Summary of issue raised in submission	Response to issue raised in submission		
	 Staff that are involved in preparing the contributions plan are separate to staff involved in managing council's commercial interests. 		
- Raises probity and potential conflict of interest concerns in relation to Councils interest in the land (notes that Council has a commercial interest in	A Probity Plan was prepared to guide the preparation of the Draff 2020 Plan and ensure any perceived or actual conflict of interest is avoided. The Part 2000 Plan was also be independently region by IRAPT.		
stages $1 - 3$, and that this is not made explicit in the Plan).	The Draft 2020 Plan was also be independently review by IPART.		
	 For both commercial and confidentiality reasons, it is not considered appropriate to include any landowner details within the Contributions Plan. 		
 It may disincentivise and be inequitable to levy small (i.e. 1 bedroom) dual occupancy developments the standard per lol/dwelling rate; 	 This submission has been considered and it was found that based on the planning provisions there are no restrictions on the size of dual occupancies (unlike secondary dwellings for example) and that the dual occupancies recently constructed in the WDURA are generally 3 or 4 bedroom and therefore of a similar nature to a single dwelling (as opposed to being similar in nature to developments to which the multi- unit housing rate applies). 		
 Stormwater management – there is a significantly higher cost for the Duck Creek Enhanced Storage Area (ESA) (SM06); 	 As part of the Draff 2020 Plan preparation the land rate was updated to RE1 which increased the land acquisition and overall cost for this item. Upon further review the area of RE1 zoned land is 15% and the E3 is 85%. This has been adjusted and the cost reduced accordingly. 		
- Differences in readability and level of information from the 2017 Plan.	 A comparison of both plans found that the level of information provided in the 2020 Plan is consistent with the 2017 version. The readability in the final version of the contribution plan has been further improved, for example by increasing the scale of comprehensive maps. 		
Proposes that an independent party / external industry expert / review panel should review costs in the Plan.	 The Plan has been independently reviewed by IPART to ensure both infrastructure and costs are reasonable. It is considered that IPART is the appropriate independent review body and it is noted that where required IPART consults with industry experts. 		
- Supports reduced Commercial and Industrial contributions;	 Noted, however all draft contribution rates were subject to IPART review. The final 2020 Plan proposed for adoption reflects IPART's recommendations as also required by the Minister for Planning and Public Spaces. 		
- The residential contribution rate is high in proportion to land values;	 Noted, however development contributions rates are calculated based on the cost of infrastructure that is required to support the development and is not intended to reflect land values nor is it the sole basis of calculation. 		



Summary of issue raised in submission	Response to issue raised in submission	
 Suggests alternative funding mechanisms are considered to accelerate the development of Marshall Mount Town Centre. 	 This submission does not directly relate to the content of the West Dapto Development Contributions Plan (2020). 	
 Suggests that map layers and infrasfructure items be updated to align with Wollongong LEP 2009 and adopted Neighborhood Plans (DCP Chapter D16). Specifically, that OS14 include an informal playing field and a wetland detention basin and the riparian corridor watercourse layer be updated; 	 The watercourse layer has been provided in the Plan for background context and as such does not directly impact the Draft 2020 Plan Items or rates. The maps in the Plan are generated during the preparation of the Plan and are therefore based on the layers at that time. The maps provide indicative locations and are not intended to provide design details. The items have been described in accordance with the draft open space guidelines. The location and size of any wetland detention basin will form part of the DA assessment process. 	
The Plan should allow credits for construction of detention basins that are provided in the absence of regional detention basins;	 Where a developer provides a detention basin as part of a subdivision development and it is demonstrated that the detention basin meets the criteria for the relevant catchment, then a works in kind credit can be requested. This can be undertaken prior to the finalisation of any relevant DA and will be considered against the item in the Plan. Figure 8 Map – 'Stormwater management detention basin catchment areas' provides catchment areas for each of the detention basins. Further information on required volumes and capacity can be requested from Council. 	
 Amend clause 2.18 to make it explicit that contributions will not be levied for single dwellings constructed on single lots; 	An additional example has been provided at Clause 2.18 to make this more explicit.	
 The levying of secondary dwellings in relation to planning controls and limitations, the contribution rate as a high proportion to the building cost and provision of affordable housing. Suggests the contribution for secondary dwellings be waived or reduced. 	 Secondary dwellings will accommodate part of the future population which is generating the need for infrastructure, and it is therefore reasonable that a contribution is made. The Draft Plan proposed to levy secondary dwellings the multi-unit rate (based on the number of bedrooms) which is a reduced rate from the standard per lot/dwelling rate. The types of development that are levied this rate (ie multi dwelling housing, residential flat buildings, self-contained dwellings) were compared to secondary dwellings and it was found that secondary dwellings differ for 2 reasons; firstly, they can't be subdivided, and secondly they have floor space area limitations. These differences were recognised and it was put forward in council's submission to IPART's Draft Report that the 0-1 bedroom rate be levied to all secondary dwellings. IPART recommendation 24 supports inclusion of the 0-1 bedroom rate and the final 2020 Plan levies based on this approach. 	



Summary of issue raised in submission	Response to issue raised in submission		
 Impact of contributions cap removal will result in significant increases in contributions (trom 2017 rates). This and the State Infrastructure Contribution may have a detrimental impact on investment confidence and development feasibility. 	 It is acknowledged that development contributions are a cost of developing. In regards to the removal of the Local Intrastructure Growth Scheme (LIGS) funding and the Special Infrastructure Contributions, these are state policy and not decisions of the council. 		
 Suggests that the contribution rates be compared to other councils' contributions plans and provides some examples. Notes that the contribution rate is comparable to Sydney growth centers. 	The contributions plan has been prepared based on the specific requirements of the West Dapto Urban Release Area and the infrastructure required to support the urban development.		
 The contingency rates should be reviewed to ensure they are in line with industry best practice. 	 Contingencies in the Plan are based on industry standards or IPARTs recommended rates depending on the stage of the project. 		
Cost of contributions is comparable to Sydney but high compared to land prices in west Dapto.	 Development contributions rates are calculated based on the cost of infrastructure that is required to support the development and are not intended to solely reflect land values. 		
 It is unclear how the credit for works delivered and/or land dedicated through works in kind will be valued. 	 Any requests for works in kind and credit values will be determined in accordance with the relevant legislation and Contributions Plan. 		
Suggests that the Enhanced Storage Areas are not good value for rate payers and should be removed from the Plan.	The Enhanced Storage Areas (ESAs) are required to offset the impacts of roughening the riparian corridors in the 'ultimate development' conditions downstream of the ESAs. The removal of the ESAs would result in flood level increases downstream which would also compromise the enhancement of the riparian corridors within the release area. Thus the ESAs need to remain within the Plan.		



File: PP-2020/3 Doc: IC20/632

ITEM 4 POST EXHIBITION - STAGE 1 HERITAGE SCHEDULE HOUSEKEEPING REVIEW

The Heritage Schedule in the Wollongong Local Environmental Plan 2009 currently identifies 475 heritage items and nine Heritage Conservation Areas. The Heritage Schedule requires various housekeeping amendments to reflect changes in property boundaries and descriptions, as well as amending historic errors in item names and descriptions. These minor housekeeping amendments represent Stage 1 of the Heritage Schedule Review. A more comprehensive review of the listings is proposed as part of Stage 2 of the project.

On 25 May 2020, Council resolved to prepare and exhibit a draft Planning Proposal to amend the Heritage Item List (Schedule 5) and the Heritage Map of the Wollongong Local Environment Plan (LEP) 2009, to implement Stage 1 of the Heritage Schedule Review.

The Stage 1 Heritage Schedule Review draft Planning Proposal was exhibited from 17 July to 19 August 2020 and 27 submissions were received.

This report provides a summary of the submission received and recommends that Council resolve to finalise the Stage 1 Heritage Schedule Review Planning Proposal to update the LEP with various housekeeping amendments.

RECOMMENDATION

- 1 In response to the exhibition, the exhibited draft Planning Proposal be amended to include the additional proposed updates detailed within Attachment 2.
- The draft Planning Proposal to update Schedule 5 of the Wollongong Local Environmental Plan 2009 with the changes detailed in Attachment 4 of this report, and the proposed Heritage Map changes detailed within Attachment 3, be submitted to the NSW Department of Planning, Industry and Environment for review and finalisation through the preparation of an amending Local Environmental Plan.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

- 1 Summary of Submissions
- 2 List of Recommended Amendments to Planning Proposal
- 3 Updated Map Book
- 4 Updated Summary of Amendments to Schedule 5 of the Wollongong LEP 2009
- 5 Engagement Report

BACKGROUND

Council has an ongoing role in managing and conserving the broad range of natural and cultural heritage sites throughout the Local Government Area (LGA). There are 475 heritage items and nine (9) Heritage Conservation Areas (HCA) currently listed in Schedule 5 of the LEP with associated curtilages mapped in the LEP Heritage Maps.

An additional seven (7) items are listed under the State Environmental Planning Policy (Three Ports) 2013 and the State Environmental Planning Policy (State Significant Precincts) 2009 for items within the Calderwood and Sandon Point precincts. There are also 24 sites listed as State Heritage items under the NSW Heritage Act 1977, which are also reflected in the LEP.

The heritage listings largely reflect a 1991 Heritage Study, which were initially listed in a DCP before being incorporated into the Wollongong LEP 1990 in 2000. As part of the preparation of the draft Wollongong LEP 2009 some address details and descriptions were updated. Additional heritage items



have been included in the Schedule and Map through projects such as the West Dapto LEP, and most recently the listing of the former Corrimal Coke Works site.

The listing in the LEP heritage schedule generally covers the whole of the property, but the listing description can explain further the elements that are significant; for example, the house, the gardens, the interiors, and/or any other elements.

An inventory sheet known as a State Heritage Inventory Form (SHI Form) is prepared for each item. In earlier decades, this would essentially be a field record sheet, but current industry practices require a detailed assessment of heritage values. The SHI Form can be used as part of development assessment, heritage management or to inform court proceedings. The heritage listings and inventory information are also an important resource for owners and prospective applicants. Up-to-date information provides certainty and assists in streamlining design and application processes and provides a basis for access to conservation incentive schemes.

On 28 July 2010, Council resolved to undertake a major review of the Heritage Schedule in the Wollongong Local Environmental Plan 2009. The preparation of a new Thematic History of Wollongong was the first step of this review. The Thematic History was adopted by Council on 11 February 2011 and historic themes were identified as a basis for the review of the Heritage Schedule.

Since this time, Council's consultant Heritage Advisor, and Council Heritage staff have been reviewing and compiling detailed inventory forms and information in relation to the almost 500 existing heritage items. The State Heritage Inventory (SHI) forms for all existing heritage items have now been updated with additional historic information, updated photographs and various other amendments. The SHI Forms are accessible via the NSW Heritage Inventory and can be accessed via the NSW Heritage Database website: https://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx. This process has also allowed each heritage properties listing details within the LEP to be reviewed and checked for necessary amendments.

The Heritage Schedule Review project is being progressed in two (2) Stages with two separate draft Planning Proposals intended:

- Stage 1 (the subject of this Planning Proposal), deals with mostly minor housekeeping amendments to update the details of existing heritage items.
- Stage 2 (subject to a future report), will seek to progress a number of potential new heritage items that have been identified. The Stage 2 report relating to new heritage items and listings is anticipated to progress following initial consultation with owners and will require significant consultation and consideration.

The Stage 1 amendments are essential to ensure that Council has accurate heritage information to assist with customer enquiries, development applications, planning proposals and various Council projects. The types of minor amendments required to address various administrative issues in the listing include the following:

- Amending spelling errors in item names
- Amending errors in address details and listed suburbs
- Adding Lot and Deposited Plan (DP) numbers to capture the full extent of an items curtilage due to shifting property boundaries or incorrect descriptions from 2009
- Updating Lot and DP's to reflect changes in property descriptions such as subdivisions that have reduced the curtilage of an item since 2009
- Changing the level of significance of items from local to State to reflect the State listing of items under the NSW Heritage Act 1977



- Removal of seven items that have been demolished:
 - 1 Former Guest House 300-302 Princes Highway, Bulli (#6187)
 - 2 Stand of Norfolk Island Pines Lawrence Hargrave Drive, Clifton (#6136)
 - 3 Site of former cottage 12 Robertson Street, Helensburgh (#6101)
 - 4 House 1 Taronga Avenue, Mangerton (#6279)
 - 5 Mural 189-191 Wentworth Street, Port Kembla (#6309)
 - 6 Avenue of plantings Keerong Street, Russell Vale (#6203)
 - 7 Norfolk Island Pines Mitchell Road, Woonona (#6516)
- Removing two items that are now covered by other heritage legislation
 - 1 Historical military museum including break water battery and concrete tank barriers (#6302) Listed under the State Environmental Planning Policy (Three Ports) 2013; and
 - 2 Marshall Mount Homestead and barn (#5914) Listed under the State Environmental Planning Policy (Major Projects) 2009 Calderwood.
- Re-listing two items that are mapped as heritage items in the Wollongong Local Environmental Plan 2009 Heritage Maps but do not appear on Schedule 5 due to administrative errors in 2009
 - 1 Hillside Farm, 295 Sheaffes Road, Dombarton (#61045); and
 - 2 Wollongong Trade School (TAFE) 38-46 Gladstone Avenue, Wollongong (#6467).
- Updating the Heritage Maps to reflect the above administrative changes and address historic inaccuracies in mapping.

On 25 May 2020, Council considered the report on Stage 1 of the Heritage Schedule Review and resolved that:

- 1 A draft Planning Proposal be prepared to progress various housekeeping amendments to the heritage list contained within Schedule 5 and the Heritage Maps of the Wollongong Local Environmental Plan 2009, as detailed in Attachments 1 and 2.
- 2 The draft Planning Proposal be forwarded to the NSW Department of Planning, Industry and Environment for Gateway Determination.
- 3 Should a Gateway Determination be issued; the draft Planning Proposal be placed on public exhibition for a minimum period of 28 days.
- 4 The Department of Planning, Industry and Environment be requested to issue authority to the General Manager to exercise plan making delegation in accordance with Council's resolution of 26 November 2012.

On 22 June 2020, the NSW Department of Planning, Industry and Environment (DPIE) issued Gateway determination to enable the commencement of the exhibition. The draft Planning Proposal was exhibited from 21 July to 19 August 2020. As a result of the exhibition 27 submissions were received.

PROPOSAL

The majority of the 27 submissions received commented on proposed changes to individual properties.

- Five submissions supported the proposed change to their property either updating the description or deleting the item
- Five submissions objected to the proposed changes to their properties or made comment on the changes proposed to identify issues. Two objections requested the removal of their properties from the listing for the Dapto Smelter Site, within the Brookes Terrace subdivision. These properties contain remnant relics that are significant to the site and their affectation is unaltered by the draft Planning Proposal. Three other submissions raised questions and issues relating to the proposed



expansion of particular curtilages. These are discussed within the summary of submissions in Attachment 1

The following comments were received from State agencies and community groups:

Organisation	Submission	Comment	
NSW Heritage	Support the Review	Noted	
Sydney Trains – Transport for NSW	Requested some minor amendments to property descriptions and item descriptions	Property Descriptions updated	
NSW National Parks and Wildlife Service	Requested minor updates to the listing names of the Edna Walling Precinct at Farmborough Heights and the Mt Keira Scout Camp	Names updated	
	The suggested listing of various items owned by NPWS as "State Significant" to reflect various assessments and nominations	Significance Updated	
	Proposed mapping amendments to match various Heritage Documents prepared by NPWS	Maps Updated	
NSW Department of Education	Requested that the descriptions of public schools be standardised to refer to "Public School" for consistency	Descriptions updated to refer to school only	
	Advised that the Helensburgh School Residence has been demolished, requested that the mapping of the Helensburgh Public School be expanded to include a playground.	Descriptions and curtilage updated	
	Noted an inconsistency between the mapping and description of Wollongong Public School.	Location updated	
Helensburgh Historical Society	Noted that the Helensburgh School Residence has been demolished	Descriptions updated to refer to School only.	
	Consider the listing of the Former Mine Surgery building	Noted - Mine Surgery building is being considered as part of Stage 2 – Additional items	
Bulgo Beach Protection League	Noted that the Bulgo Beach cabins are not included in the State heritage listing for the Royal National Park Cabins Community. Noted that the Bulgo Beach baths are not	The Bulgo Beach Cabins have been amended to remain listed as local items (they were proposed to be noted as "state" in error.	
	covered by the Heritage map	The Bulgo Baths are located below the mean high-water mark and are therefore not within the land area zoned within the LEP. They are therefore unable to be included in	



		the mapped area.
Neighbourhood Forum 5	Support amendment	Noted

The key issues raised in the submissions are detailed and addressed in the attached 'Summary of Submissions' document provided as Attachment 1 to this report.

As an outcome of the exhibition process, a number of additional amendments and corrections have been identified to address the submissions, input and feedback received. These additional amendments and changes to Schedule 5 of the LEP are detailed within Attachment 2 to this report.

The Planning Proposal is now ready to be progressed to the DPIE for finalisation with the full list of proposed amendments to the Wollongong Heritage Schedule contained within Schedule 5 of the LEP being detailed within Attachment 4 to this report.

CONSULTATION AND COMMUNICATION

Following Council's resolution on 25 May 2020, the draft Planning Proposal and Summary of LEP amendments and associated Map Book was exhibited from 21 July to 19 August 2020. The exhibition was advertised in the Wollongong Advertiser and via Council's social media channels. Key stakeholders were also invited to comment on the draft Strategy. The Engagement and Communications Summary Report is provided as Attachment 3 to this report.

Each owner affected by a proposed amendment to the Heritage Schedule was notified by a letter detailing the proposed change to their heritage item and any associated mapping amendments. Affected owners were invited to comment or provide an online submission in relation to the proposed amendments.

During the exhibition period, the exhibition page received 431 visits and 125 people downloaded the exhibited documents. 27 submissions in total were received, largely relating to the proposed changes on individual properties. NSW Heritage provided their general support for the review.

The key issues raised in the submissions are detailed and addressed in the attached 'Summary of Submissions' document provided as Attachment 1 to this report. Each submitter will be notified with a formal response to their submission and any proposed final amendments.

On 26 August 2020, the Wollongong Heritage Reference Group was updated on the progress of the draft Planning Proposal. The membership noted the proposed amendments.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal "We value and protect our environment". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Operational Plan Actions
1.4.1 Programs and projects that achieve proactive heritage management, education and promotion are developed and implemented	1.4.1.1 Work in partnership with others to promote a diverse range of heritage education and promotion programs	Coordinate the Heritage Reference Group

Further, this report directly responds to the Wollongong Heritage Strategy and Implementation Plan 2019-2022. Strategy 2 "Maintain an up to date list of heritage items" and Action 2.1 in the Implementation Plan "Finalise the review of the Wollongong Heritage Schedule and update the State Heritage Inventory accordingly".



CONCLUSION

This report details the outcomes of the exhibition of Stage 1 of the Heritage Schedule Review Project, which involves a wide range of housekeeping amendments to the Heritage Schedule of the Wollongong Local Environmental Plan 2009. The review is essential to ensure Council's Heritage Listings, within Schedule 5 of the Wollongong Local Environmental Plan 2009 are accurate and up to date. It is recommended that the draft Planning Proposal be progressed and a LEP amendment be prepared and finalised.



ATTACHMENT 1

SUMMARY OF SUBMISSIONS - STAGE 1 HERITAGE SCHEDULE REVIEW

This document provides a brief summary of the key issues raised in submissions to Stage 1 of the Wollongong Heritage Schedule Review during the exhibition period ending 19 August 2020.

A table of the proposed changes to the Heritage Schedule Review capturing the actions recommended following these submissions are included as Appendix A of this Report.

No	Submitter Details	Summary of submission	Heritage Item	Response
1.	Property Owner 33 The Arches, Kanahooka	Owner of house at Brooks Terrace Estate (Former Dapto Smelter Site) with industrial relics located on property. Questioning heritage value of relics and raises safety concerns. Requests property removed from heritage listing.	Former Dapto Smelter*(#5953)	The brickwork "relics" that are located on the property, were assessed as part of subdivision by Godden McKay Logan Heritage (2011) as significant and warranting retention. The property was purchased with a positive covenant on the title requiring the owner to maintain the relics. Any safety concerns fall to the responsibility of the owner to manage on their individual property. No further action recommended.
2.	Property Owner 19 The Arches, Kanahooka	Owner of house at Brooks Terrace Estate (Former Dapto Smelter Site) with industrial relics located on property. Requests property removed from heritage listing.	Former Dapto Smelter*(#5953)	The brickwork "relics" that are located on the property, were assessed as part of subdivision by Godden McKay Logan Heritage (2011) as significant and warranting retention. The property was purchased with a positive covenant on the title requiring the owner to maintain the relics. No further action recommended.
3.	Property Owner Lot 2 Hawthorn Street, Tarrawanna	The submission notes elements of potential significance related to the history of the site, that are actually located on surrounding properties.	Corrimal Colliery* (#6480)	This submission does not raise any objection to the current listing or curtilage boundary but raises questions regarding the accuracy and relevance of certain information on the inventory form. Council Staff will work with the property owner to refine the State Heritage Inventory Form. A preliminary review of the information contained in the submission does not appear to influence the Statement of Significance relevant to the site. Any potential expansion of the listing to cover surrounding land holdings would require an additional process of consideration.



4.	Property Owner 40 Lady Carrington Road, Otford	Provided correct item name for 40 Lady Carrington Road Otford.	Former Station Masters House (#61029)	Listing name proposed to be updated as per submission to "Former Pump Masters House". Recommended Action: See Item 23 in Attachment 2.
5.	Property Owner 595 Cordeaux Road, Kembla Heights	Submission noted that Council is in process of a renumbering of upper Cordeaux Road.	Row of miners Cottages and club room (#5924) Windy Gully Cemetery (#5941)	Update street numbers for heritage items affected by Council renumbering project on upper Cordeaux Road. Recommended Action: See Item 16 and 17 in Attachment 2.
6.	Property Owner 189-191 Wentworth Street, Port Kembla	Submission in support the proposed removal of their property from the LEP Schedule for not meeting criteria for local listing.	Mural (#6309)	Support for removal noted.
7.	Property Owner 5 Turnbull Lane Street, Bulli	Submission in support to remove subdivided property from Schedule through proposed mapping amendment	House (#6177)	Support for removal noted
8.	Property Owner 3 Vera Street, Helensburgh	Submission in support of proposed changes	Railway Cottage (#6107)	Support noted.
9.	Sydney Trains – Transport	Suggest amendment to proposed changes to property descriptions to "Part Lot" for various train stations.	Various – Train Stations Railway Viaduct	The property descriptions for various train stations has been updated to "Part of Lot", where mapping does not cover entire Lot and DP. No change recommended to the Railway Viaduct, mapping captures State



	NSW	Recommended Railway Viaduct curtilage be updated to reflect State Heritage listing curtilage. Submission raised the accuracy of the construction dates in the State Heritage Inventory Form for Kembla Grange Railway Station.	(#5920) Kembla Grange Railway Station (#61061)	Heritage curtilage and additional area to south. Council Staff to update State Heritage Inventory form to reflect information that amends the West Dapto Heritage Study (2004) in consultation with Sydney Trains. Recommended Action: See Items 1, 4, 7, 8, 13, 26, 28 and 32 in Attachment 2.
10.	Property Owner Lot 3100 Mt Keira Road, Mt Keira	Submission noted the omission Lot 1 DP 852788 from Property Description. Recommends removal of Lot 3100 DP 1137780 and reduction in curtilage map as site does not contain mine relics. Also noted concern over listing as an archaeological site attracting trespassers.	Kemira Colliery (# 7101)	It is noted Lot 1 DP 852788 is not proposed to be removed from Property description and this was an error in the notification letter. The historic aerial photos show that the north section of Lot 3100 DP 1137780 contains historic structures and is reasonably likely to have archaeological potential associated with the broader mine site. It is proposed Property Description to be updated to "Part of Lot", as mapping does not cover the entire lot. No mapping amendment is recommended. The site is listed as an archaeological site to reflect its significance, archaeological looting is a broader issue. Council staff have requested site visit with owner to discuss broader trespassing issues. Recommended Action: See Item 18 in Appendix A: Table of Changes
11.	NSW National Parks and Wildlife Service – Submission	The submission suggested updates to listing names of two items: Cottages and Edna Walling Precinct Pit Pony Stables, PK2 Mine Precinct The submission suggested updating the mapping of Mt Keira Scout Camp to reflect 2019 Conservation Management Plan. The submission suggested listing of various items owned by NPWS as "State Significance" to reflect various assessments and nominations.	Various	The proposed listing name updates and mapping change were already captured in the Review. The suggested listing of NPWS items as "State" significant has been considered against the requirements set out in Schedule 5 of the NSW Standard LEP Template. Council proposes to list the suggested items as "State Nominated" as required under the LEP in response to the submission. Council can only list items as "State" to reflect State listings under the Heritage Act 1977. Recommended Action: See Item 9-10 and 20 in Attachment 2.



12.	NSW National Parks and	The submission noted that Mt Keira Road has been designated a street address by Council.	Various	The Street address of Mt Keira Scout Camp has been updated to reflect the correct street number. It is noted the proposed curtilage matches the Conservation Management Plan.
	Wildlife Service – Submission 2	Mt Keira Scout Camp to match CMP curtilage; Raised that the Pit Pony Stables curtilage also covers Tennis Courts; Edna Walling Precinct is to be updated to reflect demolition of Cottage 1 and to remove cleared garden area to the east of Cottage 4.		The Pit Pony Stables Listing covers a broader archaeological site, that includes demolished pit pony stables and outbuildings that were extent prior to construction of tennis courts. Therefore no mapping change proposed. An asterisk has been added to the Edna Walling Garden precinct listing name to indicate that there is an archaeological component. The mapping has been amended to match the State Heritage Nomination to manage potential impacts on the broader precinct. Recommended Action: See Item 10 in Attachment 2 and Amended Map Number 46 in Attachment 3.
13.	Heritage NSW	Noted administrative changes proposed have neutral and positive heritage impacts and are generally supported. Encourages the listing of new local heritage items on Schedule 5 of the Wollongong LEP.	All	It is noted that new heritage items are being considered as part of Stage 2 of the Heritage Schedule Review Project. No further action is recommended.
14.	Property Owner 149-161 Crown Street, Wollongong	Object to updated proposed listing name as "Central Chambers", as the shop building has historically been listed separately to the Chambers building and been known as 83 Church Street.	Shop (#6232)	The building was proposed to be identified as "Central Chambers' in error, however the address in Council's records for the property is 149-161 Crown Street and Council is unable to list an incorrect address on the LEP. Therefore the proposed amendment to the listing name is proposed to identify the building as 'Shop known as 83 Church Street", whilst maintaining the correct address in the listing. Recommended Action: See Item 31 in Attachment 2
15.	Property Owner 456 Cleveland Road,	The submission proposes an alternative curtilage to the curtilage as recommended in the West Dapto Heritage Study (2004).	House "Glen Avon" (#5980)	The current proposed curtilage is as adopted by Council in 2010 based recommendations of the HLA Heritage Study for West Dapto (2004). The owners proposed curtilage removes the site from Cleveland Road and does not appear to be based on a detailed Heritage Study. A site visit was undertaken on 16 September 2020 and following this meeting Council's Heritage Staff recommend a slightly reduced curtilage



	Huntley			which excludes a number of recent outbuildings.
				Recommended Action: See Item 14 in Attachment 2 and amended Map no. 36 within Attachment 3.
16.	Property Owner Lot 1 Military Road, Port Kembla	The submission supports proposed change to listing name to reflect demolition of school buildings following a fire. Notes that draft Planning Proposal is being considered for the site, which has now been lodged for Council's consideration. The PP proposes an amendment to the Heritage Curtilage.	Port Kembla Primary School (#6304)	Any proposed change to the heritage curtilage will be considered separately by Council as part of the Planning Proposal process for the site. No further action required.
17.	Property Owner 451 Princes Highway, Kembla Grange	Submission proposed a reduced to proposed curtilage for the site.	Newton Park and Gardens (#5949)	The proposed heritage map has been reduced to capture dwelling, outbuildings, historic plantings and the area mapped as high and moderate archaeological potential as defined in the Biosis Historic Heritage Study (2016). It is noted a Conservation Management Plan is required to be prepared for the site as a condition of DA-2016/995. Any further changes to the proposed curtilage would only be considered if recommended by this document. Recommended Action: See Item 15 in Attachment 2 and amended map 39 within Attachment 3.
18.	Property Owner Lot 1 Darcy Road, Port Kembla	The submission raised that Lot 1 & 2 DP 706046 are included in proposed property Description amendments however mapping does not capture the parcels. Requested that site is removed from Property Description.	Hill 60 Reserve (#61043)	The curtilage map for the Hill 60 has been amended to also capture the Lot 1 & 2 and DP 706046 as per the Property Description. It is noted the property is currently listed within the State Heritage Curtilage Boundary and the update in the mapping is consistent with the State Heritage Boundary. Recommended Action: See Item 24 in Attachment 2 and amended map 52 within Attachment 3.
19.	Property Owner 301	Advised that items captured within the curtilage are in poor condition and more recent outbuildings.	Avondale Homestead (#5916)	The current proposed curtilage is as adopted by Council in 2010 based recommendations of the HLA Heritage Study for West Dapto (2004). The curtilage is considered to accurately capture the setting of the item and no



	Avondale			change is proposed.
	Road, Avondale			A site visit was undertaken on 1 September 2020. Although structures are in poor condition and a future application for their removal will be considered by Council. Advice has been provided on the approval mechanism to remove the 1970's outbuilding.
				No further action recommended.
20.	Helensburgh Historical Society	The submission advised inconsistencies in State Heritage Database listings for various items in Helensburgh. The submission raised that the Helensburgh School Residence Site has been demolished. The submission nominated Former Mine Surgery Building as a local heritage item.	Various - Helensburgh	Council Staff will update the State Heritage Inventory Forms with information provided and photographs with the relevant copyright. The Helensburgh Residence Site has been updated to reflect demolition and consolidated with Helensburgh Public School Listing. It is noted the former Mine Surgery Building is under Council management and is being considered for listing as a local heritage item as part of Stage 2 of the Heritage Schedule Review. Recommended Action: See Items 11-12 in Attachment 2. Recommended Action: Consider the Mine Surgery Building for local heritage listing as part of Stage 2 of the Heritage Schedule Review.
21.	NSW Department of Education	The submission noted inconsistencies in listing names of Department of Education owned school sites, suggested changing various sites to "XX Public School" for consistency. Raised the demolition of Helensburgh School Residence Site. Recommended that Helensburgh Public School listing is expanded to include Lot 761 DP 752033. Raised inconsistencies with the property description for Wollongong Public School with the proposed mapping amendment	Various – Public School Sites	Listing names of various Public Schools have been updated for consistency. The Helensburgh Residence Site has been updated to reflect its demolition and consolidated with Helensburgh Public School Listing. Mapping has been expanded as per recommendation. Wollongong Public School Site property description has been updated to reflect proposed mapping change. Recommended Action: See Items 2, 11-12, 18, 21, 25, 30 and 34 in Attachment 2 and Map 88 within Attachment 3.
22.	Property	Advised that additional Lot and DP in their ownership is also associated with	Massandra and Ballinderry	Update property description to include additional Lot and DP to the east of the dwelling and update heritage mapping to capture Lot 1 DP 656988 as



	Owner 16-22 Fords Road, Thirroul	the original dwelling as the site of a former tennis court. Recommended inclusion of additional Lot and DP in heritage curtilage	(#6353)	per owner's request. Recommended Action: See Item 27 in Attachment 2 and Map 89 in Attachment 3.
23.	Bulgo Beach Protection League	Submission noted that Bulgo Beach Cabins Community is not included in State Heritage listing for Royal National Park Cabins Community. Also noted that proposed mapping does not capture the Bulgo Beach Baths.	Royal National Park Coal Cabin Communities, Bulgo Beach (#6483)	Retain significance as Local to reflect listing status. It is noted the Baths are outside of the property boundary, below the mean hightide water mark, therefore the LEP does not legally apply to this area. Therefore no mapping change is recommended. Recommended Action: See Item 22 in Attachment 2.
24.	Property owner 601 Princes Highway, Yallah	Submission identified typo in property address.	Yallah House (#6437)	Amend proposed change to property address to remove typo. Recommended Action: See Item 35 in Attachment 2
25.	Property Owner Illawarra Coke Company (ICC)	The submission recommended splitting Coalcliff Colliery listing into a listing for extent mine items each side of the railway: • Eastern – Mine Shaft and Powerhouse Building • Western – Coke Ovens Recommends Lot 1 DP 703488 be removed from property description. Also notes that part of mapped Coalcliff Colliery area is Railway Corridor and Tunnel No. 8 is located entirely within Railway Corridor.	Coalcliff Colliery Shaft Mine including coke ovens (#6348) Tunnel No 8* (#6258)	The preferred approach by Council and NSW Heritage is to list sites holistically, therefore splitting the Colliery listing is not supported. In response the listing name is proposed to be amended to also identify Powerhouse building and update the address to include both the eastern and western sides of the Railway Corridor. The historic aerial photographs show Lot 1 DP 703488 has historically been part of the mine site and is reasonably likely to have archaeological potential associated with the broader mine site. Therefore the removal of this Lot from the heritage mapping and property description is not supported. The property description of both items is proposed to be updated to include Railway Corridor as per the existing mapping. Recommended Action: See Item 5-6 in Appendix 2.
26.	Neighbourh ood Forum 5	Resolution to support proposed changes	All	Support noted.



27. Port Resid and Cour Requ	local heritage item	96-106 Wentworth Street, Port Kembla	Kembla Court was identified in the Port Kembla Revitalisation Study (2018) John Oultram as a potential Heritage item. A draft Assessment of Significance has since been prepared by Council's Heritage Advisor and is being considered for listing as part of Stage 2 of the Heritage Schedule Review. Recommended Action: Consider Kembla Court for local heritage listing as part of Stage 2 of the Heritage Schedule Review.
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ATTACHMENT 2: TABLE OF PROPOSED POST EXHIBITION CHANGES

Stage 1 Heritage Schedule Review

Please Note:

- Red text shows proposed amendments as per exhibited documents;
- · Blue text denotes recommended post exhibition amendments; and
- Items highlighted in Blue are under the ownership or management of Wollongong City Council.

	Suburb	Item Name	Address	Property Description	Significance	ltem No	Submission Number	Exhibition Comments	Additional Mapping Amendment
1.	Austinmer	Austinmer Railway Station	End of Moore Street Lot 1 Railway Lands	Rail reserve Part of Lot 1, DP 1149493	State	6259	9	Sydney Trains Submission: Update property description to note curtilage does not cover entire Lot	No
2.	Balgownie	Balgownie Public School and residence	Balgownie Road (Corner Chalmers Street)	Part Lot 1, DP 709601	Local	6214	21	NSW Department Education: Remove Part Lot	No
3.	Bulli	Former Bulli Railway Guesthouse	1 Railway Street 8 Station Street	Lot A, DP 159222 Lot 4 DP 1234087	Local	5987	Council Staff	Council identified - Mapping Amendment to remove rear lots that are part of Woolworths development	Yes – Map 87
4.	Bulli	Bulli Railway Station	Franklin Avenue and Railway Street Lot 100 Park Road	Rail reserve Part of Lot 100, DP 1141139	Local. State	6484	9	Sydney Trains Submission: Update property description to note curtilage does not cover entire Lot	No
5.	Coalcliff	Coalcliff Tunnel No 8*	Railway Tunnel, Illawarra Line	Lot 32, DP 881726 Lot 1, DP 1188960 Railway Corridor	Local	6258	25	Item is located entirely within the Railway Corridor	No
6.	Coalcliff	Coalcliff Colliery Shaft Mine— including and Coke Works evens*	280 Lawrence Hargrave Drive	Lot 58, DP 1097339; Lot 13, DP 1137408; Lot 1, DP 703488; Lot 11, DP 1132791 and Railway Corridor	Local	6348	25	Add railway corridor that is also captured to property description. Amend listing name to include Coke Works.	No



7.	Coledale	Coledale Railway Station	Coledale Railway Street	Rail reserve Part of Lot 1, DP 1188983	Local	6350	9	Sydney Trains Submission. Update property description to note curtilage does not cover entire Lot	No
8.	Dapto	Dapto Railway Station	Station Street	Part of Lot 2, DP 856667	Local	6435	9	Sydney Trains Submission. Update property description to note curtilage does not cover entire Lot	No
9.	Farmboroug h Heights Kembla Heights	Pit Pony Stables, PK2 Mine Precinct*	West end of 353 Farmborough Road	Lot 17, DP 255285	Local State Nominated	6320	11 & 12	NPWS Submission: Differentiate from Pit Pony Stables at Mt Kembla	No
10.	Farmberoug h Heights Kembla Heights	4 Cottages and gardens Cottages and Edna Walling Garden Precinct*	End of 353 Farmborough Road	Lot 17, DP 255285	Local State Nominated	6496	11 & 12	NPWS Submission: Add asterisk to denote archaeological site. Update proposed mapping to match State Heritage Nomination.	Yes - Amended Map 46
11.	Helensburgh	School Residence	End of Fletcher Street	Part Lot 136, DP 752033	Local	6111	21, 20	Dept of Education Submission: School Residence demolished. Consolidate item with same item name below	
12.	Helensburgh	Helensburgh Primary School and site of former School Residence*	Lukin Street and Fletcher Street	Part Pt Lot 136, DP 752033, Lot 761 DP 752033	Local	6111	21, 20	Dept of Education Submission: Add property description and consolidate with above, amend to remove Part Lot. Add playground to listing (Lot 761 DP 752033).	Yes – Map 88
13.	Helensburgh	Helensburgh Railway Station	Tunnel Road	Rail reserve Part of Lot 9, DP 1129965	State	6343	9	Sydney Trains Submission: Update property description to note curtilage does not cover entire Lot	No
14.	Huntley	Glen Avon	456 Cleveland Road	Lot 18 DP 3083	Local	5980	15	Reduce curtilage to reflect outcome of site visit and remove modern outbuildings	Yes - Amended Map 36
15.	Kembla Grange	Newton Park and Gardens	451 Princes Highway, (next to Kembla Grange racecourse)	Lot 12, DP 829115 1238073	Local	5949	17	Reduce proposed curtilage to capture House, historic plantings and areas of moderate – high archaeological potential (Biosis, 2016).	Yes – Amended Map 39



16.	Kembla Heights	Row of Miners' Cottages and Club Room	135 595 Cordeaux Road ₇ Windy Gully	Lot 1, DP 551243	Local	5942	5	Update street number to reflect Council renumbering project	No
17.	Kembla Heights	Windy Gully Cemetery*	Lot 3 560 Cordeaux Road, Windy Gully	Lot 172, DP 751278 Lot 3 DP 1103781	Local	5941	5	Update street number to reflect Council renumbering project	No
18.	Mt Keira	Kemira Colliery*	Mt Keira Road	Part Lot 31 and Part Lot 32, DP 751299 Lot 1, DP 852788; Lot 32, DP 1191463; Lot 310, DP 1080848; Part Lot 3100, DP 1137780 and Lot 6, DP 255281	Local	7101	10	Update property description to "Part Lot" as mapping does not cover whole of Lot 3100 DP 1137780	No
19.	Mt Keira	Mt Keira Demonstrati on Public School	255 Mt Keira Road	Lots 1 and 2, DP 308171; Lot 1, DP 782592 and Lot 2, DP 782592	Local	5903	21	Department Education: Update School descriptions to "public" for consistency	No
20.	Mt Keira	Mt Keira Scout Camp	551 Mt Keira Road	Lot 1, DP 255281	Local State Nominated	6471	11 & 12	NPWS Submission: CMP 2019 notes state significance	No
21.	Mt Kembla	Mt Kembla Public School and Headmaster' s Residence	323–327 Cordeaux Road	Lot 4, DP 126784 Lots 1-4, DP 126784	Local	5943	21	NSW Department Education: Update School descriptions to "public" for consistency	No
22.	Otford	Shacks and cabins Royal National Park Coastal Cabin Communitie	Bulgo Beach, Royal National Park	Lot 2, DP 63741 Lot 1, DP 56059 and Lot 21, DP 1193149	Local State	6483	23	Update mapping to match State Heritage Listing (SHR: 01878) Not Included in State Heritage Listing, remove change in significance.	No
23.	Otford	Former station masters house Former Pump Master's House Railway Cottage	40 Lady Carrington Road	Lot 2, DP 817561	Local	61029	4	Correct Item Name: Former Pump Master's House – Submission from owner Investigate	No



24.	Port Kembla	Hill 60*, Fisherman's Beach, Boilers Point, Red Point and MM Beach*	Hill 60, Fisherman's Beach, Boilers Point and MM Beach	Lot 3, DP 86079; Lots 1 and 3, DP 531524; Lots 1 and 2, DP 614555; Reserve 71700 and 73221; Lot 1, DP 614555; Lot 1, DP 152538 and Lots 7008 7010 and 7048 7050, DP 1052504; Lot 7048, DP 1052504; Lot 7050, DP 1061649; Lot 7009, DP 1059827; Lot 7049, DP 1061648; Lot 7008, DP 1059827, Lots 1 & 2 DP 706046, Lot 2 DP 614555, Lot 90 DP 200729	State	61043	18	Update proposed Match map to match State Heritage Mapping as per Property description add Industrial Sheds add Lots 1 & 2 DP 706046	Yes – Amended Map 52
25.	Scarborough	Scarborough Public Primary School	371–381 Lawrence Hargrave Drive	Lots 18-29, Section 2, DP 2281	Local	6137	21	NSW Department Education Update School descriptions to "public" for consistency.	No
26.	Scarborough	Scarborough Railway Station	Scarborough Lot 1 Railway Avenue	Rail reserve Part of Lot 1, DP 811416	State	6349	9	Sydney Trains Submission: Update property description to note curtilage does not cover entire Lot	No
27.	Thirroul	Massandra and Ballinderry	16–24 Fords Road	Lots 1 and 2, DP 618432 Lot 2, DP 618432, Lot 1 DP 656988 and Lots 11 & 12, DP 1187593	Local	6353	22	Include Lot 1 DP 656988 historic tennis court site as per owners recommendation.	Yes – Map 89
28.	Thirroul	Thirroul Railway Station	Railway Parade	Rail reserve Part of Lot 107, DP 1156609	State	6352	9	Sydney Trains Submission: Update property description to note curtilage does not cover entire Lot	No
29.	Wollongong	Small Leafed Figs	94 Kembla Street and 105–107 Church Street	Lot 1, DP 152892; Lot 1, DP 5095 Lot 101, DP 1198164 and Road Reserve	Local	6288	Council Staff	Council identified - Mapping amendment to remove Church Street Circle Fig has been removed.	Yes – Map 90
30.	Wollongong	Wollongong Primary Public School and Former Headmaster' s Residence*	67A Church Street	Lots 1–7, DP 781988; Lot 1, DP 61915 and Lots 1 and 2, DP 307856; Lot 1 DP 340380	Local	5935	21	NSW Department Education Update School descriptions to "public" for consistency, add asterisk to denote archaeological site. Add lot 1 340380 to match mapping amendment.	No
31.	Wollongong	Central Chambers Shop known	151 149-161 Crown Street (part)	Lot 1, DP 53763 Lot 1, DP 1094311	Local	6232	14	Item is not "Central Chambers" Building Error in listing name – Delete proposed amendment	No



		as 83 Church Street						and update listing name to reflect historic postal address.	
32.	Wollongong	Wollongong Railway Station Group	Lowden Square Lot 1 Railway Station Square	Part of Lot 1, DP 1001500	State	6382	9	Sydney Trains Submission: Update property description to note curtilage does not cover entire Lot	No
33.	Wollongong	Three picnic shelters in WA Lang Park	W A Lang Park, Marine Drive	Lot 7047, Crown DP 1073466-and MSP 2948	Local	6269	Council Staff	Amend property description to match address	No
34.	Woonona	Woonona Public Infants School	5A Gray Street	Lots 1 and 2 Lots 1- 4, DP 795373	Local	6196	21	NSW Department Education: Update School descriptions to "public" for consistency	No
35.	Yallah	"Yallah" House	601 Princess Highway	Lot 1, DP 156657	Local	6437	24	Amend typo	No







MAP 001 ITEM 6507
UNITING CHURCH
48 MOORE STREET AUSTINMER









MAP 002 ITEM 6259
AUSTINMER RAILWAY STATION
LOT 1 RAILWAY LANDS, AUSTINMER









MAP 003 ITEM 5916
AVONDALE HOMESTEAD
301 AVONDALE ROAD, AVONDALE









MAP 004 ITEM 5984
"MOORELAND"
384 AVONDALE ROAD, AVONDALE









MAP 005 ITEM 5982
"LINBROOK"
84 SOUTH AVONDALE ROAD, AVONDALE





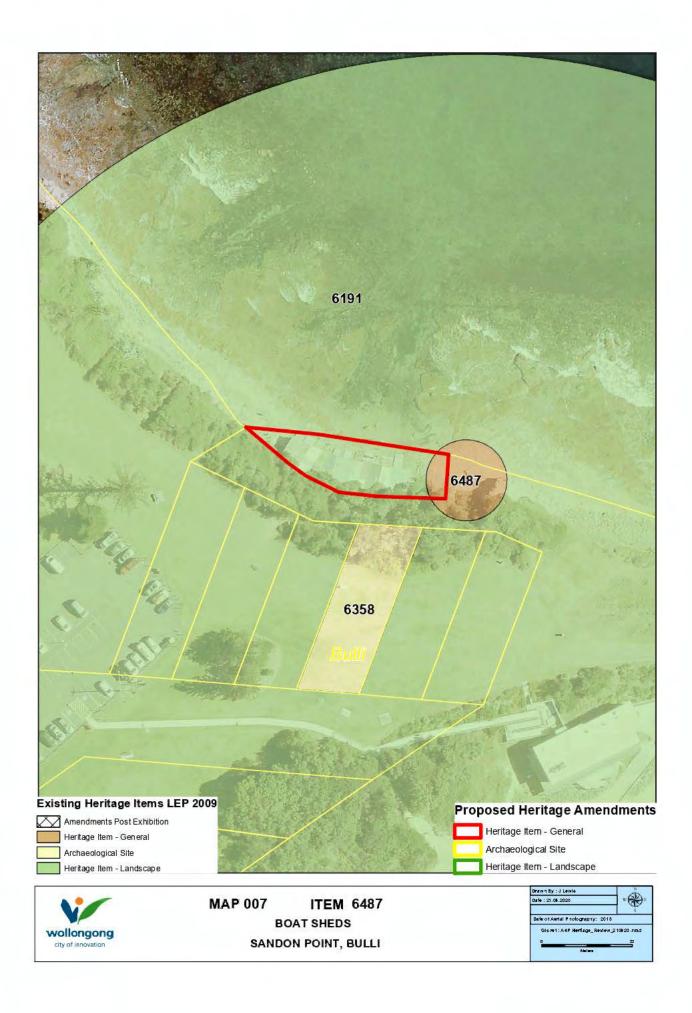




MAP 006 ITEM 5915
ST LUKE'S CHURCH AND CEMETERY COMPLEX
35 PRINCE EDWARD DRIVE, BROWNSVILLE













MAP 008 ITEM 6484
BULLI RAILWAY STATION
L0T 100 PARK ROAD, BULLI









MAP 009 ITEM 6177 FORMER ANGLICAN RECTORY 54-56 PARK ROAD, BULLI









MAP 010 ITEM 61081 MEMORIAL OBELISK LOT 100 PARK ROAD, BULLI









MAP 011 ITEM 6500
BULLI STATION MASTERS' RESIDENCE
41 PARK ROAD, BULLI









MAP 012 ITEM 6447 HOUSE 230 PRINCES HIGHWAY, BULLI









MAP 013 ITEM 6183 HOUSE 244 PRINCES HIGHWAY BULLI









MAP 014 ITEM 6174
ST AUGUSTINE ANGLICAN CHURCH OF AUSTRALIA AND CEMETRY
66 PARK ROAD, BULLI









MAP 015 ITEM 6358
SITE OF FORMER "SANDON COTTAGE"
END OF POINT STREET, BULLI POINT









MAP 016 ITEM 6191

NORFOLK IS PINES BEACH FRONT PLANTING

END OF POINT STREET, BULLI









MAP 017 ITEM 6257 FORMER RAILWAY ROUTE **BULLI COLLIERY TO RAIL BRIDGE EMBANKMENTS**









MAP 018 ITEM 6450 FORMER SHERBROOKE UNION CHURCH GREVILLEA PARK, BULLI





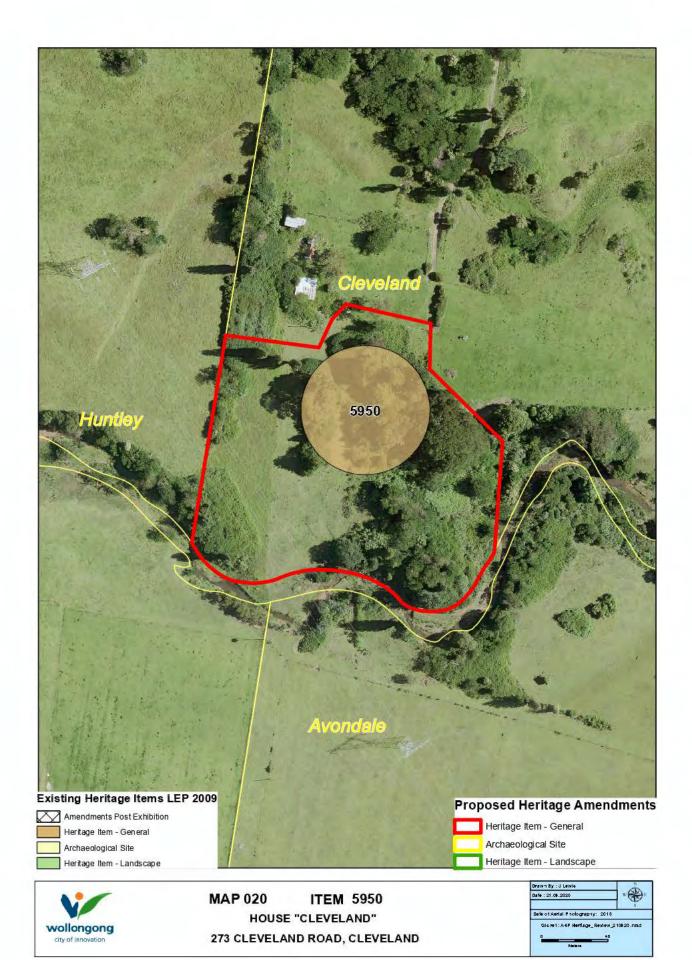




MAP 019 ITEM 5987
FORMER BULLI RAILWAY GUEST HOUSE
STATION STREET, BULLI













MAP 021 ITEM 6133
COTTAGE
6 CLIFTON SCHOOL PARADE, CLIFTON









MAP 022 ITEM 6134
FORMER SCHOOL RESIDENCE
30 CLIFTON SCHOOL PARADE, CLIFTON









MAP 023 ITEM 6350

COLEDALE RAILWAY STATION

COLEDALE









MAP 024 ITEM 6463

ZIEM'S SHOPS AND OUTBUILDINGS
328-330 PRINCES HIGHWAY, CORRIMAL













MAP 026 ITEM 6435

DAPTO RAILWAY STATION

STATION STREET, DAPTO









MAP 027 ITEM 5979
TREES FORMER SITE OF "BENARES"
410 CLEVELAND ROAD, HUNTLEY









MAP 028 ITEM 6339

MT BROWN LANDSCAPE AREA

MT BROWN RESERVE









MAP 029 ITEM 61015
MEMORIAL WALL, DAPTO OLYMPIC POOL
BANGAROO AVENUE, DAPTO









MAP 030 ITEM 6318
HOUSE "NON SUCH/FARMBOROUGH"
351 FARMBOROUGH ROAD, FARMBOROUGH









MAP 031 ITEM 6403
GARDENS, "GREENHILLS" AND "HILLSIDE"
170-190 PRINCES HIGHWAY, FIGTREE









MAP 032 ITEM 6108

COTTAGE

12 FOSTER STREET, HELENSBURGH









MAP 033 ITEM 6343
HELENSBURGH RAILWAY STATION
TUNNEL ROAD, HELENSBURGH









MAP 034 ITEM 6111 HELENSBURGH PRIMARY SCHOOL AND SITE OF SCHOOL RESIDENCE Wollongong LUKIN STREET AND END OF FLETCHER STREET









MAP 035 ITEM 61018
REED PARK ENTRANCE GATES (FORMER)
BONG BONG ROAD, HORSLEY









MAP 036 ITEM 61069
TRAMWAY ALIGNMENT (FORMER)
PUBLIC RESERVE, HORSLEY









MAP 037 (AM) ITEM 5980
"GLEN AVON"
456 CLEVELAND ROAD, HUNTLEY









MAP 038 ITEM 61079
FORMER WAPLES BUTCHERY AND CATTLE YARDS
LOT 1 BONG BONG ROAD, HUNTLEY









MAP 039 ITEM 6430
HOUSE "RHONDANELLA"
23 RHONDANELLA DRIVE, KANAHOOKA









MAP 040 ITEM 6328
HOOP PINES
PT LOT 223 DP 751278 PAYNES ROAD, KEMBLA GRANGE









MAP 041 ITEM 5976
STANE DYKE HOMESTEAD
17 STANE DYKE ROAD, KEMBLA GRANGE









MAP 042 ITEM 6433 SLAB HUT 303 REDDALLS ROAD, KEMBLA GRANGE





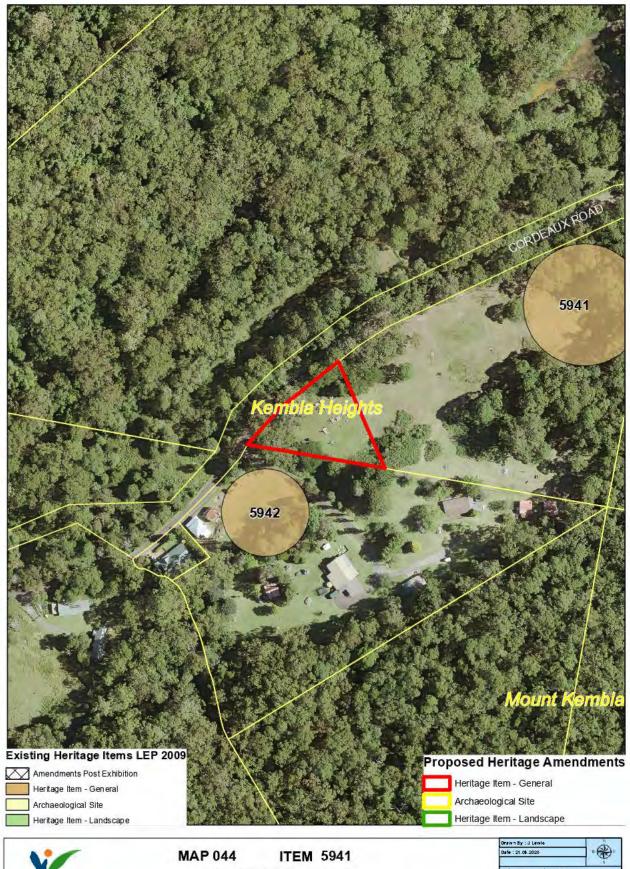




MAP 043 (AM) ITEM 5949 NEWTON PARK AND GARDENS 451 PRINCES HIGHWAY, KEMBLA GRANGE









MAP 044 ITEM 5941
WINDY GULLY CEMETERY
CORDEAUX ROAD, KEMBLA HEIGHTS





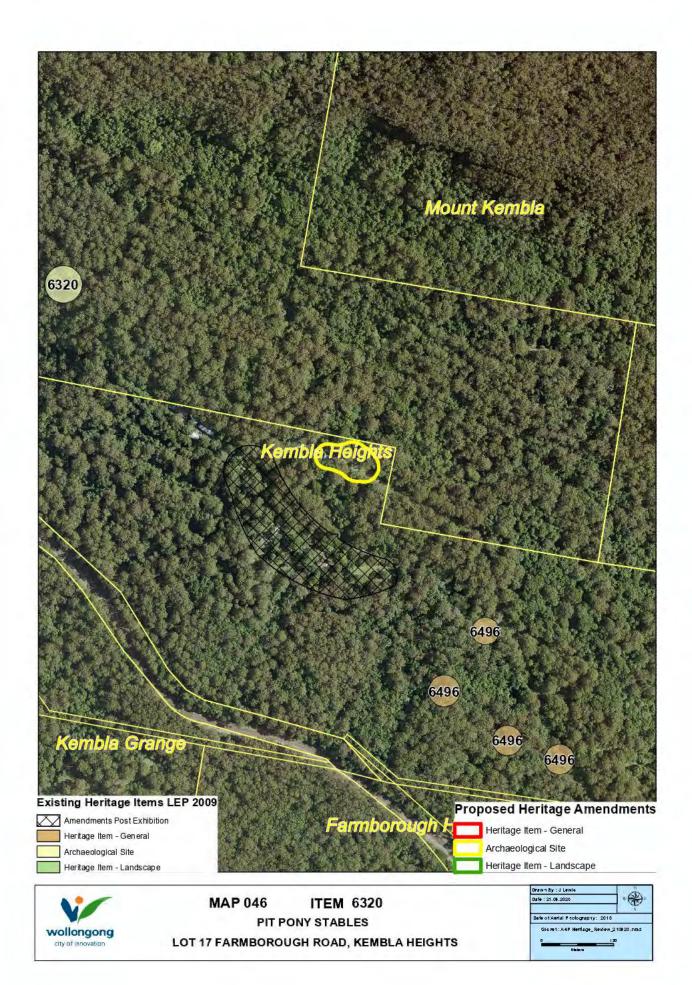




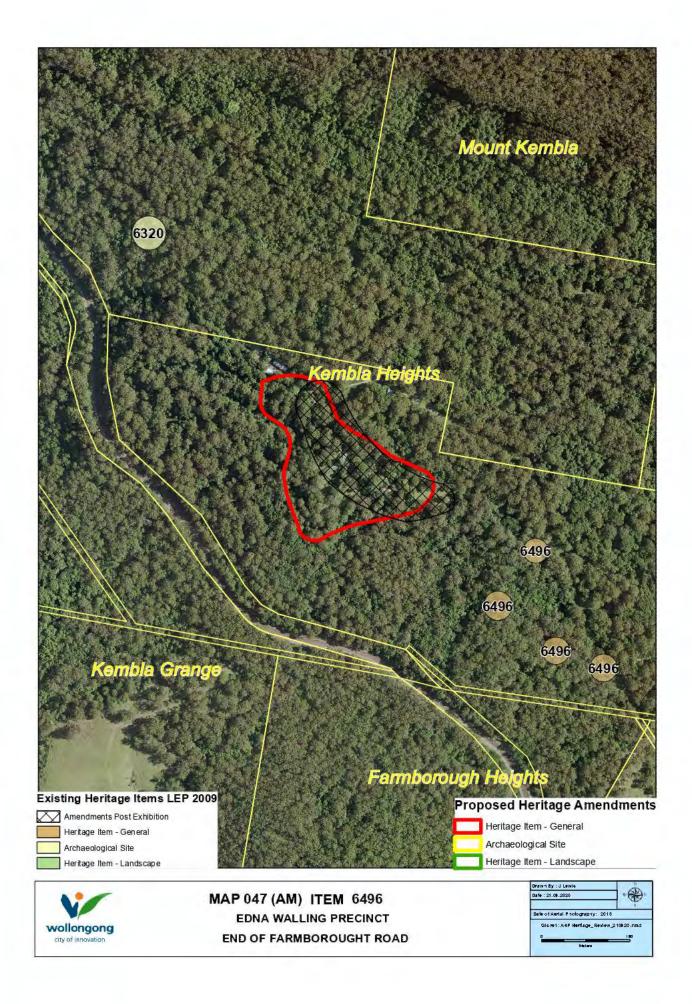
MAP 045 ITEM 5946 FORMER POST OFFICE HARRY GRAHAM DRIVE, KEMBLA HEIGHTS

















MAP 048 ITEM 5945
POST OFFICE/ STORE
314 CORDEAUX ROAD, MOUNT KEMBLA





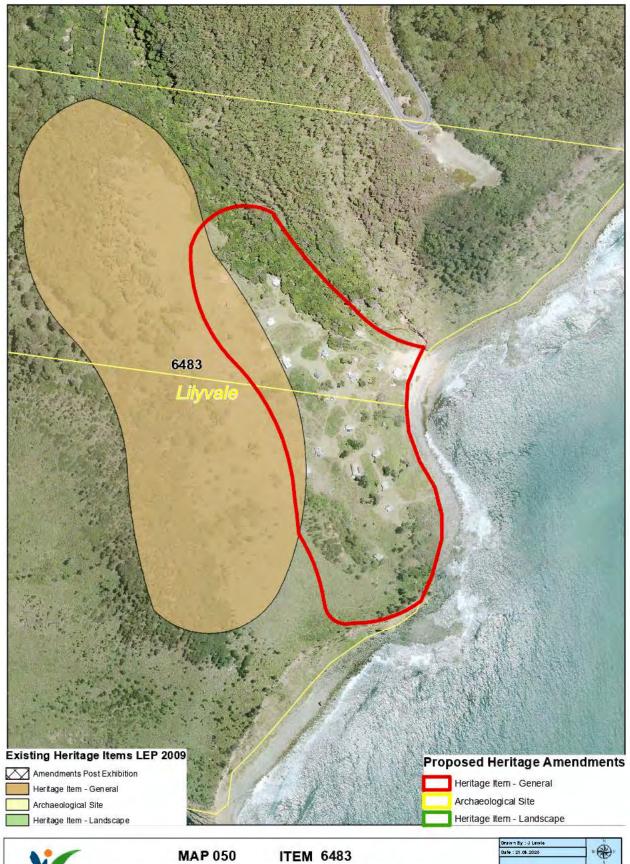




MAP 049 ITEM 6411 SITE OF PIONEER KEROSENE WORKS CORDEAUX ROAD, MOUNT KEMBLA





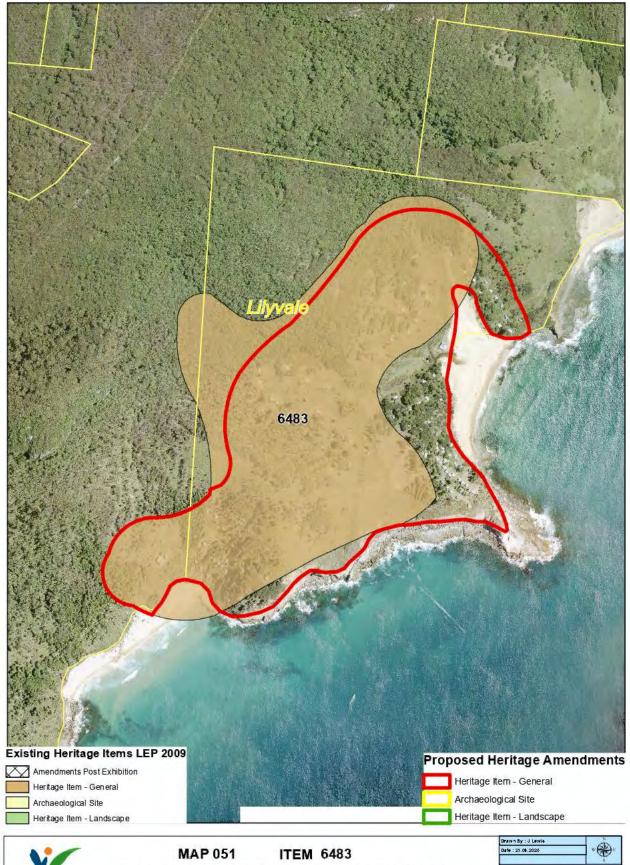




MAP 050 ITEM 6483
ROYAL NATIONAL PARK COASTAL CABINS COMMUNITIES
ROYAL NATIONAL PARK









MAP 051 ITEM 6483
ROYAL NATIONAL PARK COASTAL CABINS COMMUNITIES
ROYAL NATIONAL PARK









MAP 052 ITEM 6483
ROYAL NATIONAL PARK COASTAL CABINS COMMUNITIES
ROYAL NATIONAL PARK









MAP 053 (AM) ITEM 61043
HILL 60, FISHERMAN'S BEACH, BOILERS POINT AND MM BEACH
HILL 60 RESERVE, PORT KEMBLA









MAP 054 ITEM 6478

BOMB SHELTER

59 MILITARY ROAD, PORT KEMBLA









MAP 055 ITEM 6305 ST STEPHEN'S ANGLICAN CHURCH 111 MILITARY ROAD, PORT KEMBLA









MAP 056 ITEM 6311
HOUSE AND SHOP
123 MILITARY ROAD, PORT KEMBLA









MAP 057 ITEM 6431
PORT KEMBLA OLYMPIC POOL
OLYMPIC BOULEVARDE, PORT KEMBLA BEACH









MAP 058 ITEM 6424
COOMADITCHIE LAGOON AND SURROUNDS
COWPER STREET, PORT KEMBLA





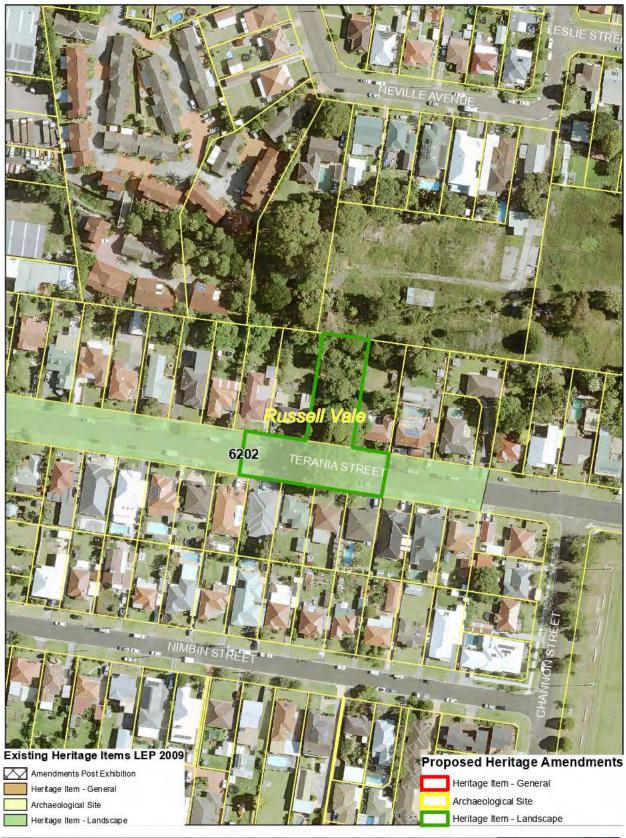




MAP 059 ITEM 6421
"GUINERY'S" PORT KEMBLA HOTEL
54-58 WENTWORTH STREET, PORT KEMBLA









MAP 060 ITEM 6202

GROUP OF FIGTREES

TERANIA STREET, RUSSELL VALE









MAP 061 ITEM 6211

MORETON BAY FIG

RUSSELL VALE GOLF COURSE





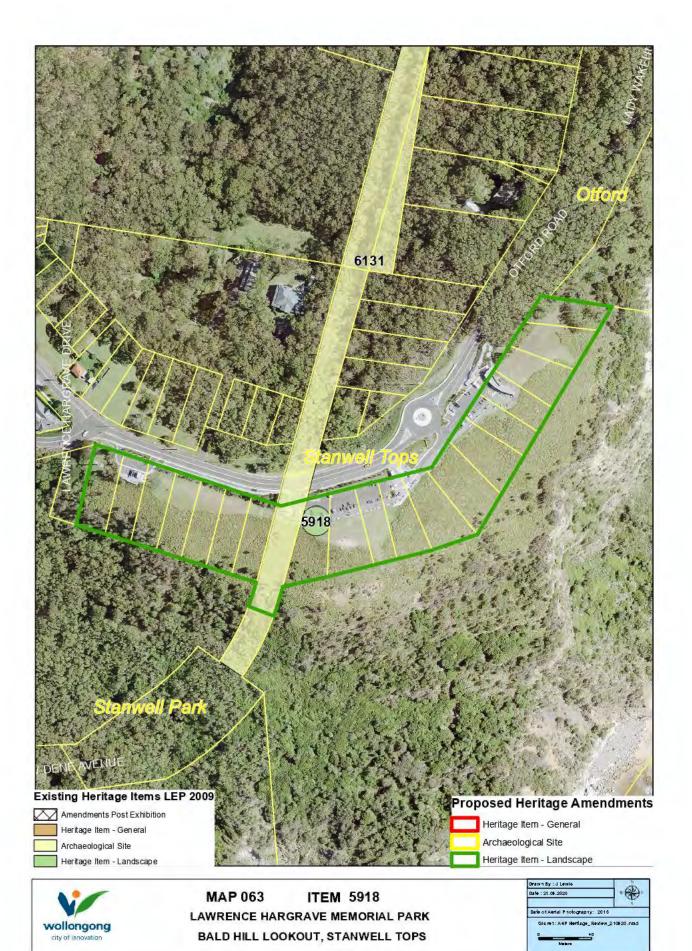




MAP 062 ITEM 6349 SCARBOROUGH RAILWAY STATION LOT 1 RAILWAY AVENUE, SCARBOROUGH













MAP 064 ITEM 6221 FARRELL PARK DOUGLAS ROAD, FERNHILL









MAP 065 ITEM 61030 THIRROUL BATHS PRECINCT CLIFF PARADE, THIRROUL













MAP 067 ITEM 6352
THIRROUL RAILWAY STATION
RAILWAY PARADE, THIRROUL









MAP 068 ITEM 6353

MASSANDRA AND BALLINDERRY

16-24 FORDS ROAD, THIRROUL









MAP 069 ITEM 6426
HOUSE "NUDJIA"
83A CUMMING STREET, UNANDERRA



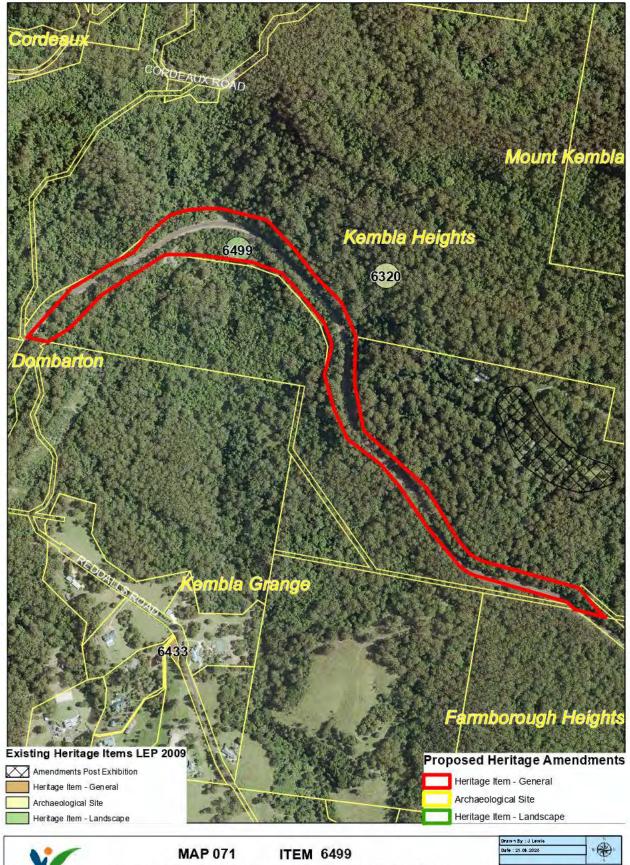














MAP 071 ITEM 6499

RAILWAY CUTTING - UNANDERRA/MOSS VALE RAILWAY LINE

DOMBARTON









MAP 072 ITEM 5935 WOLLONGONG PUBLIC SCHOOL & HEADMASTERS RESIDENCE 53 SMITH STREET AND 67A CHURCH STREET, WOLLONGONG





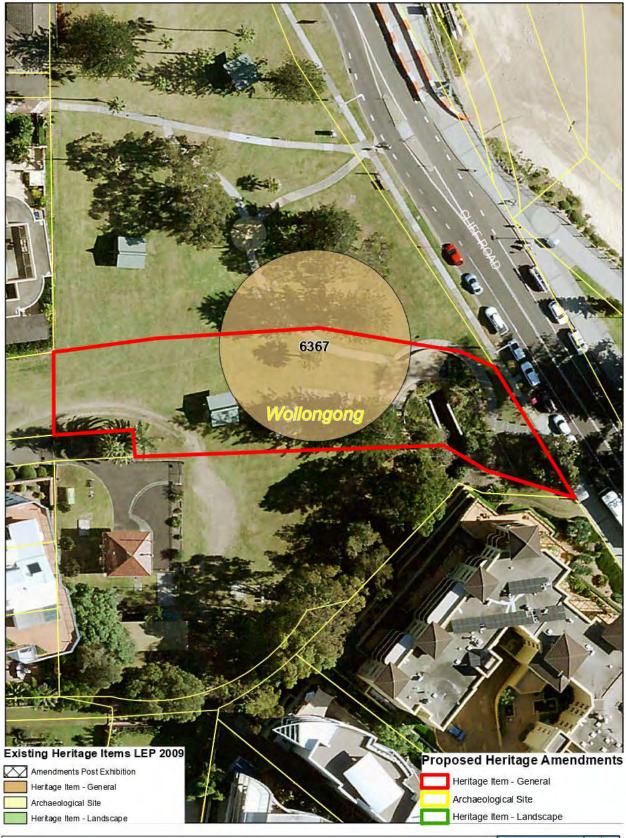




MAP 073 ITEM 5934
SMITHS HILL FORT
CLIFF ROAD, NORTH WOLLONGONG









MAP 074 ITEM 6367
REMAINS OF MT KEIRA OSBORNE WALLSEND TRAMWAY BRIDGE
OSBORNE PARK, WOLLONGONG









MAP 075 ITEM 5932 ST FRANCIS XAVIER'S CATHEDRAL 24 CROWN STREET, WOLLONGONG







MAP 076 ITEM 6274
HOUSE (FORMER COACH HOUSE)
10A FLINDERS STREET, WOLLONGONG













MAP 078 ITEM 6382
WOLLONGONG RAILWAY STATION
LOT 1 RAILWAY SQUARE, WOLLONGONG









MAP 079 ITEM 6514
ROW OF CALIFORNIA BUNGALOWS
10-16 ROBINSON STREET, WOLLONGONG









MAP 080 ITEM 6284

ROW OF HILLS FIGS

BURELLI STREET, WOLLONGONG





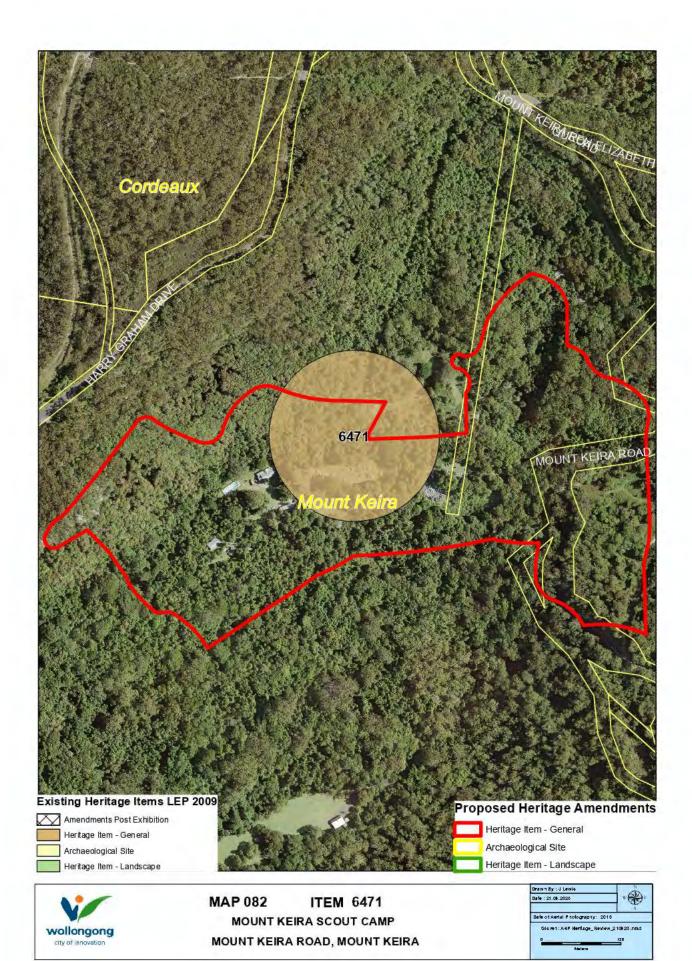




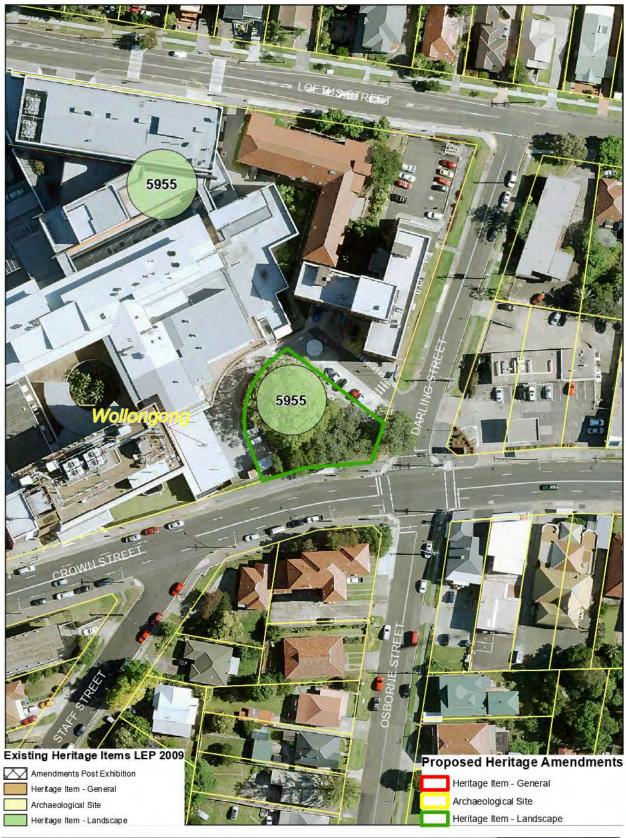
MAP 081 ITEM 6590
AVENUE OF NORFOLK ISLAND PINES
MARINE DRIVE, WOLLONGONG









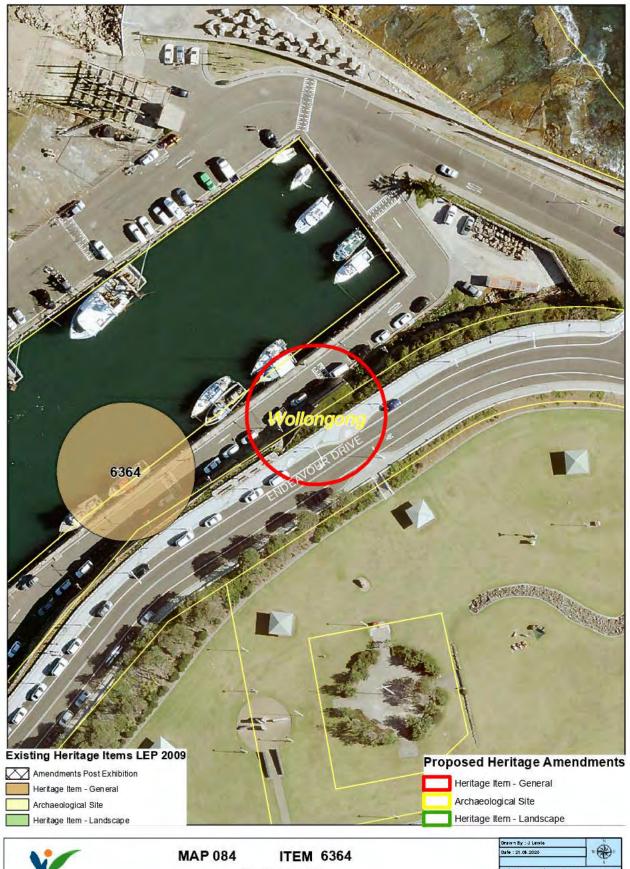




MAP 083 ITEM 5955
GROUP OF FIG TREES
WOLLONGONG HOSPITAL 348-352 CROWN STREET





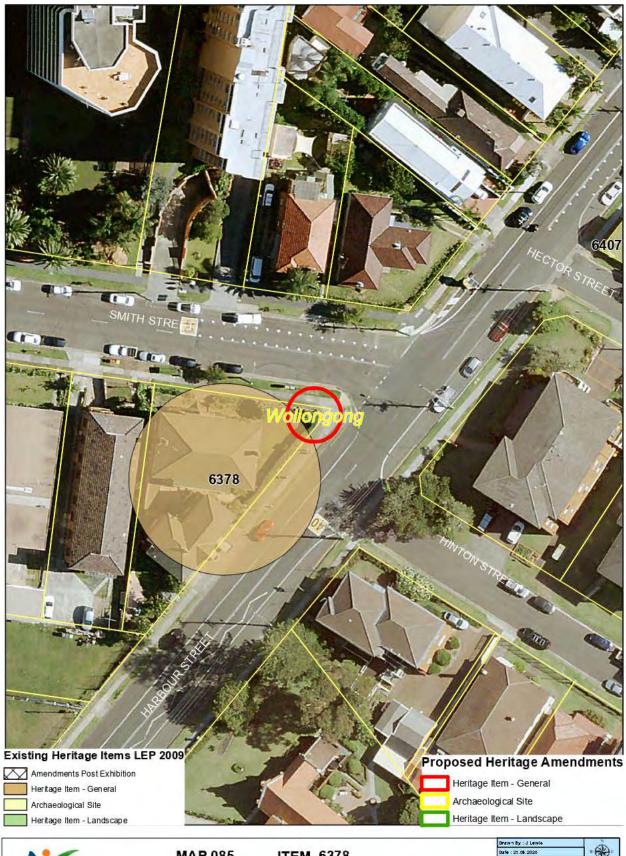




MAP 084 ITEM 6364
STONE STEPS
BELMORE BASIN, WOLLONGONG HARBOUR









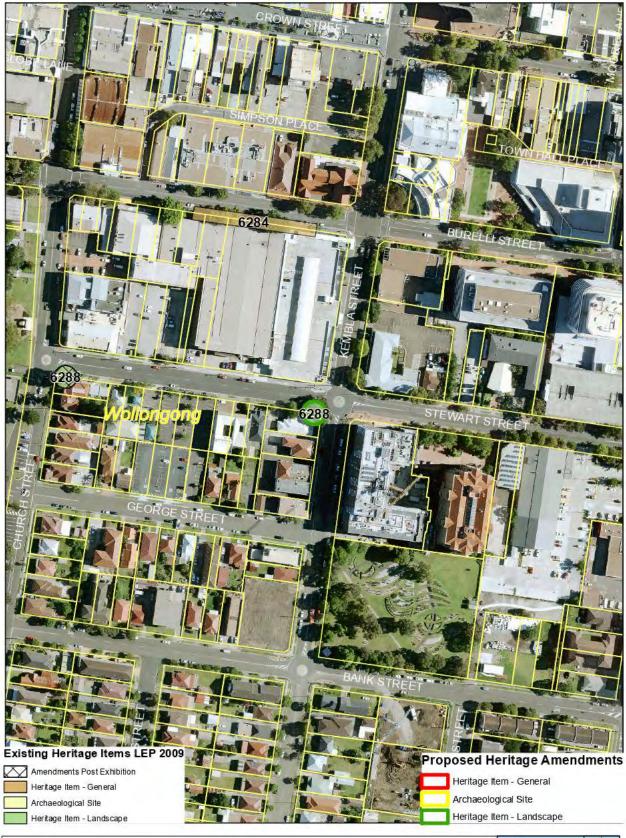
MAP 085 ITEM 6378

MONUMENT

1 SMITH STREET, WOLLONGONG





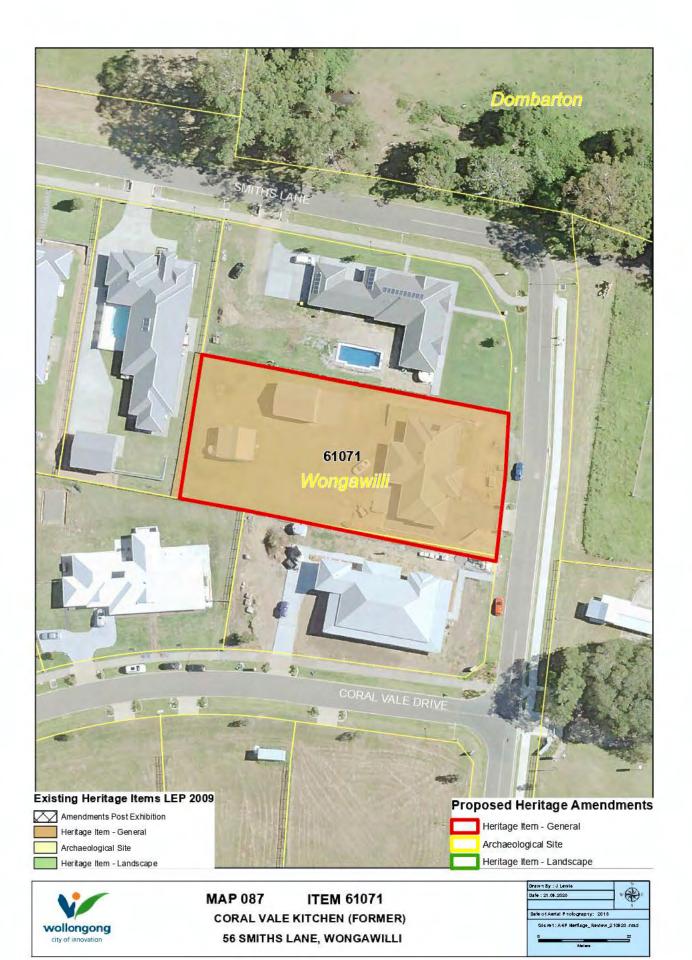




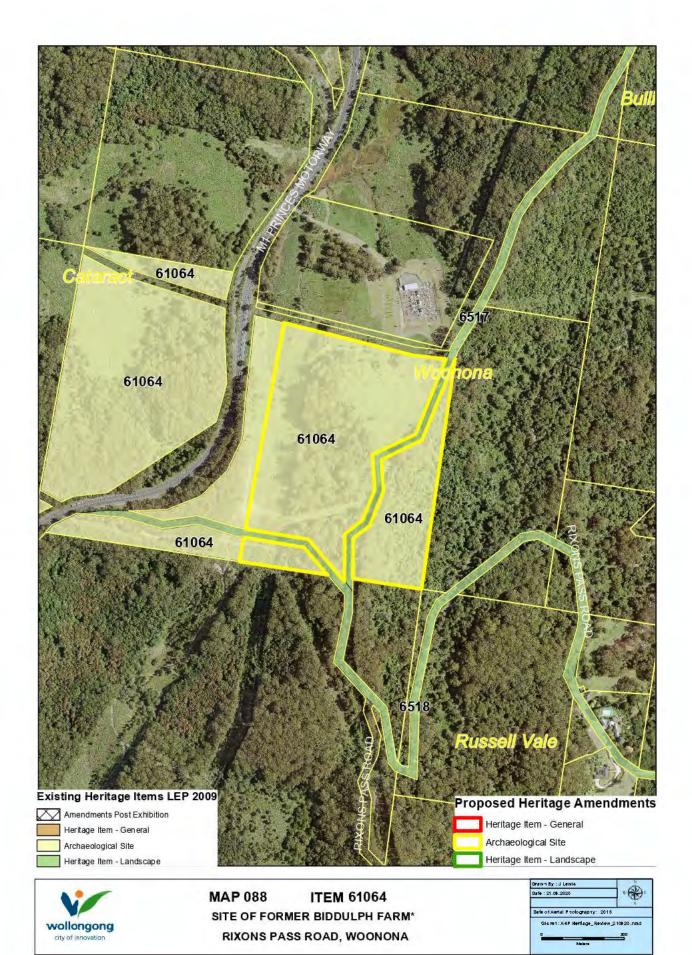
MAP 086 ITEM 6288
SMALL LEAFED FIGS
94 KEMBLA STREET, WOLLONGONG

















MAP 089 ITEM 6437
YALLAH HOUSE
601 PRINCES HIGHWAY, YALLAH





Attachment 1: Heritage Schedule Review Project

Stage 1: Housekeeping Amendments to Wollongong LEP 2009 Schedule 5 Heritage Items and Heritage Maps

Contents

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Table 1: Proposed removals due to demolition or reassessment of significance

The following items are recommended to be removed from the Wollongong Local Environmental Plan 2009 Heritage Schedule and Heritage Map due to demolition or reassessment of heritage significance.

Items highlighted in blue are under Wollongong City Council ownership or management

	Suburb	Item Name	Address	Property Description	Item No.	Reason
1.	Bulli	Former Guest House	300-302 Princes Highway	Lot 2, DP 1138010	6187	Item demolished by RMS in 2013 as part of the extension of Memorial Drive



	Suburb	Item Name	Address	Property Description	Item No.	Reason
2.	Clifton	Stand of Norfolk Island Pines	Lawrence Hargrave Drive	Road Reserve	6136	Trees have been removed by RMS during construction of sea cliff bridge.
3.	Helensburgh	Site of former cottage*	12 Robertson Street	Lot 835, DP 752033	6101	Assessment of Heritage Significance completed by Zoran Popovic June/ July 2013 recommends item should be removed from LEP Heritage Schedule. (Building was destroyed by fire & subsequently demolished).
4.	Mangerton	House	1 Taronga Avenue	Lot 59, DP 21053	6279	Assessment of Heritage Significance completed by Zoran Popovic October 2014 recommends item should be removed from LEP Heritage Schedule. In 2019 a development application was approved by the Local Planning Panel for demolition. House has now been demolished.
5.	Port Kembla	Mural	189-191 Wentworth Street	Lot 13, Section 4, DP 5868	6309	Mural has been assessed as not meeting the criteria for listing. Is intended to be replaced due to poor condition in consultation with the local Community.
6.	Russell Vale	Avenue of planting	Keerong Street	Road Reserve	6203	Assessment of Heritage Significance completed by Zoran Popovic 2014 recommends this listing be removed from Schedule 5 of Wollongong LEP 2009.
7.	Woonona	Norfolk Island pines	Mitchell Road	Road Reserve	6516	Removed by RMS as part of the Northern Distributor/Memorial Drive expansion between 2006 and 2008.



Table 2: Proposed removals due to item listed in a SEPP

The following items are recommended to be removed from the Wollongong Local Environmental Plan 2009 Heritage Schedule and Heritage Map as they are located on land now covered by a SEPP:

	Suburb	Item Name	Address	Property Description	Item No.	Reason
1	Marshall Mount	"Marshall Mount" homestead and barn	Marshall Mount Road	Part Lot 2, DP 2534	5914	Listed as a heritage item under the Major Projects SEPP - Calderwood
2	Port Kembla	Historical military museum including break water battery and concrete tank barriers*	Between Eastern Breakwater and North Beach	Lot 108, DP 1013971	6302	Location of actual items listed as a heritage item under the Three Ports SEPP. Added additional mapped area (not covered by SEPP) into consolidated Hill 60 listing (# 61043).



Table 3: Proposed additions

The following two items are recommended to be added to the Wollongong LEP Heritage Schedule as they were previously left off the schedule due to an administrative error. Both are included on the Heritage Maps.

The inclusion of other new additional items are progressed as part of the Heritage Review Stage 2 which will form a separate LEP amendment:

	Suburb	Item Name	Address	Property Description	Significance	Item No.	Reason
1	Wollongong	Trade School (TAFE)	38-46 Gladstone Avenue	Lot 1 DP 1011733	Local	6467	Administrative error This item was listed in Schedule 5 of the 1990 Wollongong LEP but was not integrated into 2009 Wollongong LEP. This item is mapped as a local heritage item in the 2009 Heritage Maps and is in effect treated as a local heritage item.
2	Dombarton	Hillside Farm	295 Sheaffes Road	Lot 1 DP 873109	Local	61045	Administrative error This item was listed in Schedule 5 of the 1990 Wollongong LEP but was not integrated into 2009 Wollongong LEP. This item is mapped as a local heritage item in the 2009 Heritage Maps and is in effect treated as a local heritage item.



Table 4: Minor Corrections to listings

These include minor administrative updates to item names, suburbs, addresses, property descriptions and level of significance from Local to State. This includes:

- Fixing spelling errors in item names;
- Adding Lots and DP's to capture full extent of an items curtilage due to shifting property boundaries or incorrect descriptions from 2009;
- Deleting Lots and DP's to reflect changes in property descriptions such as subdivisions that have reduced the curtilage of an item since 2009; and
- Changing level of significance from local to State to reflect the state listing of items under the NSW Heritage Act 1977 by NSW Heritage.
- Red text shows proposed amendments as per exhibited documents;
- · Blue text denotes recommended post exhibition amendments; and
- Items highlighted in Blue are under the ownership or management of Wollongong City Council.

	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
1.	Austinmer	House "Braemar"	1 Headland Avenue	Lot 2, DP 201973	Local	6147	Add name of house "Braemar" to item description
2.	Austinmer	Glastonbury Gardens	72 82 Lawrense Hargrave Drive Toxeth Avenue	Lot 2, DP 519285; Lot 29, DP 7559; Lot 3, DP 12378; Lot 6, DP 12378; Lot A, DP 373660; Lot C, DP 373660; Lot 1, DP 435733	Local	6153	Amend property description to add extra lots and DP to capture extent of Gardens in line with mapping
3.	Austinmer	Norfolk Island pines	Lawrence Hargrave Drive, Austinmer Main Beach	Lot 3, DP 1110343; Lot, 1 DP 172287; Lot 7020, DP 1071551	Local	6151	Amend property description to add extra lots and DP to capture extent of Pines
4.	Austinmer	Norfolk Island pines	North Austinmer Beach	Lot 99, DP 174418, Lots 96 - 100, DP 174418; Lot 1, DP 431661; Lot 7021 and DP 1071551.	Local	6152	Amend property description to add extra lots and DP to capture extent of Pines
5.	Austinmer	Uniting Church	48 Moore Street	Lot 11 & 12 Section C, DP 2111	Local	6507	Amend property description to capture extent of Church Also Heritage Map change – table 5
6.	Austinmer	"Workshop"	67-69 Moore Street	Lot 1, DP 301323; Lot 1 & 2 DP 1081245	Local	6149	Update address and update property description to match
7.	Austinmer	Austinmer Railway Station	End of Moore Street Lot 1 Railway Lands	Rail reserve Part of Lot 1, DP 1149493	State	6259	Add street address and update property description to match, note only Part of Lot. Also Heritage Map change – table 5



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
8.	Austinmer	House "The Outlook"	14 Oceana Parade	Lot 1, DP 231287	Local	61004	Add name of House to item description
9.	Austinmer	House "Cintra"	15 Wigram Road	Lot 18, DP 7559	Local	6150	Add name of House to item description
10.	Austinmer	Norfolk Island pines on former Headlands Hotel site	Yuruga Street	Lots 87–95, DP 9233 Lots 100 and 101, DP 1212173	Local	6504	Amend name to reflect redevelopment of Headlands Hotel and amend Lot & DP
11.	Austinmer	Norfolk Island Pines	Yuruga Street (corner Headlands Avenue)	Lot 1, DP 339004; Lot 7024, DP 1060923; Lot 1, DP 519277; Lot 7302, DP 1149797	Local	6144	Update property description to capture extent of Pines
12.	Balgownie	Balgownie Community Centre	113 Balgownie Road	Lot 5, Section A, DP 938771 Lot 5 DP 1129933	Local	6215	Update property description to match address
13.	Balgownie	Street Front Shop	135 -137 Balgownie Road	Part Lot 2, DP 37904 and Part Lot 3, DP 584503	Local	6213	Update incorrect street address and update property description to match
14.	Balgownie	Balgownie Hotel	141–43 143 Balgownie Road	Lot 5, DP 872833	Local	61009	Update address to match property description
15.	Balgownie	Balgownie Public School and residence	Balgownie Road (Corner Chalmers Street)	Part Lot 1, DP 709601	Local	6214	Amend name to reflect residence demolished prior to 1977 and correct property description
16.	Bellambi	Bellambi Station Master's Residence	3 Brompton Road	Lot 1, DP 881773 Lot 2 DP 1193269	Local	6359	Add street number to address and update property description to match following subdivision
17.	Bellambi	Bellambi Lake and Sandpit Point -	Turner Esplanade	Lot 175, DP 726738; Part Lot 113, DP 751301; Lots 5 and 6, DP 240541; Lots 141 and 157, DP 247217; Lot 2, DP 615377; Lot 7011, DP 1057474; Lot 22, DP 1180717; Lot 7017, DP 1057474	Local	6204	Amend property description capture extent of Lake and Point
18.	Berkeley Unanderra	Site of former "Berkeley House"*	23 Glastonbury Avenue and 191–195 Five Islands Road	Lot 401, DP 845805 and Lot 210, DP 811435	Local	6519	Incorrect Suburb in property description
19.	Brownsville	Brownsville Cemetery, large fig trees and Bunya pine*	33–37 Prince Edward Drive	Lot 18, DP 1023004 and Lot 1, DP 414418	Local	5915	Being amalgamated with item below (5915) with same listing number



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
20.	Brownsville	Osborne Memorial St Luke's Church and Cemetery Complex (Including Church Hall and Landscape)*	33–37 35 Prince Edward Drive	Part Lot 18, DP 751263 and Lot 18, DP 1023004 Lot 203 DP 1234890	Local	5915	Update incorrect street address and update property description to match. Being amalgamated with item below with same listing number (5915). Also Heritage Map change – table 5
21.	Brownsville	Church Hall former Episcopalian Church of St Luke	33-37 Prince Edward Drive	Lot 18, DP 1023004	Local	5915	Being amalgamated with item above (5915) with same listing number
22.	Bulli	Rail Bridge Bulli Colliery Rail Bridge and Alignment	Over Princes Highway, Near Hobart Street Junction	Rail Reserve	Local	5988	Merged with item number 6527 – Bulli Colliery Rail Bridge and Alignment (former)*
23.	Bulli	Former railway route* Bulli Colliery Rail Bridge and Alignment (Former)*	Bulli Colliery to rail bridge embankments	Lot 2, DP 1094964 Lot 50, DP 1045297; Lot 52, 53, DP 1201697	Local	6527	Amend name to reflect consolidated listing with Colliery Rail Bridge number 5988 - and update property description to capture alignment Also Heritage Map change – table 5
24.	Bulli	Norfolk Island Pines Beach Front Planting	Bulli Point, Point Street	Foreshore Lots 1-12, DP 7813; Lot 103, DP 7813 and Lot 1, DP 231244	Local	6191	Amend property description to capture extent of Pines Also Heritage Map change – table 5
25.	Bulli	Site of Captain Westmacott's homestead-"Sandon Cottage"*	Bulli Point (Sandon Point) Trig Station Sandon Point, Point Street	Lots 1 - 6 and 103, DP 7813 Part of Lot 1 DP 231244	Local	6358	Error in description of original listing site actually captures "Sandon Cottage" Also Heritage Map change – table 5
26.	Bulli	Bulli General Cemetery*	Carrington Street	Lot 7309, DP 1144553	Local	6451	Add property description to LEP listing.
27.	Bulli	Houses Row of Federation Houses	81 87–101 Farrell Road	Lots 9–16, DP 6454	Local	6182	Minor Street address correction
28.	Bulli	Federation House	8 Fowler Road Street	Lot 2, DP 38367	Local	6180	Correct Street name and amend listing name
29.	Bulli	Victorian House	10 Fowler-Road Street	Lot 1, DP 220111	Local	6181	Correct Street name and amend listing name



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
30.	Bulli	Bulli Railway Station	Franklin Avenue and Railway Street Lot 100 Park Road	Rail reserve Part of Lot 100, DP 1141139	Local. State	6484	Site subject to state listing, significance is amended accordingly and property description to match State Heritage Curtilage (SHR: 01829) Also Heritage Map change – table 5
31.	Bulli	Bulli Collieries— includes shaft No 1, shaft No 2 original shaft sinking head frame, old pit top, old furnace shaft and pit town remains*	Hobart Street	Lot 1, DP 430752; Lot 50, DP 1045297; Part Lot 23, DP 751301 and Lot 3, DP 255282; Lot 2374, DP 1120421; Lot 3 DP 1185534	Local	5924	Update property description to cover extent of Colliery
32.	Bullí	Federation House, Former Anglican Rectory	54 - 56 Park Road	Lot 1002, DP 873075	Local	6177	Minor Street address correction Also Heritage Map change – table 5
33.	Bulli	Memorial Obelisk	66 Park Road Lot 100 Park Road	Lot 801, DP 774190 Lot 100, DP 1141139	Local	6174 61081	Heritage Consultant advised Obelisk is a separate item to the adjacent St Augustine Anglican Church and Cemetery, a new separate listing to reflect this advice has been created. Also Heritage Map change – table 5
34.	Bulli	Bulli Station Master's Residence	41 Park Road	Lot 1, DP 809643	Local	6500	Add street number to match property description
35.	Bulli	Former Joint Stock Bank	203 233 Princes Highway	Lot 1, DP 799054	Local	5985	Update address to match property description
36.	Bulli	Victorian House	230 Princes Highway	Lot 162, DP 602341 Lot 2, DP 1130117	Local	6447	Update property description to match address and update listing name Also Heritage Map change – table 5
37.	Bullí	Former Bulli Shire Council Chambers	328-330 Princes Highway	Lot A, DP 421249	Local	6184	Update address to match property description
38.	Bulli	WWI Memorial	Princes Highway, (Slacky Flat Park)	Lot 2, DP 772593 Lot 33, DP 1182831	Local	6444	Update property description to match address



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
39.	Bulli	Former Bulli Railway Guesthouse	1 Railway Street 8 Station Street	Lot A, DP 159222 Lot 4 DP 1234087	Local	5987	Update property description due to Subdivision of Woolworths Site and amend address to match. Also Heritage Map Change — Table 5
40.	Cataract Woonona	Site of former "Biddulph Farm"*	Mt Ousley Road intersection with Rixons Pass Road	Lot 30, DP 751301	Local	61064	Change to include only the eastern portion of Lot 30 DP 751301 as per recommendation of RMS Statement of Heritage Impact prepared by Artefact dated November 2016 Update suburb Also Heritage Map change — table 5
41.	Cleveland	Tramway alignment (former) (see also under suburb of Horsley)	Cleveland Road and Burringbar Street, running east-west along the southern boundary of lots	Lot 1, DP 220843; Lot 56, DP 751278	Local	61069	Item is covered by listing under Horsley with same item number
42.	Clifton	Cottage	6 Clifton School Parade	Lot 200, DP 1070345 Lot 5, DP 1175954	Local	6133	Add street number and amend property description to match Also Heritage Map change – table 5
43.	Clifton	Former School Residence	30 Clifton School Parade	Lot 21, DP 1123807 Lot 216 DP 1252684	Local	6134	Add street address and amend property description to match Also Heritage Map change – table 5
44.	Clifton	Cliff vegetation and Moranga Park	Lot 11 Lawrence Hargrave Drive	Lot 11, DP 1137408	Local	6347	Add street number to address
45.	Clifton	Imperial Hotel	317 Lawrence Hargrave Drive	Lot 100, DP 118518	Local	6135	Add street number and amend property description to match
46.	Coalcliff Colliery Shaft Mine— including and Coke Works ovens*	280 Lawrence Hargrave Drive	Lot 58, DP 1097339; Lot 13, DP 1137408; Lot 1, DP 703488; Lot 11, DP 1132791 and Railway Corridor	Coalcliff Colliery Shaft Mine— including and Coke Works ovens*	Local	6348	Add street number and amend property description to match. Add railway corridor that is also captured to property description. Amend listing name to include Coke Works



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
47.	Coalcliff	Coalcliff Colliery jetty mine—including entrance portal*	East of Lawrence Hargrave Drive	Lot 7037, DP 1117499 and Crown land	Local	5922	Amend property description to reflect land holding
48.	Coalcliff	Coalcliff Tunnel No 8*	Railway Tunnel, Illawarra Line	Lot 32, DP 881726 Lot 1, DP 1188960 Railway Corridor	Local	6258	Update property description to note located in railway corridor
49.	Coledale	Coledale Railway Station	Coledale Railway Street	Rail reserve Part of Lot 1, DP 1188983	Local	6350	Incorrect address, update property description to match. Note Part lot Also Heritage Map change – table 5
50.	Coledale	Norfolk Island Pines	Beach front Coledale Beach, Lawrence Hargrave Drive	Part Lot 11, DP 752054; Lot 1, DP 1204195 and Lot 1, DP 1168311	Local	6143	Amend property description to capture extent of Pines
51.	Mount Saint Thomas	Fort Drummond	Television Avenue	Lots 1 and 3, DP 208194	Local	6405	Two listings for 6405, consolidated to one listing under Mount Saint Thomas
52.	Corrimal	Ficus obliqua	Bloomfield Park, 10 Lydon Street	Lot 1, DP 214743; Lot 51, DP 12423; Lot 31, DP 1006012	Local	6465	Amend property description to capture extent of natural park area
53.	Corrimal	"Mountain View" "Wilgendene"	14 Jones Place	Lot 126, DP 544292	Local	6201	Incorrect name of building listed on LEP
54.	Corrimal	Former Headmaster's Residence—Corrimal Public School	96- <mark>98</mark> Princes Highway	Lot 1, DP 835462	Local	6462	Amend address to match property description
55.	Corrimal	Palm Court Corrimal Hotel	264–268 Princes Highway	Lot 101, DP 1004200	Local	6462 6464	Item number is incorrect and change to name to reflect current Hotel name
56.	Corrimal	Ziem's Shops and Outbuildings	328-330 Princes Highway	Lot 104 & 105, DP 1062386	Local	6463	Update to correct address and update property description to match. Also Heritage Map change – table 5
57.	Corrimal	Catholic Cemetery*	116 Princes Highway	Lot 1, DP 1037746	Local	6360	Add Street number to match property description
58.	Corrimal	Phil Adams Park	Railway and Duff Parade	Lot 4 Lot 14, DP 586795	Local	6209	Add name of Park to listing and correct property description
59.	Corrimal	War Memorial	Corrimal Memorial Park, 92-96 Railway Street	Unknown Lot 1, DP 1140149	Local	6210	Add street address and add property description to match



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
60.	Corrimal	Corrimal Public School	Wilga Street 100 Princes Highway	Lot 2, DP 835462	Local	6205	Update address to match property description
61.	Dapto	Military Bunker—Mt Brown Reserve	Mt Brown Reserve, Bright Parade	Part Lot 4, DP 223746	Local	61016	Update listing name and add Mt Brown Reserve to address
62.	Dapto	Bunya Pine	89 93 - 108 Princes Highway	Lot 1, DP 1050533	Local	61025	Update address to match property description Also Heritage Map change – table 5
63.	Kembla Grange Dapto	Hoop Pines	Part Lot 223 Paynes Road	Part Lot 223, DP 751278	Local	6328	Update address and suburb to match property description Also Heritage Map change – table 5
64.	Dapto	Dapto Hotel	102–110 Princes Highway	Lot 1, Section A, DP 564523	Local	61022	Update property description to match address
65.	Dapto	Mt Brown reserve Landscape Area	Mt Brown Reserve	Lot 4, DP 223746; Lot 12, DP 233464; Lot 109, DP 1050302 and Lot 22, DP 774118 and Lots 31 DP 1175058, Lot 141 DP 2239830, Lot 52 DP 1233938, Lot 6,7,9, 10 & 11 DP 1147392, Lot 50 & 51 DP 1233938	Local	6339	Update Property description to cover Reserve Area and remove subdivided residential lots. (Reserve also partially in the suburbs of Koonawarra and Yallah). Updated Lots and DP's to remove residential lots and capture correct extent. Also Heritage Map change – table 5
66.	Dapto	Dapto Railway Station	Station Street	Part of Lot 2, DP 856667	Local	6435	Update property description to note Part of Lot.
67.	Dombarton	Railway Cutting— Unanderra/ Moss Vale railway line	Dombarton Lot 1 Reddalls Road	Lot 1, DP 185282	Local	6499	Add address to match property description. Also Heritage Map change – table 5
68.	Dombarton	"Stream Hill" Homestead, barn, dairy and feed shed	231 Sheaffes Road	Lot 23, DP 790915	Local	6323	Add street number to match property description
69.	Fairy Meadow	Balgownie Migrant Workers Hostel	Huts 201, 204 and 210, Cowper Street 9 Squires Way	Part Lot 1, DP 719865 Lot 2 DP 1172135	State	61075	Update to match address and property description



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
70.	Fairy Meadow North Wollongong	Seafield House and Graduation Works*	Puckey's Estate, <mark>Squires</mark> Way, North Beach	MSP 14349 Lot 9, DP 1163861	Local	61037	Update suburb and add correct address and property description for Puckey's Estate
71.	Fairy Meadew Fernhill	House "Seacroft House"	457- 459 Princes Highway	Lot 202, DP 804501	Local	6212	Incorrect suburb for address and update street number to match property description
72.	Farmboroug h Heights	House "Non Such" / "Farmborough"	351 Farmborough Road	Lot 1, DP 628538	Local	6318	Add street number to match property description. Also Heritage Map change – table 5
73.	Farmborough- Heights Kembla Heights	4 Cottages and gardens- Cottages and Edna Walling Garden Precinct*	End of 353 Farmborough Road	Lot 17, DP 255285	Local	6496	Name updated to reflect demolition of one cottage by NPWS and add asterisk to denote archaeological site. Add street number to match property description and correct suburb. Also Heritage Map change — table 5
74.	Farmborough Heights Kembla Heights	Pit Pony Stables, PK2 Mine Precinct*	West end of 353 Farmborough Road	Lot 17, DP 255285	Local	6320	Add street number to match property description and correct suburb. Update listing name to differentiate from Pit Pony Stables at Mt Kembla Also Heritage Map change – table 5
75.	Figtree	Group of fig trees Fig Tree	Figtree Villas, 69 O'Briens Road.	Lot 124, DP 864159	Local	6293	Update name to reflect loss of some figs and add street numbers to match property description
76.	Figtree	"Greenhills" and "Hillside" and Gardens	170-190 Princes Highway	Lot 100, DP 1047547 Lots 104 -111, DP 1132818	Local	6403	Add street number and update property description to match address. Also Heritage Map change – table 5
77.	Helensburgh	Metropolitan Colliery*	Helensburgh Lot 7304 Parkes Street	MP Lease 25 Lot 7304, DP 1142152	Local	5921	Add street address to and update property description to match
78.	Helensburgh	Railway Tunnel (disused)*	Off Cawley Road	Lot 1, DP 248826 Lot 7, DP 1140314; Act No MP/Lease 35 and MP/Lease 41	Local	6345	Update property description to match mapping



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
79.	Helensburgh	Helensburgh Cemetery*	Cemetery Road	Lot 7068, Crown DP 93064	Local	6123	Add name to cemetery and update property description to match address.
80.	Helensburgh	School Residence	End of Fletcher Street	Part Lot 136, DP 752033	Local	6111	School Residence demolished. Consolidate item with same item name below (6111)
81.	Helensburgh	Cottage	12 Foster Street	Lot 294, DP 752033 Lot 100, DP 1129182	Local	6108	Original listing has been subdivided update to new property description. Also Heritage Map change – table 5
82.	Helensburgh	"Wildys"	16 Hay Street	Part Lot 4, Section 9, DP 758513 Lot 23, DP 933864	Local	6120	Update property description to match address
83.	Helensburgh	Helensburgh Primary School and site of former School Residence*	Lukin Street and Fletcher Street	Part Pt Lot 136, DP 752033, Lot 761 DP 752033	Local	6111	Add property description and consolidate with above, amend to remove Part Lot. Add playground to listing (Lot 761 DP 752033). Also Heritage Map Change – Table 5
84.	Helensburgh	Waterfall General (Garrawarra) Cemetery*	Princes Highway	Lot 4 and part of Lot 3, DP 840501 and Part of Lot 1, DP 11604 Lot 7332, DP 1160404	Local	61028	Update incorrect property description



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
85.	Helensburgh	Garrawarra Hospital including: gates and gatehouse, administration building, kitchen blocks, kitchen and store block, staff cafeteria, nurses hostel and residential houses	Old 9 Princes Highway	Lot 2, DP 840501 and Lot 4, DP 851304	Local	6486	Add street number to property address
86.	Helensburgh	Helensburgh Park, Charles Harper Monument and Pines	Parkes Street 4 Walker Street	Crown Land Lot 7065, DP 1031042	Local	6124	Two items with same LEP number consolidated to cover Park and Monument and add correct property description
87.	Helensburgh	Charles Harper monument and park	Parkes Street	Crown Land	Local	6124	Two items with same LEP number consolidated to cover Park and Monument
88.	Helensburgh	House and associated land Interwar House and Land*	43–49 Princes Highway	Lot 713, DP 752033; Lot 911 DP 752033	Local	6505	Update property description to cover extent of site including land and amend item name
89.	Helensburgh	Masonic Temple	1 - 1A Robertson Street	Lots 823 and 824, DP 752033	Local	6104	Add street number to address and update to match property description
90.	Helensburgh	Sri Venkatewara Temple	1 Temple Road	Lot 15, DP 255197	Local	6122	Add street number to address and update to match property description
91.	Helensburgh	Helensburgh Railway station	Tunnel Road Lot 9 Wilsons Creek Road	Rail reserve Part of Lot 9, DP 1129965	State	6343	Add identifying suburb to name and add property description, note Part Lot. Also Heritage Map change — table 5
92.	Helensburgh	Railway Tunnel (disused), railway platform, railway tunnels*	Corner Tunnel Road and Old Station Road	Rail reserve and Lot 10, DP 1129965, Lot 7310 Crown DP 1152384, Lot 1, DP 248826; Lot 1, DP 815356; and Lot 100, DP 839934	Local	6482	Update property description to match mapping
93.	Helensburgh	Helensburgh Railway Station	Tunnel Road	Rail reserve Part of Lot 9, DP 1129965	State	6343	Update property description to match mapping and note Part of lot 9



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
94.	Helensburgh	Railway Cottage	Corner Tunnel Road and Vera Street 3 Vera Street	Lot 1, DP 816623	Local	6107	Update address to match property description
95.	Horsley	Former Tramway alignment (former) * (see also under suburb of Cleveland)	Bong Bong Road Lot 834 Wholahan Avenue and Public Reserve 44 Mallion Avenue	Lot 601, DP 1054648; Lot 62, DP 751278 Lot 228 DP 1165205 and Lot 834 DP 1172488	Local	61069	Update address to match two Council reserves and remove private owners in Subdivision. Update property description to match address. Add asterisk to note that this is an archaeological site. Also Heritage Map change — table 5
96.	Huntley	Huntley Colliery*	Off Avendale Colliery Read Lot 101 Avendale Road	Lots 26 and 27, DP 3083 Lot 101 DP 1247603	Local	7102	Update address and property description to match mapping
97.	Huntley	Trees (former site of "Benares")*	410 Cleveland Road	Lot 101, DP 856793	Local	5979	Add asterisk to note that this is an Archaeological site Also Heritage Map change – table 5
98.	Huntley	Sunnyside Farm and Outbuildings*	Lot 1 Bong Bong Road Huntley 360 Cleveland Road	Lot 1 DP 810104 Lot 2 DP 810104	Local	61080	Add asterisk to note that this is an archaeological site and update property description to reflect subdivision. (Note: At the time of the Council Resolution dated 25 May 2020 this property was known as Lot 1 Bong Bong Road Huntley. A subdivision has since been approved and this change has now been reflected).
99.	Huntley	Site of Former "Waples" Butchery*	Lot 1 Bong Bong Road Huntley	Lot 1 DP 810104	Local	61079	Add asterisk to note that this is an archaeological site Also Heritage Map change – table 5
100.	Huntley	Site of Former Swan Homestead*	Lot 1 Bong Bong Road Huntley	Lot 1 DP 810104	Local	61082	Add asterisk to note that this is an archaeological site



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
101.	Kanahooka	Smelter Rail Route*	Former alignment behind properties fronting Thirroul Road, Edgeworth Street Avenue and William Beach Road extending between Kanahooka Road, Field Street and Webb Park	Lots 1 and 3, DP 546902	Local	61044	Update incorrect street name
102.	Kanahooka	Former Dapto Smelter*	Kanahooka Road	Lot 415 DP 1060164 Lots 10-33, 40-47, 49-53, 55, 57, 59-77, 79-101 DP 1159882, Lots 240-241 DP 1185005, Lot 1-2 DP 1203820, Lots 3- 4 DP 1203823, Lots 5-6 DP 1203822, Lots 7-8 DP 1203821, Lots 9-10 DP 1203824, Lots 11-12 DP 1203826, Lots 1-2 DP 120152, Lots 1-2 DP 1218433, Lots 1-2 1203058	Local	5953	Add affected property Descriptions to reflect Brooks Reach Subdivision
103.	Keiraville	Significant Trees in Reserve	Gipps Road Reserve, Shoobert Crescent Public reserve between Gipps Road and Shoobert Crescent	Lot 165, DP 203864	Local	6513	Simplify Address
104.	Keiraville	"Gleniffer Brae" and surrounding Sorenson Garden	Wollongong Botanic Garden, Off Murphy's Avenue 48 Murphys Avenue	Lot 3 DP 252694, Lot 1 DP 252694 and Lot 2 DP 252694	State	5940	Update property description to align with State Heritage Listing and add correct address as recommended in Gleniffer Brae CMP (Architectural Projects, 2019)
105.	Kembla Grange	Former "Barlyn" homestead site, including gardens and dairy*	105 Darkes Road	Lot B, DP 161785 Lot 202, DP 1192033	Local	6325	Add street number to address and update to match property description



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
106.	Kembla Grange	Newton Park and Gardens	451 Princes Highway, (next to Kembla Grange racecourse)	Lot 12, DP 829115 1238073	Local	5949	Add street number to address and update property description to reflect 2016 subdivision
107.	Kembla Grange	Settlers' Cometery and World War II cemetery	47 Reddalls Road	Lot 7002, DP 1055632; Lot 114, DP 771098	Local	5989	Incorrect item name and amend property description to cover whole Cemetery and update address to match
108.	Kembla Grange	Slab Hut	303 Reddalls Road and adjoining road reserve	Lot 103, DP 840320 and Road reserve	Local	6433	Update property description to include road reserve. Also Heritage Map change – table 5
109.	Kembla Grange	"Glen Ayre" Homestead	167 Sheaffes Road	Lot 1, DP 71431	Local	6322	Add street number to address
110.	Kembla Grange	"Stane Dyke" Homestead and Outbuildings	Sheaffes Road 17 Stane Dyke Road	Lot 1, DP 986796 Lot 1000 DP 1239565	Local	5976	Add name of Homestead to LEP and update property description to reflect subdivision. Also Heritage Map change – table 5
111.	Kembla Grange	West Dapto Public School and Residence (former)	150 Sheaffes Road	Lot 1, DP 795173	Local	5975	Add street number to address
112.	Kembla Grange	Settler's Cemetery	West Dapto Road Reddalls Road	Lot 113, DP 771098	Local	6327	Update name to match correct Cemetery and update address to match property description
113.	Kembla Grange	Kembla Grange Racecourse Railway Station	Corner of West Dapto Road and Princes Highway (on South Coast Rail Line)	Lot 44, DP 1189256	Local	61061	Add property description to match listed address
114.	Kembla Heights	Site of Pioneer Kerosene Works*	Between American Creek and Cordeaux Road	Part Lot 4, DP 751278 Lot 1 & 3, DP 1103781	Local	6411	Inaccurate area mapped due to uncertain location. Update property address and description to match updated mapping. Also Heritage Map change – table 5
115.	Kembla Heights	Windy Gully Cemetery*	Lot 3 560 Cordeaux Road , Windy Gully	Lot 172, DP 751278 Lot 3 DP 1103781	Local	5941	Update property description to match updated address following Council renumber project and add item name. Also Heritage Map change – table 5



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
116.	Kembla Heights	Row of Miners' Cottages and Club Room	135 595 Cordeaux Road, Windy Gully	Lot 1, DP 551243	Local	5942	Update street number to reflect Council renumbering project
117.	Kembla Heights	Former Post Office	Lot 3 Harry Graham Drive	Part Lot 160, DP 751278 Part of Lot 3, DP 1103666	Local	5946	Add address to LEP and update property description to match. Also Heritage Map change – table 5
118.	Kembla Heights	House	Lot 1 Harry Graham Drive	Lot 1, DP 986723; Lot 21, DP 1190749 and Lot 161, DP 1196124	Local	6410	Update property description to match address
119.	Kembla Heights	Mt Kembla Colliery— including site of mine workings, portal, mine air shaft and pit pony stables*	Lot 1 Harry Graham Drive	Lot 2, DP 606150 Lots 1 & 2, DP 1103666; Lot 21, DP 1190749 and Lot 22, DP 1076092	Local	7105	Update address to match property description which covers whole Colliery site
120.	Kembla Heights	Nebo Colliery*	Lot 1-3 Harry Graham Drive	Lot 1, DP 110366; Lot 1, DP 1103781 and Lot 3, DP 1103666	Local	7104	Update address to match property description which covers whole Colliery site
121.	Kembla Heights	Mine Manager's Residence	East of Lot 1 Harry Graham Drive	Part Lot 74, DP 751278 Lot 1, DP 1103666	Local	5947	Update address to match property description
122.	Lake Heights	Fig Tree	8–10 6-8 Grandview Parade	Lots 260 and 261 and 262 , DP 15174	Local	61013	Update address to match property description and update property description to match mapping
123.	Lilyvale	Shacks and cabins Royal National Park Coastal Cabin Communities	Burning Palms, Royal National Park	Let 1, DP 56059 Lot 101, DP 1193169	Local State	6483	Update significance and amend listing name and property description to match State Heritage Listing (SHR: 01878). Also Heritage Map change – table 5
124.	Lilyvale	Shacks and cabins Royal National Park Coastal Cabin Communities	Era Beach, Royal National Park	Lot 2, DP 63741 Lot 101, DP 1193169	Local State	6483	Update significance and amend listing name and property description to match State Heritage Listing (SHR: 01878). Also Heritage Map change — table 5
125.	Lilyvale	Shacks and cabins Royal National Park Coastal Cabin Communities	Little Garie Beach, Royal National Park	Lot 1, DP 752018, Mineral Leases 2 and 3, DP 752018 Lots 13 & 44, DP 752018	Local State	6483	Update significance and amend listing name and property description to match State Heritage Listing (SHR: 01878). Also Heritage Map change – table 5



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
126.	Mangerton	Mangerton Park	19 25 Eastern Avenue to end of Eirene Street Avenue.	Lot 2, DP 512389; Lot 226, DP 24688; and Lot 42, DP 27316; Lot 43, DP 27316 and Lot 5, DP 229828	Local	6280	Incorrect Address – update property description to match correct address
127.	Mangerton Coniston	Stand of Spotted Gum	Behind public reserve off Milne Crescent Lot 4 Robertson street, Coniston	Lot 4, DP 838267	Local	6404	Incorrect suburb and address update to match property description
128.	Mangerton Mount Saint Thomas	Fort Drummond including Stand of Spotted Gum	Mt Drummond, WIN TV and RAAF Site 1 Television Avenue, Mt Drummond	Lots 1 and 3, DP 208194	Local	6405	Consolidated two items under same item number 6405 to one listing. Update address to match property description
129.	Mount Saint Thomas	Fort Drummond	Television Avenue	Lots 1 and 3, DP 208194	Local	6405	Consolidated to one listing above
130.	Mangerton	Streetscape of Mature Blackbutts and Turpentine	Area around Reservoir Street, Norman Street, Meares Avenue and Eireen Street Eirene Avenue	Road reserve and Lot 14, DP 213805; Lot 1, DP 310077; Lot 2, DP 617042 and Lot 1, DP 120714	Local	6469	Incorrect street name listed, update property description to match address
131.	Marshall Mount	Marshall Mount Progress Association Hall	450 Marshall Road	Lot 1, DP 396100 and Lot 12 DP 790746	Local	61027	Update property description to match LEP mapping
132.	Mt Kembla	Post Office/Store	314 Cordeaux Road	Lot 20, DP 855333 Lot 1 & 3, DP 1216466	Local	5945	Update property description to match address. Also Heritage Map change – table 5
133.	Mt Kembla	Mt Kembla Public School and Headmaster's Residence	323–327 Cordeaux Road	Lot 4, DP 126784 Lots 1-4, DP 126784	Local	5943	Update property description to match address and update School descriptions to "public" for consistency
134.	Mt Kembla	Mt Kembla Hotel	274 Cordeaux Road	Lot 100, DP 717507	Local	5948	Add street number to address to match property description
135.	Mt Keira	Mt Keira Scout Camp	551 Mt Keira Road	Lot 1, DP 255281	Local State Nominated	6471	CMP 2019 notes state significance and add Street Number



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
136.	Mt Keira	Mt Keira Demonstration Public School	255 Mt Keira Road	Lots 1 and 2, DP 308171; Lot 1, DP 782592 and Lot 2, DP 782592	Local	5903	Update property description to match address and update School descriptions to "public" for consistency
137.	Mt Keira	Kemira Colliery*	Mt Keira Road	Part Lot 31 and Part Lot 32, DP 751299 Lot 1, DP 852788; Lot 32, DP 1191463; Lot 310, DP 1080848; Part of Lot 3100, DP 1137780 and Lot 6, DP 255281	Local	7101	Update property description to "Part of Lot" as mapping does not cover whole of Lot 3100 DP 1137780
138.	Mt Ousley	Modernist House	31 Burling Avenue	Lot 22, DP 20427 and Lot B, DP 415350	Local	6217	Update property description to match address and amend listing name
139.	North Wollongong	North Wollongong Hotel (formerly Bode's Hotel) and Group of Trees	3 Flinders Street	Lot 1, DP 654485	Local	6273	Merged with Group of Trees with same item number at rear of site
140.	North Wollongong	Group of trees	3 Flinders Street (rear of North Wollongong Hotel)	Lot 1, DP 654485	Local	6273	Consolidated with item above with same listing number
141.	North Wollongong Gwynneville	Weatherboard House	31 Foley Street, North Wollongong	Lot 12, DP 614895	Local	6245	Incorrect Suburb update to match address
142.	North Wollongong	North Beach Surf Club	Stuart Park, George Hanley Drive	Let 2, DP 228880 Lot 3, DP 1136814	Local	61035	Update property description to match address
143.	North Wollongong	Group of Norfolk Island Pines and Canary Island Palms	Stuart Park, George Hanley Drive	Lot 2, DP 228880 Lot 3, DP 1136814	Local	6283	Add correct street address and Update property description to match address
144.	Otford	Shacks and cabins Royal National Park Coastal Cabin Communities	Bulgo Beach, Lady Wakehurst Drive, Royal National Park	Lot 2, DP 63741 Lot 1, DP 56059 and Lot 21 Crown DP 1193149	Local State	6483	Amend listing name and property description. Note not Included in State Heritage Listing, remove change in significance
145.	Otford	Semi-detached Houses	4-7 1,3,5 & 7 Lady Carrington Road	Lots 4-7, DP 817562	Local	6125	Update address to match property description



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
146.	Otford	Former station masters house Former Pump Master's House Railway Cottage	40 Lady Carrington Road	Lot 2, DP 817561	Local	61029	Incorrect item description was swapped with item below
147.	Otford	Former railway cottage Former Station Masters House	42 Lady Carrington Road	Lot 1, DP 817561	Local	61001	Incorrect item description
148.	Otford	Former Headmaster's Residence	35 Station Road	Lot 1, DP 1119060 Lot 1 and 2, DP 1193918	Local	6126	Update property description to match address
149.	Otford	Otford Tunnel* and Old Railway Alignment	Between Stanwell Park/Otford on disused railway line	Lot 1, DP 668532 DP 752018	State	6131	Update property description to match existing mapping and update listing name
150.	Port Kembla	Battery Observation Post	15 25-29 Gallipoli Street	Lot 2, DP 1008216 Lot 15, DP 1138179	Local	6594	Incorrect address, update property description to match correct address
151.	Port Kembla	Remains of Original Ocean Baths*	MM Beach, Gloucester Boulevard	Lot 7008, Crown DP 1059827	Local	6477	Add name of location and update property description
152.	Port Kembla	Hill 60*, Fisherman's Beach, Boilers Point, Red Point and MM Beach*	Hill 60, Fisherman's Beach, Boilers Point and MM Beach	Lot 3, DP 86079; Lots 1 and 3, DP 531524; Lots 1 and 2, DP 614555; Reserve 71700 and 73221; Lot 1, DP 614555; Lot 1, DP 152538 and Lots 7008 7010 and 7048 7050, DP 1052504; Lot 7048, DP 1052504; Lot 7009, DP 1061649; Lot 7009, DP 1061649; Lot 7009, DP 1061648; Lot 7008, DP 1059827, Lots 1 & 2 DP 706046, Lot 2 DP 614555, Lot 90 DP 200729	State	61043	Consolidated several Hill 60 listings (6302, 6417, 6117) and update property description to cover whole extend of site covered by Hill 60 Conservation Management Plan
153.	Port Kembla	Saint Kliment Ohridski, Macedonian Orthodox Church	58-60-60-62 Keira Street	Lots 8 and 9, Section 3, DP 8703	Local	61012	Update address to match property description
154.	Port Kembla	Former Fire Station	99 Military Road	Lots 13 and 14, Section 3, DP 5868 Lot 1, DP 1224353	Local	6307	Update property description to match address



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
155.	Port Kembla	St Stephen's Anglican Church of Australia, including Rectory and Hall	111 Military Road	Lots 34, 35 and 36, DP 7804	Local	6305	Update property description to match address. Also Heritage Map change – table 5
156.	Port Kembla	House and Shop	123 Military Road	Lot 28, Section 4, DP 7804	Local	6311	Add street number to match property description. Also Heritage Map change – table 5
157.	Port Kembla	Site of Port Kembla Primary School*	Lot 1 Military Road	Lot 1, DP 811699	Local	6304	Update item description to reflect demolition of site following fire (Note: This item was described as Military Road, Port Kembla as per the Council Resolution dated 25 May 2020. This has since been amended to reflect the correct address).
158.	Port Kembla	Red Point/Hill 60 landscape*	Off Military Road	Lot 3, DP 86079; Lot 1, DP 531524; Lot 1, DP 614555 and Reserve 73221; Lot 2, DP 614555 and Lot 3, DP 531524	State	6417	Consolidate duplicated listing to Hill 60 listing number 61043
159.	Port Kembla	Gun emplacement, tunnels and isolated concrete bunkers*	Illowra Battery, Hill 60, Boilers Point	Lot 1, DP 531524; Lot 1, DP 614555 and Lot 2, DP 614555	State	6417	Consolidate duplicated listing to Hill 60 listing number 61043
160.	Port Kembla	Port Kembla Olympic Pool	Olympic Boulevard <mark>e</mark>	Lot 2, DP 345786 and Lot 51, DP 1047304	Local	6431	Address spelt incorrectly add extra lot to cover whole Pool site. Also Heritage Map change – table 5
161.	Port Kembla	Coomaditchie Lagoon and surrounds*	Parkes Street Cowper Street	Lot 1, DP 182391	Local	6424	Update name as per correct spelling. Update address to match property description. Also Heritage Map change – table 5
162.	Port Kembla	Former Commonwealth Bank	31–33 Wentworth Street	Lot 3, Section 6, DP 5868	Local	6308	Update item description to match current building use
163.	Port Kembla	"Guinery's", Port Kembla Hotel	54–58 Wentworth Street	Lots 31 and 32, Section 2, DP 5868	Local	6421	Update property description to match address. Also Heritage Map change – table 5



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
164.	Primbee	Fig Tree	Reserve corner James Avenue and Korungulla Avenue Crescent, Primbee (Ray Crump Oval)	Lots 159 and 160, DP 9753	Local	61014	Update incorrect street name
165.	Russell Vale Corrimal	South Bulli Colliery*	Broker Street Lot 1 and 7 Princes Highway	Lot 31, DP 1006012 Lot 1, DP 1046070; Lots 1, 2 & 3, DP 1052074; Lot 1, DP 77407; Lot 1, DP 534522; Lot 1, DP 976144; Lot 1, DP 986676; Lot 1, DP 652833; Lot 1, DP 1022945 and Lots 1 & 2, DP 5323	Local	5928	Incorrect address and suburb update to match curtilage of Colliery and update property description to match address
166.	Russell Vale	Moreton Bay Fig	Russell Vale Golf Course, 618 Princes Highway	Lot 855, DP 1105102	Local	6211	Add Street address of golf course to match property description. Also Heritage Map change – table 5
167.	Russell Vale	Hills Figs-Fig Trees	50 Terania Street	Road reserve and Lot 25 DP 23149	Local	6202	Update item description to reflect two species of Figs present and add street number to address and update property description to match. Also Heritage Map change – table 5
168.	Scarborough	Scarborough Public Primary School	371–381 Lawrence Hargrave Drive	Lots 18-29, Section 2, DP 2281	Local	6137	Update property description to match address and Update School descriptions to "public" for consistency
169.	Scarborough	Row of Miners' Cottages	438, 440, 442, 443, 444, 445, 449, 453 and 453A Lawrence Hargrave Drive.	Lot 23, DP 740434; Lot 24, DP 740434; Lot 25, DP 740434; Lot 26, DP 740434; Lot 7, Section B, DP 2693; Lot B, DP 431274; Lot C, DP 431274; Lot 90, DP 835584 and Lot 91, DP 835584	Local	6351	Update Address to match property description
170.	Scarborough	Scarborough Railway Station	Scarborough Lot 1 Railway Avenue	Rail reserve-Part of Lot 1, DP 811416	State	6349	Add street address and update property description to match, note Part of Lot 1 Also Heritage Map change – table 5



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
171.	Stanwell Park	Otford Tunnel and Old Railway Alignment*	Chellow Dene Drive Avenue	Lot 1, DP 668532 Lot 5 DP 1191773, Lot 216 DP 822230, Lot 35 DP 245198, Lot 451 DP 1129219, Lot 90 DP 1091722 and Chellow Dene Avenue Road Reserve.	Local	6131	Update property description to match existing mapping and add Road Reserve
172.	Stanwell Park	"Interbane"	26 8 Lawrence Hargrave Drive	Lot 100, DP 1012889	Local	6346	Update address to match property description
173.	Stanwell Park Stanwell Tops	Lawrence Hargrave Memorial Park	Bald Hill Lookout, Otford Drive Road	Lot 237, DP 5858 Lot 243, DP 658560; Lot 244, DP 658561; Lot 245, DP 658562; Lot 246, DP 658563; Lot 247, DP 658564; Lot 248, DP 658565; Lots 237 & 238, DP 1155156; Lots 239 & 240, DP 11555165; Lot 1, DP 1180011; Lot 4, DP 1191773; Lots 230-236, DP 5858; Lot 1, DP 118841, Lot 1, DP 118842 and Lot 1, DP 309491	Local	5918	Incorrect street name and suburb and update property description to cover curtilage of park. Also Heritage Map change – table 5
174.	Stanwell Park	"Hillcrest"	1A Railway Crescent	Part Lot 58, DP 752054 Lot 5800, DP 1132696	Local	5901	Add street number to listing and update property description to match
175.	Stanwell Park	Railway Viaduct*	Stanwell Creek Gorge	Rail reserve Lot 11, DP 1132791	State	5920	Add correct property description
176.	Stanwell Tops	Former Garden of Peace	Corner Longview Crescent and Stonehaven Road 31 Stonehaven Road	Lot 1, DP 213038	Local	61002	Update address to match property description



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
177.	Tarrawanna	Corrimal Colliery*	Lot 2 Hawthorn Street	Lot 2, DP 793302	Local	6480	Add street number to address
178.	Tarrawanna Fernhill	Farrell Park	Douglas Road, Wallace Road and Ross Street	Lot 38, DP 35954	Local	6221	Incorrect suburb
179.	Thirroul	Massandra and Ballinderry	16–24 Fords Road	Lots 1 and 2, DP 618432 Lot 2, DP 618432, Lot 1 DP 656988 and Lots 11 & 12, DP 1187593	Local	6353	Include second house in item description and update property description to match address. Add Lot 1 DP 656988 historic tennis court site as per owners recommendation Also Heritage Map Change – See Table 5
180.	Thirroul	Fig Tree (Ficus obliqua)	54 –58 Fords Road , on the boundary of No 50 , 3 and 5 Sylvan Way	Let 27, DP 1062555 Lot 1, DP 1141284; Lot 2, DP 855965 and Lot 3, DP 855965	Local	6492	Update address and update property description to match
181.	Thirroul	Fig Tree	32A - 32B Hewitts Avenue	Part Lot 20 and Part Lot 21, DP 13365 Lots 202 and 203, DP 1158352	Local	61005	Add street number to address and update property description to match
182.	Thirroul	Former Kings Theatre	264–270 Lawrence Hargrave Drive	Lot 100, DP 1104635 Lot 101, DP 1126857	Local	6155	Update property description to match address
183.	Thirroul	War Memorial WWI (adjacent to former RSL club)	345 Lawrence Hargrave Drive	Part Lot 4, DP 661367 Lot 107 DP 1156609	Local	6162	Update property description to match address
184.	Thirroul	Small Leafed Fig	346, 352 and 354 Lawrence Hargrave Drive	Lot 3, DP 984203; Lot 5, DP 984203 and Lot 1, DP 1221078	Local	6172	Add street numbers to address and update property description to match
185.	Thirroul	Old Railway Barracks	Corner Lawrence Hargrave Drive and Church Street 5 Church Street	Rail reserve Lot 1, DP 1187295	Local	6498	Correct address and update property description to match. Also Heritage Map change – table 5
186.	Thirroul	Thirroul Railway Station	Railway Parade	Rail reserve Part of Lot 107, DP 1156609	State	6352	Add correct property description. And note Part of Lot 107. Also Heritage Map change – table 5



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
187.	Thirroul	Row of Federation Houses	2, 4 and 6 Raymond Road	Lot 301, DP 1041575	Local	6167	Update listing name
188.	Thirroul	Thirroul Beach Reserve	The Esplanade Cliff Parade	Part Lot 405, DP 881119; Lots 30 - 33, Section 3, DP 2185 and Lot 1, DP 964636	Local	6171	Correct address and update property description to cover extent of reserve
189.	Unanderra	House "Nudjia"	83A Cummins Street	Lot 23, DP 245683 Lot 2, DP 1135561	Local	6426	Update address to reflect subdivision and update property description to match. Also Heritage Map change – table 5
190.	Unanderra	Former Unanderra Council Chambers and Hall	Corner Princes Highway and Factory Street 144 Princes Highway	Lot 1, DP 860110	Local	6317	Update address to match property description and correct name
191.	Unanderra	Old Unanderra Public School, formerly Charcoal Public School	136 Princes Highway Corner Princes Highway and Victoria Street	Part Lot 2, DP-795162 Lot 100, DP 1186122	Local	6427	Add correct street address and update property description to match address. Also Heritage Map change – table 5
192.	Unanderra	Unanderra Station Master's Residence	Lot 1000 Princes Highway Unanderra Railway Line	Rail reserve Lot 1000, DP 1141456	Local	6428	Add correct property description and update address to match
193.	West Wollongong	Former Roger Therry residence "Keera Vale"	30 Bukari Street	Lot 1, DP 206947	Local	5912	Add name of house to property description
194.	West Wollongong	Moreton Bay Fig	55-59 Princes Highway	Lot 1, DP 839750	Local	6292	Update address to match property description
195.	West Wollongong	Former Mt Keira Inn*	55-59 Princes Highway	Lot 1, DP 839750	Local	6408	Update address to match property description
196.	Windang	Norfolk Island Pines	Shellharbour Road Perkins Beach, Fern Street	Road reserve Lot 7015, DP 1029497	Local	6312	Add correct address and update property description to match



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
197.	Wollongong	Former cemetery* Pioneer Rest Park*	Bank Street Kembla Street - Pioneer Rest Park	Unknown Lot 7045, DP 1126831	Local	61038	Add property description and update address to match
198.	Wollongong	Crane Pedestal	Belmore Basin— Wollongong Harbour Endeavour Drive	Wollengeng Harbour Lot 1 DP 633814	Local	6399	Add property description and update address to match
199.	Wollongong	Wollongong Town Hall and Former Council Chambers (now Art Gallery)	Burelli Street (Corner of Kembla Street) 93 Crown Street and 46 Burrelli Street	Lots 1-7, DP 124277; Lot 1, DP 1103977; Lot 1, DP 1108973; Lots 1-6, DP 1131686 and Lot 1, DP 949697 Lots 1-5, DP 1131686 and Lot 1, DP 1161730	Local	6381	Add correct street address and update property description to match
200.	Wollongong	Victorian House	71A-75 Campbell Street	Lot 2 Lot 12, DP 884323	Local	6230	Add correct street number and update property description to match address and update listing name to match Statement of Significance
201.	Wollongong	Wollongong Primary Public School and Former Headmaster's Residence*	67A Church Street	Lots 1–7, DP 781988; Lot 1, DP 61915 and Lots 1 and 2, DP 307856; Lot 1 DP 340380	Local	5935	Consolidated with other item with same item number. Update School descriptions to "public" for consistency, add asterisk to denote archaeological site. Add lot 1 340380 to match mapping amendment. Also Heritage Map change – table 5
202.	Wollongong	Former A <mark>l</mark> lowrie Terrace	69–71 Church Street	Lot 1, DP 126603 and Lot A, DP 163539	Local	6389	Incorrect spelling of item name
203.	Wollongong	St Michael's Anglican Church of Australia including church hall and rectory and Significant Trees	74 Church Street	Lot 102, DP 1101956	State	5905	Update item description to include trees on grounds and consolidate with item below with same listing number
204.	Wellengeng	St Michael's Anglican Church of Australia trees in ground (excluding those west of old rectory)	74 Church Street	Lot 102, DP 1101956	Local	5905	Consolidated with above with same item number



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
205.	Wollongong	Canary Island Date Palms	84 Church Street— MacCabe Park	Part Lot 12, DP 524803 and Lot 1, DP 227811	Local	6587	Add street number to address to match property description
206.	Wollongong	Memorial arch	Church Street— MacCabe Park	Part Lot 12, DP 524803	Local	6324	Consolidated with item below with same listing number
207.	Wollongong	Wollongong War Memorial and Frank Andrews Monument	84 Church Street— MacCabe Park	Part Lot 12, DP 524803	Local	6324	Add street number to address to match property description and update item description to include both the War Memorial and Monument. Add correct name to monument as per Resolution of Council 07 May 2005
208.	Wollongong	Smiths Hill Fort	Battery Park, Cliff Road	Lot 69 and Lot 70, DP 751299	Local State	5934	Add correct address and property description and reflect state heritage listing (SHR: 01823). Also Heritage Map change – table 5
209.	Wollongong	Remains of Mt Keira Osborne Wallsend Tramway Bridge	Cliff Road—Osborne Park	Lot 1, DP 62257 Lot 12, DP 212648	Local State	6367	Update property description to match address and reflect state heritage listing (SHR: 01823)
210.	Wollongong	Railway Cuttings and Embankments	Cliff Road—Wollongong Foreshore from North Beach to Belmore Basin	Lot 70, DP 751299	Local State	6306	Reflect state heritage listing (SHR: 01737)
211.	Wollongong	House Alice Villa	117 Corrimal Street	Lot 101, DP 827740	Local	6234	Add house name
212.	Wollongong	Gravestones	9–11 Crown Street— Andrew Lysaght Park	Lots 1–5 and 7, DP 1091530	Local	6383	Consolidated with item below with same listing number
213.	Wellengeng	Monument	9-11 Crown Street— Andrew Lysaght Park	Lots 1-5 and 7, DP 1091530	Local	6383	Consolidated with item below with same listing number
214.	Wollongong	Former Roman Catholic cemetery including gravestones and monument*	9–11 Crown Street — Andrew Lysaght Park	Lots 1 - 5 and 7 Lots 1-7, DP 1091530 and Lot 143, DP 786508	Local	6383	Update property description to match address and consolidate Gravestones and monument that are part of Cemetery into one listings with same number
215.	Wollongong	Norfolk Island Pine	93 Crown Street	Lot 7, DP 124277 Lot 1, DP 1161730	Local	6285	Update property description to match address



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
216.	Wollongong	Central Chambers Shop known as 83 Church Street	151 149-161 Crown Street (part)	Lot 1, DP 53763 Lot 1, DP 1094311	Local	6232	Item is not "Central Chambers" Building Error in listing name – Delete proposed amendment and update listing name to reflect historic postal address.
217.	Wollongong	Former Marcus Clark Building	281–291 Crown Street	Lot 1, DP 927806; Lot 1, DP 1087986; Lot 1, DP 82673; and Lot 1, DP 117019 and Lot 1, DP 1198873	Local	6474	Update property description to match address
218.	Wollongong	City Pacific International (former Crown Hotel) Former Crown Hotel	309 Crown Street	Lot 1, DP 807229	Local	6241	Update item description to simplify
219.	Wollongong	Tattersall's Hotel	329-333 Crown Street	Lot 1, DP 807229 DP 222491	Local	6242	Add correct street number and update property description to match
220.	Wollongong	Group of Fig Trees	348–352 Crown Street (grounds of Wollongong Hospital)	Lot 95, Section 3, DP 1258 Lot 200, DP 1206575	Local	5939	Update property description to match address
221.	Wollongong	Wollongong Hospital Nurses' Home	348–352 Crown Street (Wollongong Hospital Site)	Lot 95, Section 3, DP 1258 Lot 200, DP 1206575	State	5939	Update property description to match address
222.	Wollongong	Moreton Bay Fig	363-373 Crown Street- (adjacent to Masonic Club)	Lot 1, DP 201949 and Lot 100, DP 1214547	Local	6290	Add correct street number and update property description to match
223.	Wollongong	Moreton Bay Fig	Beatson Park, Crown Street	Lot 12, DP 5507 Lots 1 & 2, DP 1115021	Local	6286	Update property description to match address
224.	Wollongong	House "Hillside"	12 Edward Street	Lot 7, DP 15904	Local	6372	Add name of house to item description
225.	Wollongong	Site of Cokeworks, including remains of coke oven*	Endeavour Drive - Belmore Basin	Part Lot 1, DP 633814	Local State	6406	Reflect state heritage listing (SHR: 01823)
226.	Wollongong	Stone Steps	Endeavour Drive— Belmore Basin— connecting Endeavour Drive to Wharf Area	Lot 1, DP 739591 and Part Lot 1, DP 633814	Local State	6364	Reflect state heritage listing (SHR: 01823). Also Heritage Map change – table 5



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
227.	Wollongong	Harbour Steps	Endeavour Drive— Belmore Basin—north- eastern side	Lot 1, DP 739591 and Part Lot 1, DP 633814	Local State	6418	Reflect state heritage listing (SHR: 01823)
228.	Wollongong	Breakwater Light House	Endeavour Drive—End of Breakwater, Wollongong Harbour	Part Lot 1, DP 633814	Local State	5906	Reflect state heritage listing (SHR: 01823)
229.	Wollongong	Flagstaff Hill Fort	Endeavour Drive— Flagstaff Hill	Lots 1 and 2, DP 222318	Local State	5933	Reflect state heritage listing (SHR: 01823)
230.	Wollongong	Wollongong Head Lighthouse	Endeavour Drive— Flagstaff Hill	Lots 1 and 2, DP 222318	Local State	6375	Reflect state heritage listing (SHR: 01823)
231.	Wollongong	Three Guns	Endeavour Drive— Flagstaff Hill	Lot 7024, DP 1072640; Lots 7039–7042, DP 1066112 and Lot 7046, DP 1066112, MSP 2623 Lot 7041, DP 1066112	Local State	6376	Reflect state heritage listing (SHR: 01823)
232.	Wollongong	Seawall*	Endeavour Drive, Flagstaff Point	Lot 7024, DP 1072640; Lots 7039–7042, DP 1066112 and Lot 7046, DP 1066113 MSP 2623 Lot 7040, DP 1066112	Local State	6344	Reflect state heritage listing (SHR: 01823)
233.	Wollongong	Ladies' Baths	Endeavour Drive, south of Flagstaff Point	Lot 7024, DP 1072640; Lets 7039 7042, DP 1066112 and Lot 7046, DP 1066113, MSP 2623	Local State	6373	Reflect state heritage listing (SHR: 01823)
234.	Wollongong	Nuns' Baths	Endeavour Drive, south of Pulpit Rock	Lot 7023, DP 1072640, MSP 2623	Local State	6289	Reflect state heritage listing (SHR: 01823)
235.	Wollongong	House (former coach house) Former Coach House	10A-10B Flinders Street	Lot 101 and 102 DP 579564	Local	6274	Add correct street number to address and update property description to match and amend listing name. Also Heritage Map change – table 5
236.	Wollongong	Old Wollongong Court House	1 Harbour Street (Corner of Cliff Road)	Lot 1, DP 47921	Local State	5908	Reflect state heritage listing (SHR: 01823)
237.	Wollongong	Interwar House	32 Harbour Street	Lot 2, Section 1 , DP 152385	Local	6593	Update property description to match address and amend listing name



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
238.	Wollongong	St Mary's Convent and secondary girls' school and chapel	15 Harbour Street	Lot 100, DP 861791	Local	6248	Add Street number to match property description
239.	Wollongong	Victorian House	125-129 Keira Street	Lot B, DP 65920	Local	6253	Add correct street number to address to match property description
240.	Wollongong	Group of Interwar Shops	131–147 Keira Street	Lots 1 and 2, DP 152849, and Lot 22, DP 538099, and Lot 100 DP 1254677	Local	6255	Amend property description to match address and amend listing name (Note: At the time of the Council - Resolution dated 22 May 2020 this property description was known as Lots 1 and 2, DP 152849, and Lot 22, DP 538099 and Lot C DP 65920. The property has since been amalgamated and this change is now reflected).
241.	Wollongong	Regent Theatre	197-199 Keira Street	Lot 1, DP 330961 and Lot 18, DP 6323	State	5937	Add correct street number to address to match property description
242.	Wollongong	Small Leafed Figs	94 Kembla Street and 105–107 Church Street	Lot 1, DP 152892; Lot 1, DP 5095 Lot 101, DP 1198164 and Road Reserve	Local	6288	Update property description to match address and amend name to reflect that there is only 1 Fig remaining, as one was damaged through a traffic accident and removed
243.	Wollongong	Wollongong Railway Station Group	Lowden Square Lot 1 Railway Station Square	Part of Lot 1, DP 1001500	State	6382	Update address to match property description and note Part of Lot 1
244.	Wollongong	Bandstand and Marble Plaque Commemorating Bass and Flinders' Landing	Market Place Market Square Park Market Square, Market Street	MSP 405 Lot 1, DP 1155373	Local	6271	Add correct address and update property description to match
245.	Wollongong	Illawarra Historical Society Museum (Former Wollongong Post Office) Original Wollongong Telegraph and Post Office	11 Market Street	Lot 10, DP 1107297	State	5910	Update name and significance to reflect state heritage listing (SHR: 01940)



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
246.	Wollongong	Wollongong Congregational Church	33 Market Street	Part Lot 4, Section 2, DP 975294 Lot 4, DP 1138830	Local	6390	Update property description to match address and update item name
247.	Wollongong	Wollongong Court Houses, c1890 and c1975 Courthouse Complex	43 Market Street	Lot 4, Section 3, DP 975294 Lot 5, DP 1129967	Local	5911	Update property description to match address and update item name
248.	Wollongong	Market Square	Bounded by Market Street, Market Place and Harbour Street	MSP 405 Lot 1, DP 1155373	Local	6386	Update property description to match address
249.	Wollongong North Wollongong	Victorian House	34 Porter Street	Lot 6, Section 1, DP 11656	Local	6470	Incorrect suburb and amend listing name
250.	Wollongong	"Little Milton"	31—33 Smith Street	Lot 101, DP 591663	State	5907	Update address to match property description
251.	Wollongong	Headmaster's residence	53 Smith Street	Lots 1-4, DP 781988 and Lot 1, DP 61915	Local	5935	Consolidated with listing with same item number for Wollongong Public School
252.	Wollongong	"Llanelly" Cottage House	86 88 Smith Street	Lot 14, DP 613775 Lot 1, DP 1200134	Local	6395	Update property description to match address following redevelopment of site
253.	Wollongong	Masonic Hall	88 Smith Street	Lot 13, DP 613775 Lot 1, DP 1200134	Local	6396	Update property description to match address following redevelopment of site
254.	Wollongong	Wollongong Cemetery, including Nicholle Vault	Swan Street	Lots 1–5 and 7–20, Section 38, DP 759104, Grown Land, Folio 12, Volume 460 Closed road, and unlisted parcels within Wollengong Cemetery Lot 7025 Crown DP 1026284, Lot 54, DP 751299 and closed road	Local	6282	Update property description to match address and mapping
255.	Wollongong	Three picnic shelters in WA Lang Park	W A Lang Park, Marine Drive	Lot 7047, Crown DP 1073466- and MSP 2948	Local	6269	Amend property description to match address



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
256.	Wombarra Coledale	Sawmill*	14–18 Morrison Avenue	Lot D, DP 373278	Local	6256	Incorrect suburb
257.	Wombarra	"Aliumar" "Aliummare"	129 Morrison Avenue	Lot 6, DP 1004625	Local	6141	Incorrect item spelling
258.	West Dapto Wongawilli	Coral Vale Kitchen Building (former)	56 60 Smiths Lane	Lot 202, DP 1017684 Lot 309 DP 1203219	Local	61071	Update property and address to reflect "The Vale" subdivision of site. Also Heritage Map change – table 5 (Note: Please note the item number was described incorrectly in the Council Report dated 25 May 2020 as 7928. This has now been updated).
259.	Wongawilli	Anglican Church (former)	57 Wongawilli Road	Lot 3, DP 18020	Local	61068	Add property street address
260.	Wongawilli	Wongawilli Colliery*	Lot 422-425 Wongawilli Road	Part Lot 14, DP 255284; Lot 1, DP 321054 and Part Lot 244, Part Lot 255 and Part Lot 258, DP 751278 Lots 422-425, DP 1123956 and Lot 3, DP 255284	Local	7100	Add street number to address and update property descriptions to match address
261.	Wongawilli	Wongawilli Community Hall	82 Wongawilli Road	Part Lot 42, DP 751278 Lot 421, DP 1108957	Local	61062	Add street number to address and update property descriptions to match address
262.	Wongawilli	Wongawilli Mine Manager's Cottage (former) and Tennis Court	63 Wongawilli Road	Part Lot 14, DP 255284	Local	61067	Add street number to property address
263.	Wongawilli	Cabbage Palms and Moreton Bay Figs Moreton Bay Fig	40 Wongawilli Road Bankbook Park, Bankbook Drive	Lot 203, DP 1017684 Lot 329, DP 1207443	Local	61020	Update address to reflect subdivision and update property description to match. Update listing to reflect remaining Moreton Bay Fig.
264.	Woonona	Woonona Public Infants School	5A Gray Street	Lots 1 and 2 Lots 1- 4, DP 795373	Local	6196	Add street number to address and update property descriptions to Match. Update school description to "public" for consistency
265.	Woonona	Former Bulli Police station and Court House	329–331 Princes Highway	Lot 1, DP 199573	Local	5926	Update item description to reflect current use



	Suburb	Item Name	Address	Property Description	Significance	Item No	Reason
266.	Woonona	Former Vista Theatre	335–339 Princes Highway	Lot-2 Lots 1-3, DP 196949	Local	61008	Update property description to match address
267.	Woonona	Commercial building	373–375 Princes Highway	Lot 10, Section C , DP 605782	Local	6455	Update property description to match address
268.	Woonona	Former Woonona Uniting Church	444–448 Princes Highway 2-8 Popes Road	Let 1, DP 1109952 Lot 71, DP 1160947	Local	61007	Update item description to reflect current use and add correct address, update property description to match
269.	Woonona	Federation House	511 Princes Highway	Lot 1, DP 875602 Lot 1, DP 1139658	Local	6198	Update property description to match address and amend listing name
270.	Woonona	Pendlebury Rest Park	Corner Princes Highway and Gray Street	Lot 1, DP 956545 and Lots 1 and 2, DP 911694 Lots 100, DP 1130698	Local	6199	Update property description to match address
271.	Woonona	Rixons Pass Road— Landscape & walls	Rixons Pass	Road reserve	Local	6518	Add landscape to listing name to ensure whole feature is covered by listing
272.	Woonona	Federation House	22-24 York Road	Lot 1, DP 529997	Local	6458	Update address to match property description and amend listing name
273.	Yallah	"Yallah" House	601 Princess Highway	Lot 1, DP 156657	Local	6437	Add name of house to item description and add street number to match property description and fix typo. Also Heritage Map change – table 5



Table 5: Proposed Mapping Changes

These include minor changes to ensure the mapping accurately captures the curtilage of each item. For example:

- · Adjustment of curtilage boundaries following parcel subdivision;
- Correction of historic errors dating to pre-aerial photography mapping systems;
- Amendment of curtilages to that recommended in the West Dapto Heritage Study.

It is noted items highlighted in blue are under Wollongong City Council ownership or management:

	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
1.	Austinmer	Austinmer Railway Station	End of Moore Street Lot 1 Railway Lands	Rail reserve Part of Lot 1, DP 1149493	State	6259	Update mapping to match State Heritage listing (SHR: 01077)	1
2.	Austinmer	Uniting Church	48 Moore Street	Lot 11 & 12, Section C, DP 2111	Local	6507	Update mapping to include Lot 11 Sec C DP 2111	2
3.	Avondale	House, ("Avondale Homestead")	301 Avondale Road	Lot 224, DP 789384	Local	5916	Update mapping to reflect proposed curtilage in West Dapto Heritage Study	3
4.	Avondale	House ("Linbrook")	84 South Avondale Road	Lot 9, DP 3083	Local	5982	Update mapping to reflect proposed curtilage in West Dapto Heritage Study	4
5.	Avondale	House ("Mooreland")	384 Avondale Road	Part Lot 6, DP 3083	Local	5984	Update mapping to reflect proposed curtilage in West Dapto Heritage Study	5
6.	Brownsville	Osborne Memorial St Luke's Church and Cemetery Complex (Including Church Hall and Landscape)*	33-37 35 Prince Edward Drive	Part Lot 18, DP 751263 and Lot 18, DP 1023004 Lot 203 DP 1234890	Local	5915	Update mapping to including whole lot Boundary	6



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
7.	Bulli	Former railway route* Bulli Colliery Rail Bridge and Alignment (Former)*	Bulli Colliery to rail bridge embankments	Lot 2, DP 1094964 Lot 50, DP 1045297; Lot 52, 53, DP 1201697	Local	6257	Update mapping to remove approved subdivision, industrial lot and amalgamate with item 5988 (Note: This map has been amended following the Council Resolution dated 25 May 2020 to include Lot 50 DP 1045297 as identified in the Property Description that was omitted due to mapping error).	12
8.	Bulli	Norfolk Island Pine Beach Front Planting	Bulli Point, Point Street	Foreshore Lots 4-6, DP 7813 and Lot 1, DP 231244	Local	6191	Update mapping to capture all plantings	11
9.	Bulli	Site of Captain Westmacott's homestead"Sandon Cottage"*	Bulli Point (Sandon Point) Trig Station Sandon Point, Point Street	Lots 1 - 6 and 103, DP 7813 Lot 1 DP 231244	Local	6358	Update mapping to capture site of Sandon's Cottage and note archaeological potential	13
10.	Bulli	Memorial Obelisk	66 Park Road Lot 100 Park Road	Lot 801, DP 774190 Lot 100, DP 1141139	Local	6174 61081	Separated to be an independent item from item no. 6174. Mapped as separate item No. 61081	7
11.	Bulli	St Augustine Anglican Church of Australia and Cemetery*	66 Park Road	Lot 801, DP 774190	Local	6174	Separated to be an independent item from item no. 61081. Mapped as separate item No. 6174	8



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
12.	Bulli	Federation House, Former Anglican Rectory	54 - 56 Park Road	Lot 1002, DP 873075	Local	6177	Update mapping to reflect subdivision and match existing lot boundary	9
13.	Bulli	House	244 Princes Highway	Lot 21, DP 1016175	Local	6183	Update mapping to reflect lot boundary	10
14.	Bulli	Victorian House	230 Princes Highway	Lot 162, DP 602341 Lot 2, DP 1130117	Local	6447	Update mapping to reflect lot boundary	14
15.	Bulli	Former Sherbrooke Union Church	Princes Highway (in Grevillea Park)	Lot 1, DP 772593	Local	6450	Update mapping to reflect location of Church	15
16.	Bulli	Former Bulli Railway Guesthouse	1 Railway Street 8 Station Street	Lot A, DP 159222 Lot 4 DP 1234087	Local	5987	Mapping Amendment to remove rear lots that are part of Woolworths development	87
17.	Bulli	Bulli Railway Station	Franklin Avenue and Railway Street Lot 100 Park Road	Rail reserve Part of Lot 100, DP 1141139	Local. State	6484	Update mapping to match State Heritage	16
18.	Bulli	Boat Sheds	Sandon Point	Lot 103, DP 7813	Local	6487	Reduce the size to reflect location of the boat sheds and align with boundary of Lot 103 DP 7813	17
19.	Bulli	Bulli Station Master's Residence	41 Park Road	Lot 1, DP 809643	Local	6500	Update mapping to reflect lot boundary	18



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
20.	Cataract Woonona	Site of former "Biddulph Farm"*	Mt Ousley Road intersection with Rixons Pass Road	Lot 30, DP 751301	Local	61064	Change to include only the eastern portion of Lot 30 DP 751301 as per recommendation of RMS Statement of Heritage Impact prepared by Artefact dated November 2016 Update suburb	85
21.	Cleveland	House ("Cleveland")	273 Cleveland Road	Lot 1, DP 194419	Local	5950	Update mapping to reflect proposed curtilage in West Dapto Heritage Study	19
22.	Clifton	Cottage	6 Clifton School Parade	Lot 200, DP 1070345 Lot 5, DP 1175954	Local	6133	Update mapping to reflect amended address and property description and location of Cottage	20 & 21
23.	Clifton	Former School Residence	30 Clifton School Parade	Let 21, DP 1123807 Lot 216 DP 1252684	Local	6134	Update mapping to reflect amended address and property description and location of Residence	22
24.	Coledale	Coledale Railway Station	Coledale Railway Street	Rail reserve Part of Lot 1, DP 1188983	Local	6350	Update mapping to reflect location of Railway complex	23
25.	Corrimal	Ziem's Shops and Outbuildings	328-330 Princes Highway	Lot 104 Lots 104 and 105, DP 1062386	Local	6463	Update mapping include Lot 105 DP 1062386	24
26.	Dapto	Memorial Wall, Dapto War Memorial Olympic Swimming Pool	Bangaroo Avenue	Lot 127, DP 242665	Local	61015	Update mapping to capture Memorial Wall	26
27.	Dapto	Bunya Pine	89 93 - 108 Princes Highway	Lot 1, DP 1050533	Local	61025	Update mapping to reflect location of the Pine	27



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
28.	Dapto	Dapto Railway Station	Station Street	Part of Lot 2, DP 856667	Local	6435	Update mapping to match NSW State Government s.170 Heritage Register curtilage	29
29.	Dapto	Mt Brown reserve Landscape Area	Mt Brown Reserve	Lot 4, DP 223746; Lot 12, DP 233464; Lot 109, DP 1050302 and Lot 22, DP 774118 and Lots 31 DP 1175058, Lot 141 DP 2239830, Lot 52 DP 1233938, Lot 6,7,9, 10 & 11 DP 1147392, Lot 50 & 51 DP 1233938	Local	6339	Amend Mapping to remove residential development and follow boundary of Council Natural Area Reserve	28
30.	Dombarton	Railway cutting— Unanderra/ Moss Vale railway line	Dombarton Lot 1 Reddalls Road	Lot 1, DP 185282	Local	6499	Update mapping to reflect lot boundary	69
31.	Farmboroug h Heights	House "Non Such" / "Farmborough"	351 Farmborough Road	Lot 1, DP 628538	Local	6318	Update mapping to reflect proposed curtilage in West Dapto Heritage Study	30
32.	Tarrawann a Fernhill	Farrell Park	Douglas Road, Wallace Road and Ross Street	Lot 38, DP 35954	Local	6221	Update mapping to reflect lot boundary	63
33.	Figtree	"Greenhills" and "Hillside" and Gardens	170-190 Princes Highway	Lot 100, DP 1047547 Lots 104 -111, DP 1132818	Local	6403	Update mapping to reflect location of House and Gardens and remove aged care development from curtilage	31
34.	Helensburgh	Cottage	12 Foster Street	Lot 294, DP 752033 Lot 100, DP 1129182	Local	6108	Update mapping to reflect subdivision and subsequent property description amendment	32



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
35.	Helensburgh	Helensburgh Primary School and site of former School Residence*	Lukin Street and Fletcher Street	Part Pt Lot 136, DP 752033, Lot 761 DP 752033	Local	6111	Add playground to listing (Lot 761 DP 752033)	88
36.	Helensburgh	Helensburgh Railway Station	Tunnel Road	Rail reserve Part of Lot 9, DP 1129965	State	6343	Update mapping to reflect location of Railway complex	33
37.	Horsley	"Reed Park" entrance gates (former)	Bong Bong Road	Lot 101, DP 617745	Local	61018	Update mapping to reflect location of gates	34
38.	Horsley	Former Tramway alignment (former)* (see also under suburb of Cleveland)	Bong Bong Road Lot 834 Wholahan Avenue and Public Reserve 44 Mallion Avenue	Lot 601, DP 1054648; Lot 62, DP 751278 Lot 228 DP 1165205 and Lot 834 DP 1172488	Local	61069	Update mapping to capture Council Reserves and remove private lots in subdivision	35
39.	Huntley	Trees (former site of "Benares")*	410 Cleveland Road	Lot 101, DP 856793	Local	5979	Update mapping to reflect lot boundary	25
40.	Huntley	House ("Glen Avon")	456 Cleveland Road	Lot 18, DP 3083	Local	5980	Update mapping to reflect proposed curtilage in West Dapto Heritage Study, with slight reduction to remove modern outbuildings	Amended 36
41.	Huntley	Site of Former "Waples" Butchery*	Lot 1 Bong Bong Road Huntley	Lot 1 DP 810104	Local	61079	Update mapping to reflect Archaeological Management Area (Ecological, 2018)	37
42.	Kanahooka	House "Rondanella"	23 Rondanella Drive	Lot 202, DP 1034062	Local	6430	Update mapping to reflect lot boundary	38
43.	Kembla Grange Dapto	Hoop Pines	Part Lot 223 Paynes Road	Part Lot 223, DP 751278	Local	6328	Correct suburb. Update mapping to reflect location of the Pines	41
44.	Kembla Grange	Slab Hut	303 Reddalls Road and adjoining road reserve	Lot 103, DP 840320 and Road reserve	Local	6433	Update mapping to capture item	42



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
45.	Kembla Grange	"Stane Dyke" Homestead and Outbuildings	Sheaffes Road 17 Stane Dyke Road	Lot 1, DP 986796 Lot 1000 DP 1239565	Local	5976	Update mapping to reflect new subdivision	40
46.	Kembla Grange	Newton Park and Gardens	451 Princes Highway, (next to Kembla Grange- racecourse)	Lot 12, DP 829115 1238073	Local	5949	Reduce proposed curtilage to capture House, historic plantings and areas of moderate – high archaeological potential (Biosis, 2016).	Amended Map 39
47.	Kembla Heights	Windy Gully Cemetery*	Let 3 560 Cordeaux Road , Windy Gully	Lot 172, DP 751278 Lot 3 DP 1103781	Local	5941	Update mapping to reflect property description amendment and location of cemetery	43
48.	Kembla Heights	Former Post Office	Lot 3 Harry Graham Drive	Part Lot 160, DP 751278 Part of Lot 3, DP 1103666	Local	5946	Update mapping to reflect location of Port Office Building	44
49.	Farmborough Heights Kembla Heights	4 Cottages and gardens Cottages and Edna Walling Garden Precinct*	End-of- 353 Farmborough Road	Lot 17, DP 255285	Local State Nominated	6496	Update mapping to match state heritage nomination	Amended 46
50.	Farmborough Heights Kembla Heights	Pit Pony Stables, PK2 Mine Precinct*	West end of 353 Farmborough Road	Lot 17, DP 255285	Local	Local State Nominate	Update mapping to capture Pit pony Stables and site of Tennis Court	45
51.	Kembla Heights	Site of Pioneer Kerosene Works*	Between American Creek and Cordeaux Road	Part Lot 4, DP 751278 Lot 1, DP 1103781	Local	6411	Update mapping to capture former location of Kerosene Works	48
52.	Lilyvale	Shacks and cabins Royal National Park Coastal Cabin Communities	Burning Palms, Royal National Park	Lot 1, DP 56059 Lot 101, DP 1193169	Local State	6483	Update mapping to match State Heritage Listing (SHR: 01878)	49,50,51



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
53.	Lilyvale	Shacks and cabins Royal National Park Coastal Cabin Communities	Era Beach, Royal National Park	Lot 2, DP 63741 Lot 101, DP 1193169	Local State	6483	Update mapping to match State Heritage Listing (SHR: 01878)	49,50,51
54.	Lilyvale	Shacks and cabins Royal National Park Coastal Cabin Communities	Little Garie Beach, Royal National Park	Let 1, DP 752018, Mineral Leases 2 and 3, DP 752018 Lots 13 & 44, DP 752018	Local State	6483	Update mapping to match State Heritage Listing (SHR: 01878)	49,50,51
55.	Mt Kembla	Post Office/Store	314 Cordeaux Road	Lot 20, DP 855333 Lots 1 and 3 DP 1216466	Local	5945	Update mapping to reflect property description amendment	47
56.	Mt Keira	Mt Keira	Mt Keira Scout Camp	551 Mt Keira Road	Lot 1, DP 255281	6471	Update mapping to reflect proposed curtilage boundary in NPWS Conservation Management Plan prepared by Robertson and Hindmarsh Pty Ltd dated June 2019	81
57.	Otford	Shacks and cabins Royal National Park Coastal Cabin Communities	Bulgo Beach, Royal National Park	Lot 2, DP 63741 Lot 1, DP 56059 and Lot 21, DP 1193149	Local State	6483	Update mapping to match State Heritage Listing (SHR: 01878)	50,51,52
58.	Port Kembla	St Stephen's Anglican Church of Australia, including rectory and hall	111 Military Road	Lots 34, 35 and 36, DP 7804	Local	6305	Update mapping to include Lot 34 DP 7804	53



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
59.	Port Kembla	Hill 60*, Fisherman's Beach, Boilers Point, Red Point and MM Beach*	Hill 60, Fisherman's Beach, Boilers Point and MM Beach	Lot 3, DP 86079; Lots 1 and 3, DP 531524; Lots 1 and 2, DP 614555; Reserve 71700 and 73221; Lot 1, DP 614555; Lot 1, DP 152538 and Lots 7008—7010 and 7048—7050, DP 1052504; Lot 7048, DP 1052504; Lot 7050, DP 1061649; Lot 7009, DP 1059827; Lot 7009, DP 1061648; Lot 7008, DP 1059827, Lot 1 & 2 DP 706046, Lot 2 DP 614555, Lot 90 DP 200729	State	61043	Consolidated several Hill 60 listings (6302, 6417, 6117) and update property mapping to match property description and cover Hill 60 Area – excluding area covered by Three Ports SEPP	Amended Map 52
60.	Port Kembla	House and Shop	123 Military Road	Lot 28, Section 4, DP 7804	Local	6311	Incorrectly mapped at 2 Third Ave, Lot 2 DP 212108. Map correct Lot and DP	54
61.	Port Kembla	"Guinery's", Port Kembla Hotel	54–58 Wentworth Street	Lots 31 and 32, Section 2, DP 5868	Local	6421	Update mapping to reflect property description amendment	55
62.	Port Kembla	Coomaditchie Lagoon and surrounds*	Parkes Street Cowper Street	Lot 1, DP 182391	Local	6424	Update mapping to reflect property description (excluding Community Centre)	56



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
63.	Port Kembla	Port Kembla Olympic Pool	Olympic Boulevarde	Lot 2, DP 345786 and Lot 51, DP 1047304	Local	6431	Update mapping to reflect the pool area as defined by Lot 2 DP 345786 and Lot 51 DP 1047304 to the south	57
64.	Port Kembla	Bomb shelter*	59 Military Road	Lot 1, DP 1037234	Local	6478	Update mapping to reflect lot boundary	58
65.	Russell Vale	Hills Figs-Group of Fig Trees	50 Terania Street	Road reserve and Lot 25 DP 23149	Local	6202	Update Mapping to reflect location of Figtrees and include reserve located on Lot 25 DP 23149	59
66.	Russell Vale	Moreton Bay fig	Russell Vale Golf Course, 618 Princes Highway	Lot 855, DP 1105102	Local	6211	Update mapping to reflect location of Figtree	60
67.	Scarborough	Scarborough Railway Station	Scarborough Lot 1 Railway Avenue	Rail reserve Part of Lot 1, DP 811416	State	6349	Update mapping to reflect State Heritage Curtilage (SHR: 01241)	61
68.	Stanwell Park Stanwell Tops	Lawrence Hargrave Memorial Park	Bald Hill Lookout, Otford Drive Road	Let 237, DP 5858 Lot 243, DP 658560; Lot 244, DP 658561; Lot 245, DP 658562; Lot 246, DP 658563; Lot 247, DP 658564; Lot 248, DP 658565; Lots 237 & 238, DP 1155156; Lots 239 & 240, DP 11555165; Lot 1, DP 1180011; Lot 4, DP 1191773; Lots 230-236, DP 5858; Lot 1, DP 118841, Lot 1, DP 118842 and Lot 1, DP 309491	Local	5918	Update mapping to reflect lot boundaries	62



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
69.	Thirroul	Thirroul Baths precinct	Bath Street Cliff Parade	Part Lot 405, DP 881119; Lots 30 - 33, Section 3, DP 2185 and Lot 1, DP 964636	Local	61030	Reduce curtilage to cover historic Beach Reserve including Thirroul pool, Pavilion and SLSC	64
70.	Thirroul	Massandra and Ballinderry	16–24 Fords Road	Lots 1 and 2, DP 618432 Lot 2, DP 618432, Lot 1 DP 656988 and Lots 11 & 12, DP 1187593	Local	6353	Include Lot 1 DP 656988 historic tennis court site as per owners recommendation.	89
71.	Thirroul	Thirroul Railway Station	Railway Parade	Rail reserve Lot 107, DP 1156609	State	6352	Update mapping to reflect State Heritage curtilage (SHR: 01269)	65
72.	Thirroul	Old Railway Barracks	Corner Lawrence Hargrave Drive and Church Street 5 Church Street	Rail reserve Lot 1, DP 1187295	Local	6498	Update mapping to reflect Lot Boundary and location of Barracks Building	66
73.	Unanderra	House "Nudjia"	83A Cummins Street	Lot 23, DP 245683 Lot 2, DP 1135561	Local	6426	Update mapping to reflect subdivision and capture the correct Lot and DP	67
74.	Unanderra	Old Unanderra Public School, formerly Charcoal Public School	136 Princes Highway- Corner Princes Highway and Victoria Street	Part Lot 2, DP 795162 Lot 100, DP 1186122	Local	6427	Update mapping to remove Woolworths development from curtilage	68
75.	West Dapto Wongawilli	Coral Vale Kitchen Building (former)	56 69 Smiths Lane	Lot 202, DP 1017684 Lot 309 DP 1203219	Local	61071	Update mapping to reflect address and property description amendments	84
76.	Wollongong	Group of Fig Trees	348–352 Crown Street (grounds of Wollongong Hospital)	Lot 95, Section 3, DP 1258 Lot 200, DP 1206575	Local	5939 5955	Remove inaccurate circle mapped over Wollongong Hospital site	74
77.	Wollongong	Old Wollongong Court House	1 Harbour Street (Corner of Cliff Road)	Lot 1, DP 47921	Local State	5908	Update mapping to reflect lot boundary	70



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
78.	Wollongong	St Francis Xavier's Cathedral	24 Crown Street (fronting Harbour Street)	Lot 1, DP 86710	Local	5932	Update mapping to reflect lot boundary	71
79.	Wollongong	Smiths Hill Fort	Battery Park, Cliff Road	Lot 69, DP 751299	Local State	5934	Update mapping to reflect lot boundary	72
80.	Wollongong	Wollongong Primary Public School and Former Headmaster's Residence	67A Church Street	Lots 1–7, DP 781988; Lot 1, DP 61915 and Lots 1 and 2, DP 307856; Lot 1 DP 340380	Local	5935	Update mapping to include all listed Lots and DPs	73
81.	Wollongong	House (former coach house)	10A-10B Flinders Street	Lot 101, DP 579564 and Lot 102, DP 579564	Local	6274	Update mapping to reflect address and property description amendments	75
82.	Wollongong	Row of Hills Figs	Burelli Street	Road reserve between Kembla Street and Church Street	Local	6284	Update mapping to reflect the location of the remaining Figtrees	76
83.	Wollongong	Stone Steps	Endeavour Drive— Belmore Basin— connecting Endeavour Drive to Wharf Area	Lot 1, DP 739591 and Part Lot 1, DP 633814	Local State	6364	Update mapping to reflect location of Stone Steps	77
84.	Wollongong	Remains of Mt Keira Osborne Wallsend tramway bridge	Cliff Road—Osborne Park	Lot 1, DP 62257 Lot 12, DP 212648	Local State	6367	Update mapping to reflect location of the tramway bridge	78
85.	Wollongong	Monument	1 Smith Street (Corner of Harbour Street)	Lot 1, DP 8441	Local	6378	Update mapping to reflect location of monument	79
86.	Wollongong	Wollongong Railway Station Group	Lowden Square Lot 1 Railway Station Square	Part of Lot 1, DP 1001500	State	6382	Update mapping to reflect State Heritage curtilage (SHR: 01289)	80
87.	Wollongong	Row of California bungalows	10–16 Robinson Street	Lot 36, Section 2, DP 1258; Lot 370, DP 1124821; Lots 38 and 39, Section 2, DP 1258	Local	6514	Update mapping to include 16 Robinson Street (Lot 39 Sec 2 DP 1258) to reflect LEP listing	82



	Suburb	Item Name	Address	Property Description	Significance	Item No	Mapping Amendment Required	Map Number
88.	Wollongong	Avenue of Norfolk Island pines	Marine Drive	Road reserve	Local	6590	Update mapping to reflect location of Avenue of Pines	83
89.	Wollongong	Small Leafed Figs	94 Kembla Street and 105–107 Church Street	Lot 1, DP 152892; Lot 1, DP 5095 Lot 101, DP 1198164 and Road Reserve	Local	6288	Mapping amendment to remove Church Street Circle Fig has been removed.	90
90.	Yallah	Yallah House	601 Princess Highway	Lot 1, DP 156657	Local	6437	Update mapping to reflect lot boundary and exclude more recent structures on site	86





Heritage Schedule Review Stage 1
Engagement Report
August 2020





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Executive Summary

Council asked the community to comment on a wide range of proposed housekeeping amendments to the Heritage Schedule of the Wollongong Local Environmental Plan 2009. The amendments were proposed after a review of the listing to ensure the Schedule is accurate and up to date.

Engagement commenced on 15 July and concluded on 19 August 2020. Feedback could be provided via the online survey, email or phone. Due to Covid-19 restrictions, no face-to-face engagement activities were planned.

A variety of methods were used to promote the engagement and invite the community to comment on the proposed changes. Council wrote to owners of Heritage properties affected by the Review. A project page on Council's engagement website including a Summary of LEP Changes document; a map book of proposed amendments to existing heritage curtilages, Frequently Asked Questions, an online survey tool, and links to further information.

The engagement was promoted via an e-newsletter to Engagement HQ's participants who were registered for updates on Heritage issues and a notice in the Illawarra Mercury. Emails were sent to key stakeholders including all Neighbourhood Forums and the Heritage Reference Group.

The on-line survey asked residents to comment on the proposed amendments listed in a summary document available on the council website. The proposed amendments appeared in five tables including: Table 1 (Proposed removals due to demolition or reassessment of significance), Table 2 (Proposed removals due to item listed in a SEPP), Table 3 (Proposed additions), Table 4 (Minor corrections to listing) and Table 5 (proposed mapping changes).

A total of 27 submissions were received, seven via the online survey, 19 via email and one phone call submission. The majority of submissions received by Council were about individual properties owned by the respondent, making detailed comments on the proposed



changes. A few submissions provided general support for all of the proposed changes. One submission made suggestions for adding items to the Heritage Listing.

All submissions received have been provided to Council's Heritage Officers for review.



Background

The Wollongong Local Environment Plan 2009 currently identifies 475 heritage items and nine Heritage Conservation Areas as being of significance. The Heritage Schedule was last substantially updated in 2009 and now requires various housekeeping amendments to reflect changes in property boundaries and property descriptions, as well as amending historic errors in items, names and descriptions.

Council at its meeting on Monday 25 May 2020 agreed to prepare a draft Planning Proposal to progress Stage 1 of the Review to make housekeeping amendments to the heritage list. The draft Proposal was sent to the NSW Department of Planning, Industry and Environment for Gateway Determination which was received on 23 June 2020.

Council placed the draft Planning Proposal for Stage 1 of the Review on public exhibition from 15 July to 19 August 2020. The exhibition period was longer than 28 days to allow for the school holiday period.

Stakeholders

Stakeholders identified prior to the commencement of the engagement period included:

- Residents
- Owners of heritage properties affected by Stage 1 Review
- Community groups such as Neighbourhood Forums and the National Trust
- Wollongong Heritage Reference Group

Methodology

The engagement ran from 15 July to 19 August 2020 and was designed to gather comment through an online survey, the engagement email or phone. A variety of communication methods were used to ensure the community were aware of the engagement. This included:

- A media releases
- A notice place in the Illawarra Mercury



- Email promoting the public exhibition sent to key stakeholders, with the invitation to share through their networks
- An e-newsletter sent to Engagement HQ's Heritage Register of Interest participants
- Letters sent to all heritage property owners in the Wollongong local government area.

Results

This section of the report provides details on the on-line participation summary (Table 1) and the feedback on the proposed amendments to the Schedule.

Table 1 presents the usage statistics for the project page on Council's website.

Table 1: Summary of online participation

Measure and Explanation	Usage
Unique Site Visits – Total number of visits to the project page	431
Aware – Total number of users who viewed the project page	329
Informed – Total number of users who opened a hyperlink or read a document	125
Engaged – Total number of users who have actively contributed to the project via the project page	7

Table 2 presents the number and type of submissions received

Table 2: Engagement participation results

Engagement activity	Participation
Survey tool	7
Phone call submissions	1
Email submissions	19



Submission results

The community was asked if they had comments on any of the 200 proposed amendment to the Heritage Schedule. The proposed amendments appeared in a Summary Document on the Council website. The amendments were presented across five tables namely: Table 1 [Proposed removals due to demolition or reassessment of significance]; Table 2 [Proposed removals due to item listed in a SEPP; or Table 3 [Proposed additions]; Table 4 [Minor corrections to listing] and a few to items on Table 5 [proposed mapping changes].

Feedback came from 27 submissions, which included seven online surveys, 19 emails and one phone submission. Submissions were received from individuals, community groups and State Government agencies.

Survey results

Those completing the online survey had the option to make specific comments on changes listed in five different tables, or general comment about the Review. Only those people responding to the online survey identified which Table there were commenting on.

Most submissions received online referred to items on Table 4 [Minor corrections to listing] and a few to items on Table 5 (proposed mapping changes). No online submissions commented on Table 1 (Proposed removals due to demolition or reassessment of significance), Table 2 (Proposed removals due to item listed in a SEPP), or Table 3 (Proposed additions).

Email submission

Email submissions commented on individual properties and did not indicate on which table the property appeared in the Summary Document.

Comments were received about properties from Helensburgh to Dapto and included comments on property descriptions and mapping changes. One submission wanted to nominate Thirroul properties for heritage listing rather than making a comment on the proposed amendments. This



submitter will be encouraged to take part in Stage 2 of the Heritage Review which will call for nomination.



File: IW-075.150.080 Doc: IC20/633

ITEM 5

POST EXHIBITION - ELECTRIC VEHICLES CHARGING INFRASTRUCTURE ON PUBLIC LAND

The uptake of Electric Vehicles (EVs) in Australia is relatively low compared to other developed countries. The low uptake is reportedly due to multiple issues including effective range concerns often referred to as range anxiety.

To support the uptake of EVs in Australia and address the issue of range anxiety, the draft Electric Vehicle Charging Stations on Public Land Policy (draft Policy) has been developed. The draft Policy sets out principles to guide prospective providers and Council for the provision, installation, operation, management, maintenance and removal of EV charging stations and supporting infrastructure on public land in the Wollongong LGA.

The draft Policy was placed on public exhibition from 18 September to 16 October 2020 and as a result 16 submissions were received. The feedback has been considered and draft Policy revised. This report recommends that the revised draft Policy be adopted.

RECOMMENDATION

Council adopt the Electric Vehicle (EV) Charging Stations on Public Land Policy.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

- 1 Submissions in Reply Report
- 2 Draft Electric Vehicle Charging Stations on Public Land Policy

BACKGROUND

EVs currently have a low uptake in Australia compared to other developed nations. A number of issues and/or consumer concerns have suppressed transition to this form of transport, including:

- the high purchase costs
- · limited model choices
- minimal availability of charging stations causing range anxiety

Whilst Council has limited ability to influence or control vehicle cost and production of EVs, it has some ability to address range anxiety through the facilitation of EV charging infrastructure.

The current emissions inventory for the City of Wollongong shows that 19% of emissions are attributed to transport. The shift to sustainable transport alternatives such as EVs provides several environmental, social, economic and health benefits. EVs generally are more affordable to operate and maintain, are more environmentally friendly due to lower emissions and reduced air pollution and have longer-term fuel security compared to vehicles with internal combustion engines.

Given the potential for EV's to reduce greenhouse gas emissions, the development of a draft Policy is identified as an action in the Climate Change Mitigation Plan 2020 adopted by Council in November 2020:

T3 Develop and adopt an Electric Vehicle Charging Stations on Public Land Council Policy, addressing public access and range anxiety.

The draft Policy has been developed to ensure that providers are aware of Council's expectations and outlines the public procurement process, site selection criteria and design requirements, lease/licence requirements and roles and responsibilities.



At its meeting of 31 August 2020, Council was presented with a report on the draft Policy and resolved that -

- 1 That the draft Electric Vehicle Charging Stations on Public Land Policy be placed on public exhibition for a minimum 28-day period.
- 2 Following public exhibition, a further report be provided to Council on the submissions received and make recommendations relating to adoption of the Policy.

The draft Policy was placed on public exhibition from 18 September to 16 October 2020 and as a result 16 submissions were received. A summary of the issues raised and proposed response, is provided under the Consultation and Communication heading of this report. A detailed Submissions in Reply Report is also provided (see Attachment 1).

PROPOSAL

The draft Policy sets out the key considerations that Council must look at when determining suitable locations in negotiation with providers. These include factors such as proximity to tourist locations, eateries, recreational areas and amenities; sufficient car space; adequate power supply; accessibility at all times of the day and for persons of varied mobility; traffic flow and management of the proposed site; community safety and the overall environmental impact of the infrastructure.

Wollongong is a popular day trip and short stay destination. Charging stations are a valuable mechanism for encouraging tourism and business interaction, particularly if they are placed in publicly accessible areas and locations nearby eateries, shopping centres, parks, recreational areas and other amenities such as restrooms.

All submissions received during the public exhibition period were supportive of the policy development. The issues raised in the submissions have been considered by Council staff and used to prepare a revised draft Policy (Attachment 2). As a result of the feedback the revised draft Policy now includes aspirational wording regarding the use of renewable energy to power charging stations.

It is recommended that the updated draft Policy be adopted by Council.

CONSULTATION AND COMMUNICATION

The draft Policy was placed on public exhibition on Our Wollongong online HQ for a period of 29 days from 18 September to 16 October 2020. Council staff also made direct contact with key EV charging station providers and suppliers including EVIE, NRMA, Electric Vehicle Council and Chargefox inviting them to comment on the policy.

As a result of the exhibition 233 visits to the webpage were recorded and a total of 16 submissions were received by Council.

The attached Submissions in Reply Report includes a detailed analysis of the submissions received and the proposed responses. Across the submissions, the key themes / issues raised were:

- Charging speeds
- Residential/workers charging
- Accessibility/availability
- Promotion of EVs
- Power/electricity
- Location/parking
- Renewable energy
- Leadership
- E-bikes



Other comments

The feedback received through the submissions on the draft Policy has been carefully reviewed by Council staff and has helped to inform a minor amendment to the draft Policy. Several submissions suggested amendments to the draft Policy, however many of these were not considered warranted / feasible at this time but will be considered in future reviews of the Policy. Proposed updates to the draft Policy based upon the results of the public exhibition process are included in this report.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal 'Goal 1 – We value and protect our natural environment, Goal 2 – We have an innovative and sustainable economy and Goal 6 – We have sustainable, affordable and accessible transport'. It specifically delivers on the following:

	Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
	Strategy	4 Year Action	Operational Plan Actions
1.5.1	Participate in the Global Covenant of Mayors and set emissions reduction targets for the LGA	1.5.1.1 Set an emissions reduction target and carry out actions to reduce greenhouse gas emissions through the Global Covenant of Mayors	Finalise and deliver priority actions in the Climate Change Mitigation Plan
2.2.1	Further diversify the region's economy through a focus on new and disruptive industries and green technology	2.2.1.1 The development of renewable energy products and services is supported	Seek out opportunities to incorporate green technology in Council's projects and contracts
6.1.3	Effective and integrated regional transport, with a focus on road, bus, rail and freight movement (including the port of Port Kembla)	6.1.3.1 Plan and implement an integrated and sustainable transport network	Council to work with key agencies and partners to progress the provision of an effective and integrated regional transport network

Ecological Sustainability

Adoption of the draft Electric Vehicle Charging Infrastructure Policy will support the facilitation of a greater uptake of EVs in the Wollongong LGA, helping to reduce transport emissions and therefore support our climate change mitigation efforts. Reducing greenhouse emissions is a priority area in the Sustainable Wollongong 2030: A Climate Healthy City Strategy:

A low emissions city: We will achieve net zero emissions by 2030 for Council operations, and together we will achieve net zero emissions by 2050 for the city.

Emissions reduction is also the focus of the Climate Change Mitigation Plan 2020-2022, with the Policy supporting the delivery of the following actions in the Plan:

- **T3** Develop and adopt an Electric Vehicle Charging Stations on Public Land Council Policy, addressing public access and range anxiety.
- **T4** Pursue the installation of public EV charging stations at a number of accessible locations across the City. This will consider partnerships with the State Government, charging companies, car companies or other sponsors to establish electric vehicle charging stations.

The Policy will also support the achievement of the following pledge Council has committed to under our membership to the Cities Power Partnership:

Encourage sustainable transport use such as public transport, walking and cycling through Council transport planning and design.

The Policy supports Council's Climate Emergency Declaration and our work towards achieving our Emissions Reduction Targets and will assist our community to adopt alternative sustainable transport options in order to become a low emissions city.



RISK MANAGEMENT

There are risks associated with not having guiding principles in place to support the installation of charging stations and related infrastructure in the Wollongong LGA.

The draft Policy aligns with our Climate Emergency Declaration, adopted Emissions Reduction Targets, Cities Power Partnership pledges and Climate Change Mitigation Plan actions. There is a reputational risk if Council does not support these endorsed actions.

Not having a Policy would put Council at risk of misses out on the opportunity to partner with infrastructure providers to support the uptake of EVs and connect to the wider EV network. This may also mean that the cost of installing charging stations could be solely borne by Council.

If the installation of charging stations does not occur on public land at key public areas or destination locations, this presents the risk of not meeting the requirements of infrastructure providers such as NRMA.

If chargers are placed in out-of-the-way locations, this could mean that they have low usage and it also reduces the promotional opportunity to showcase this sustainable transport alternative.

There is also the risk that EV charging technology may become redundant over time and charging stations may therefore require upgrades or removal and replacement.

FINANCIAL IMPLICATIONS

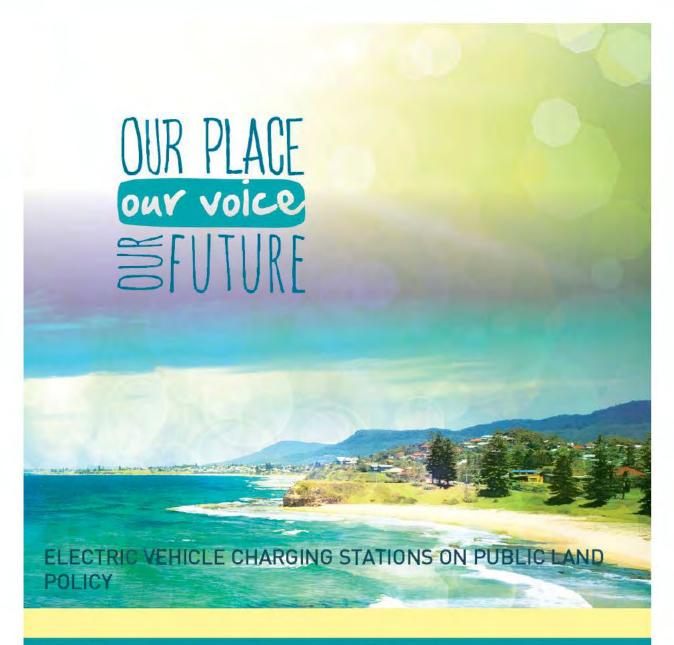
There are no direct cost implications associated with adopting the Electric Vehicle Charging Infrastructure on Public Lands Policy. If charging stations are installed through the public procurement process as detailed in the draft Policy, it is anticipated that the costs will be predominately borne by the EV provider.

CONCLUSION

The updated draft Policy seeks to provide guidance and allow for the use of public land for EV charging stations in the Wollongong LGA. Endorsement of the draft Policy will support the uptake of EVs through an increase in charging infrastructure in the city, therefore reducing the occurrence of range anxiety. It will increase public access to chargers in areas where there are eateries, restrooms, shops, recreational areas and other amenities, encouraging visitation to the area and local business interaction. The availability of charging stations in key public areas and destination locations will also allow for this technology to be promoted to the wider community.

This Policy will support our community in responding to climate change through increased feasibility of sustainable transport alternatives, helping us in our transition to a low emission city and supporting the achievement of our Wollongong City Emissions Reduction Target of net zero by 2050. It is therefore recommended that the revised draft Policy, attached to this report, be adopted by Council.





Submissions in Reply Report

December 2020





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The information in this report is based on data collected from community members who chose to be involved in engagement activities and therefore should not be considered representative.

This report is intended to provide a high-level analysis of the most prominent themes and ideas as expressed by those who participated. While it's not possible to include all the detailed feedback we received, feedback that was relevant to the project has been provided to the project manager for review and consideration.



Executive Summary

In Australia there is currently a low uptake of Electric Vehicles (EVs) compared to other developed countries reportedly due to several factors such as; high purchase costs, limited model choice and range anxiety caused by a lack of charging infrastructure. Future projections suggest that costs for EVs will reduce and there will be more options available, making them more accessible and therefore encouraging a greater uptake. An increase in the availability of charging stations/infrastructure will also support greater uptake of EVs through the alleviation of range anxiety; the fear that an EV driver will be left stranded without charge due to a lack of access to chargers.

The draft Electric Vehicle Charging Stations on Public Land Policy (Policy) was developed to assist in increasing the provision of EV charging infrastructure, with the objectives of encouraging a greater uptake of EVs and supporting the reduction of emissions attributed to the transport sector in the Wollongong Local Government Area (LGA). The Policy sets out a range of principles to guide prospective providers and Council for the provision, installation, operation, management, maintenance and removal of EV charging stations and supporting infrastructure on public land in the Wollongong LGA.

Adoption of the draft Electric Vehicle Charging Infrastructure Policy will support our climate change mitigation efforts and associated policy actions:

- · Sustainable Wollongong 2030: A Climate Healthy City Strategy
- Climate Change Mitigation Plan 2020-2022 (under the Global Covenant of Mayors program)
- Cities Power Partnership pledges
- · Climate emergency declaration

A copy of the draft Policy and the Council Report on Electric Vehicle Charging Infrastructure were placed on Council's engagement webpage (Appendix A). Social media promotion of the exhibition was posted on Council's Facebook page and Twitter (Appendix B). A couple of media stories relating to the draft Policy were published throughout July and August (Appendix C). An email was sent to key stakeholders inviting them to comment on the draft policy (Appendix D).

The response to the exhibition was as follows:

- 233 people visited the project page on Council's engagement website
- 95 learnt more about the project online by downloading the draft Policy and Council report
- 16 submissions were received via the online feedback form
- 100% of submissions were supportive of the draft Policy
- Many submissions requested minor additions, amendments or put forward other potential considerations for the draft.

The top ten themes discussed/issues raised by the community through the exhibition process were:

1. Charging speeds

Residential/workers charging

Accessibility/availability

4. Promotion

Power/electricity

6. Location/parking

Renewable energy

8. Leadership

9. E-bikes

Other comments

The feedback received through the public exhibition process has been used to prepare an updated draft Policy. The updated Policy now contains aspirational wording relating encouraging the use of renewable energy/green power, where practical, to reduce the impact of energy from EV charging on the environment. Other suggestions for change to the Policy provided in the submissions are not warranted at this time but will be considered in future reviews of the Policy.

Climate Change Mitigation Plan 2020- Engagement Report 3



Background

It is essential that Council keeps up to date with alternative sustainable transport options to support the transition from high emission vehicles such as Internal Combustion Engines (ICEs) in order to reduce emissions from this sector. EVs and related infrastructure support climate change mitigation (emissions reduction) efforts, as well as provide health, social and other environmental benefits. In comparison to standard ICE vehicles, the emissions attributed to EVs are primarily from the production and distribution of the energy required to power the vehicle. EVs are generally more cost effective to operate and maintain, they provide greater energy security through a reduced reliance on non-renewable energy/fuels and reduce air and noise pollution.

Adoption of the draft Electric Vehicle Charging Infrastructure Policy will support the facilitation of a greater uptake of EVs in the Wollongong LGA, helping to reduce transport emissions and therefore support our climate change mitigation efforts. Reducing greenhouse emissions is a priority area in the Sustainable Wollongong 2030: A Climate Healthy City Strategy -

 A low emissions city: We will achieve net zero emissions by 2030 for Council operations, and together we will achieve net zero emissions by 2050 for the city.

Emissions reduction is also the focus of the Climate Change Mitigation Plan 2020-2022 (adopted by Council as a part of our membership to the Global Covenant of Mayors program), with the Policy supporting the delivery of the following actions in the Plan -

- T3 Develop and adopt an Electric Vehicle Charging Stations on Public Land Council Policy, addressing public access and range anxiety.
- T4 Pursue the installation of public EV charging stations at a number of accessible locations
 across the City. This will consider partnerships with the State Government, charging companies,
 car companies or other sponsors to establish electric vehicle charging stations.

The Policy, when adopted, will also support the achievement of the following pledge Council has committed to under our membership to the Cities Power Partnership -

 Encourage sustainable transport use such as public transport, walking and cycling through council transport planning and design.

At its meeting of 22 July 2019, Council was presented with a report on EVs and associated charging infrastructure and (in part) resolved that:

1 Council endorse the development of an Electric Vehicle (EV) Charging Stations on Public Land Policy

In response Council staff developed a draft Policy to provide guiding principles to both Council and prospective providers for the provision, installation, operation, management, maintenance and removal of EV charging infrastructure on public land. It aimed to ensure that providers are aware of Council's expectations, and outlines the public procurement process, site selection criteria and design requirements, lease/licence requirements, and roles and responsibilities.

At its meeting of 31 August 2020, Council was presented with a report on the draft Electric Vehicle Charging Stations on Public Land Policy and resolved that -

- 1 That the draft Electric Vehicle Charging Stations on Public Land Policy be placed on public exhibition for a minimum 28-day period.
- 2 Following public exhibition, a further report be provided to Council on the submissions received and make recommendations relating to adoption of the Policy.

The draft Policy was placed on public exhibition from 18 September to 16 October 2020, as a result of this process 16 submissions to Council were received. This report provides a detailed analysis of the submissions received and the proposed responses.



How will the comments be considered?

The feedback received through the submissions on the draft Policy has been carefully reviewed by Council staff and has helped to inform an updated draft Policy. Comments from the submissions have been summarised into key themes/issues, with Council's responses and proposed changes to the draft Policy detailed in this report. Proposed updates to the draft Policy based upon the results of the public exhibition process are included in this report.

The updated draft Policy will be submitted to Council for consideration along with this Submissions in Reply report. Should it be adopted, implementation of the Policy will commence.

Methodology

The draft Policy was placed on public exhibition for a four-week period (29 days) from 18 September to 16 October 2020. Details on the communication and engagement activities undertaken are provided in Table 1 below.

Table 1: Exhibition methodologies

Methods	Details
Communication I	Methods
The Advertiser	Details about the engagement were made available in Council's Community Update pages
Email	An email was sent to four external stakeholders informing them of the exhibition and how they can provide feedback (a list of these stakeholders is provided in Appendix D)
Social Media	Posts about the engagement were made on Facebook and Twitter
Engagement Met	hods
Engagement HQ Website	An online feedback tool was used to capture participants' ideas and allowed community members to comment. The page also hosted background information and supporting documents



Results

This section provides details on the participation in engagement activities and the feedback received during the exhibition period. All identified stakeholders and the wider community were invited to provide feedback on the proposed draft Policy. Statistics relating to the response to the exhibition are provided in Tables 2 and 3.

Table 2: Summary of exhibition participation

Measure and Explanation	Usage
Aware – visited at least one page	194
Informed – number of people who clicked a link (eg to download a document), visited multiple project pages or contributed to the survey tool	73
Engaged – total number of participants who submitted the Online Feedback Form	16

Table 3: Informed visitor downloads and FAQ views

Туре	Engagement Tool / Document Name	Visitors	Downloads
Document	Draft Policy – Electric Vehicle Charging Stations on Public Land	58	67
Document	Council Report – EV Charging Infrastructure	27	28

There was a high level of support for the Policy; all submissions received were supportive of development of the Policy and its intent. Several submissions suggested amendments to be made, a summary of these provided in the following section of this report.

Online Feedback Form Results

As indicated above, webpage visitors were provided the option of completing the Online Feedback Form to communicate their thoughts on the draft Policy, a copy of which is provided in Appendix A.

The feedback form asked the community the following question:

Do you have any comments on the draft Policy?

The results of the online feedback form have been summarised into key themes/issues, as depicted in Table 4 below along with feedback provided through direct submissions.



Comments from Submissions

The comments from the 16 submissions have been categorised into 10 different themes/issues. A description of these themes/issues, key comments from the submissions and Council's proposed response and changes to the draft Policy are detailed in Table 4.

Table 4: Summary of comments from community submissions and Council's response and proposed changes

lssue No.	Issue/Theme	No. of Submissions	Key Comments	Response	Proposed changes
1	Charging speeds	2	 Seems a bit confused. On one hand you want chargers at destination where people will spend some time. On the other hand, you specify a preference for fast or super-fast charging. Super-fast charging is great on highways, where people want to stop for the minimum possible time on a trip of over 300km. They're useless at attractions and destinations because no one wants to move their vehicle after 15 minutes. For destination charging you want lots of cheap low power supplies. Rule of thumb: a few high-power chargers on highways. Many slow chargers in town. 	Council prefers fast or super-fast chargers in key locations on public land in order to allow EV owners to charge quickly and to allow for a high level of access. These chargers will also help to promote local business interaction. Slower chargers would mean that EV owners may be charging for substantial periods of time, limiting the ability for numerous people to charge their vehicles. The Policy states that charging times for EV charging station locations will be discussed in negotiations with potential providers: 'Appropriate charging time restrictions will be discussed with Council and stipulated in the lease/licence/agreement; this information must be made clear to	None required
		ra	 The policy needs to allow for lower rates charging. I suggest 20kW or above. 	users of EV charging bays.'	



Issue No.	Issue/Theme	No. of Submissions	Key Comments	Response	Proposed changes
2	Residential/workers charging	3	 Roadside charging on low power outlets also allows residents that have no off-street parking to charge. Workers coming in from outlying areas would benefit from being able to charge while working. They don't need or even want high power charging. High power chargers only need to be connected for 15 minutes or so, that means worker must stand there for 15 minutes, then move, rather than simply plugging in in the morning and unplugging when they go home. Strata management have knocked back proposals to include chargers in our own residential carpark due to ill-informed residents and generally misinformed public believing that electricity costs are being charged to the strata (and perceive their fees will go up). These facilities are mainly for tourists. The local car EV owners only require charging weekly or longer and this will mainly be [covered] at home. Tourists will require fast charging and nearby eating and other tourist attractions. 	Residential charging is outside of the scope of the Policy, as the Policy focuses on the installation of EV charging stations on public land and not privately owned land. The Policy aims to encourage EV charging infrastructure at 'destination charging' locations. Destination charging provides opportunities for both residents and visitors to the City to charge their vehicles in key locations and to explore, dine and contribute to the local economy. As such Council does not intend for charging stations to be occupied by individual EVs for long periods of time.	None required



Issue No.	Issue/Theme	No. of Submissions	Key Comments	Response	Proposed changes
			 Although it is out of scope, Council needs to ensure charging stations are fitted to high density residential buildings for residents to charge their vehicles. 		
3	Accessibility/availability	5	 Inexpensive EVs can't use high power chargers Because they are so expensive, there will only ever be a few high-power chargers, so the chance of finding that they're all in use is high and queues would make workers late for work. Expensive EVs that can use super high-power chargers generally have enough range to drive from anywhere in Sydney, to Wollongong and back without charging. If I want a fast charge in Wollongong I have to go all the way to the university. Having multiple fast chargers spread around Wollongong would be great. I totally support any plans to engage with business and other stakeholders to ensure the general public have freely accessible entry to charge EVs 24hrs a day 7 days a week. 	The Policy supports an increase in the availability of fast (or above) chargers in publicly accessible locations in the Wollongong LGA which will help to address range anxiety issues. Council prefers fast and super-fast (or above) chargers so that EV owners can charge their vehicles relatively quickly. This will allow for a higher turnover of use and therefore provide greater access to the charging stations. Charging time limits will be determined in discussion between providers and Council, with the objective that spaces are not occupied for extended periods of time. Although more expensive EV models may not need to use these charging stations for a full recharge, it will encourage people to top up and interact with local businesses and tourist locations. As EV technology continues to improve there should be a greater range of EV models that can access fast and super-fast charging.	None required



Issue No.	Issue/Theme	No. of Submissions	Key Comments	Response	Proposed changes
			 We need regular charging opportunities I'd love to see some DC chargers in Wollongong. There is only one at the Innovation Campus and it doesn't have a standard CCS Type 2 Plug. Shell Cove is nearby but it is usually faulty. Berry and Picton are more reliable but are a long way away. Sydney doesn't have any DC chargers south of the lat line. As a Tesla Model 3 owner, from several hours away, who does a lot of driving in Wollongong, Shellharbour and the Sutherland Shire every weekend, the status quo can often be infuriating. Having the charge points on public land makes them highly accessible. 	The plug connection types that will be available will determined by the type of charging stations used by providers.	
4	Promotion	4	 Will make it more appealing for people to own and operate an EV or PHEV Hopefully the widespread distribution of new type 2 and fast chargers around the Wollongong CBD and surrounding suburbs will dismantle any misinformed notions people still have about EVs and the associated infrastructure. 	The Policy supports the increase in charging infrastructure in Wollongong LGA and aims to encourage the uptake of EVs. By locating stations on accessible public areas, this will make EVs more visible to the wider community and give people confidence as to where they can charge. Locating EV charging stations in areas nearby tourist locations, shops, eateries, amenities etc. will promote and	None required



Issue No.	Issue/Theme	No. of Submissions	Key Comments	Response	Proposed changes
			 This new proposal paves a way toward a more normalised, mainstream view of what a sustainable future looks like in a city that brands itself as the "city of innovation". Advertising these new charging stations and their locations might also boost use, as people in the area will be able to buy electric cars with certainty around where they will be able to charge them. The development of EV charging points will encourage more commercial activity due to increased visitor numbers. 	encourage increased visitor numbers and local business interaction. Council will support the promotion of EV charging stations to the community. The Policy identifies that Council has a promotional role: ' making information freely available to the wider community via our website such as the location of charging stations in the Wollongong LGA.'	
5	Power/electricity	1	 Our electricity grid is a debacle of over voltage issues that will damage sensitive equipment like an EV charger if used bluntly. A better option is to buffer EV chargers through their own fixed batteries. 	The Policy states that it will be up to the provider to investigate and ensure the electricity supply is sufficient for use with EV chargers, and if not, it is the providers responsibility to organise upgrades: 'a review of the available electrical infrastructure is required prior to installation to ensure that there is sufficient existing capacity to cater for charging stationsIf the existing electrical supply is found not to have sufficient capacity, it is the responsibility of the provider to organise any upgrades that may be required.'	None required



Issue No.	Issue/Theme	No. of Submissions	Key Comments	Response	Proposed changes
				Fixed batteries in EVs chargers are not within the control of Council; this is controlled by EV providers.	
6	Location/parking	4	 Please avoid prime parking spaces at any given site for EV chargers. Giving us spaces next to, say, the entry door to a shopping centre, or something beachfront with a view, can only breed resentment. We don't need that. Something nearish to a desirable site, but off to one side, is perfectly fine. Make sure the marked spaces are longer than usual, as charge ports aren't consistently located on different cars. Consider the North Gate centre at Fairy Meadow, at the end of Mount Ousley Road. Please also give some consideration to the Clifton School Parade carpark, and/or the Mount Keira Lookout car park. Both would be showcase sites. Having them located in Council car parks and near parks/recreational areas (like the beach) would also make them a lot more useful! Noticed on trip to Goulburn and Canberra that chargers were 	It is preferred by Council that EV charging stations are located in areas nearby tourist destinations, amenities, food outlets etc. to encourage the uptake of EVs and promote visitation to the region. The exact car parking spaces that will be dedicated for EV charging at any proposed site will be determined in discussion between providers and Council, taking into consideration traffic management, public safety and other uses of the area. The Policy has a provision in the Access section that ensures that EV parking spaces will cater for the charging port locations on all types of EVs: 'EV parking spaces should cater for all types of EV charging connections used by vehicle manufacturers and the location of their charging points on all types of vehicles; this will require two existing car parking spaces per charging bay.' It is included in the Policy that providers must consider, amongst other factors, the following: 'proximity to a range of amenities, including but not limited to: restrooms,	None required



Issue No.	Issue/Theme	No. of Submissions	Key Comments	Response	Proposed changes
			available at Council owned Tourist Info Centres. Would be good to have at local libraries too. • Please consider that the charging stations are located close to eateries, comfort stops (toilets), playgrounds etc.	seating, food outlets, tourist locations ond other ottroctions.' The Policy olso states that 'the location must meet the definition of a destination location; frequented by visitors and showcases Wollongong's diverse destinations, tourist attractions and amenities.' The locations proposed by a number of submissions will be considered for future EV charging station sites.	
7	Renewable energy	1	 To align with Council's Zero Emissions 2050 goal, I strongly recommend a mandatory requirement for renewable energy to be used for charging. This can be achieved by offsets to be paid for by the consumer or installation of solar arrays to cover the power consumption. It may be possible for the tendering company to install panels on Council Buildings and donate them to Council as an offset. 	Council will not own, operate, manage or maintain EV charging stations, and therefore it is up to the provider to organise sufficient power supply and manage their use of this. Although this is the case, an amendment has been proposed for the Policy to include aspirational wording regarding Council's encouragement of the use of renewable energy/green power where practical. It is understood that the electrical grid will continue to become 'greener', sourcing more energy from renewable resources. Council will continue to monitor and respond to these opportunities as they arise, with potential for inclusion in future reviews of the policy which occur in each Council term.	The Sustainability section of Policy under Site Selection and Design Requirements has been updated to include new wording regarding renewable energy/green power as follows: 'In order to reduce the environmental impact of EV charging stations on public land in the Wollongong LGA, Council encourages the use of renewable energy or green power where



Issue No.	Issue/Theme	No. of Submissions	Key Comments	Response	Proposed changes
					practical and feasible.'
8	Council leadership	1	 I am happy to see Council taking action on more electric car charging infrastructure. The more councils take action the better as this will drive future EV updates. 	The Policy aims to guide providers and Council on using public land for EV chargers, with the objective to increase chargers in Wollongong LGA and improve community uptake of EVs.	None required
9	E-bikes	2	 It should include provision for recharging E-Bikes (unless this is already being addressed in a separate WCC strategy). I consider this "vehicle charging infrastructure" should include cycling and that if it is not given priority in ALL Wollongong Council road and infrastructure planning, design, maintenance and construction activities, then the objectives of the Cycle Strategy 2030 will not be achieved. Could we please incorporate electric bike charging points at key locations? 	The inclusion of e-bike chargers at key locations for EV charging stations needs to be carefully considered for further space and safety issues. The draft Wollongong Cycling Strategy 2030 includes reference to e-bikes in the following sections: Priority 2: Convenient: Through our education programs, we will teach our community about current and upcoming technologies such as e-bikes and how they can aid in moving around obstacles such as hills, reducing fatigue for riders and offer a more sustainable, alternative form of transport, particularly for short trips. Priority 5: Innovation: Recent advancements in electronic bicycle technologies, commonly known as e-bikes, have reduced the cost of entry and the distances e-bikes can travel between charges. E-bikes enable riders to sustain their speed for an	None required



Issue No.	Issue/Theme	No. of Submissions	Key Comments	Response	Proposed changes
				extended period of time, climb hills with ease and arrive to work, school and shops sweat-free potentially reducing the demand for shower and change facilities. Action: 5.2 Support innovative technology solutions in the cycling industry, such as smart phone apps, e-bikes and bike share schemes. Council staff are investigating opportunities for e-bike charging and will consider inclusion of provisions in future updates to this Policy or other associated strategies.	
10	Other Comments	3	 Confusion about goals and objectives in the Community Strategic Plan associated with environmental protection but then Council supports the extension of the Russell Vale coal mine. Would like to speak to someone in Council. Mountain bike track Consider smart benches that you can charge a mobile phone at key locations. 	The Russell Vale mine, mountain bike tracks and smart benches for mobile phone charging are outside of the scope of the Policy.	None required



Summary of proposed changes to draft policy

As identified above, the inclusion of wording regarding the use of renewable energy and/or green power is proposed in response to the feedback from public exhibition. This change is detailed in Table 5 below.

Table 5: Proposed wording change to draft policy

Original section wording	New section wording
Sustainability – The provision, establishment, operation, management, maintenance and removal of EV charging stations and supporting infrastructure must be in line with DCP Chapter A2: Ecologically Sustainable Development.	Sustainability – The provision, establishment, operation, management, maintenance and removal of EV charging stations and supporting infrastructure must be in line with DCP Chapter A2 Ecologically Sustainable Development. 'In order to reduce the environmental impact of EV charging stations on public land in the Wollongong LGA, Council encourages the use of renewable energy or green power where practical.'

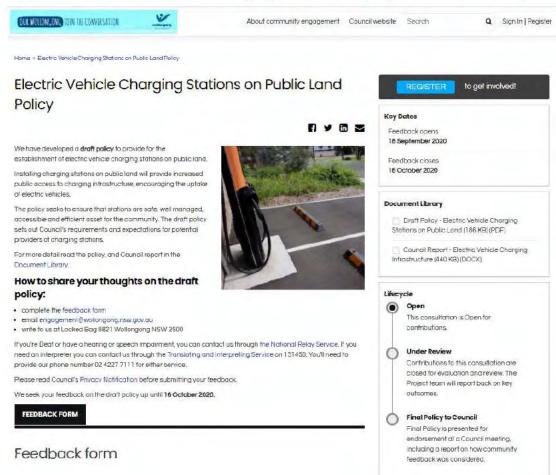
Recommendation

An updated draft Electric Vehicle Charging Stations on Public Land Policy (Policy) has been prepared based on the outcomes of the public exhibition process. The updated Policy now includes aspirational wording regarding the use of renewable energy and/or green power for EV charging stations. The Policy will support an increase in the availability of EV charging stations in the Wollongong LGA and will encourage a greater community uptake of EVs. This will support Council's Climate Emergency Declaration and the achievement of the adopted emissions reduction target of net zero emissions by 2050 for the City of Wollongong.

It is recommended that Council adopt the updated Policy.



Appendix A: Screenshot of engagement webpage for draft Policy





Appendix B: Copy of social media posts



City of Wollongong

21 September · 🔾

We are looking to power the future, and we've got a draft plan on show that will help guide the development of more electric vehicle charging stations in Wollongong M More charging stations on public land will encourage more electric vehicles, and we want to ensure that the stations are safe, well managed and an asset for our community. Learn more and leave your thoughts at https://our.wollongong.nsw.gov.au/electric-vehicle-charging...





Wollongong City @ @Wollongong_City - Aug 31

Get ready to share your thought on our policy proposal for electric vehicle charging station on public land. It'll be on public exhibition soon through our.wollongong.nsw.gov.au #wccmeeting #councilmeeting



Our Wollongong

Welcome to Wollongong City Council's online Welcome to Wollongong City Council's online community engagement site. Community engageme... @our.wollongong.nsw.gov.au



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Appendix C: Other media coverage

Media promotions related to the exhibition of the draft Policy, through various forums (other than Facebook and Twitter), as outlined in Table 7.

Table 7: Media promotion links

Media Forum	Link	
Illawarra	https://www.illawarramercury.com.au/story/6896098/electric-vehicle-charging-stations-to-spring-up-in-wollongongs-public-car-parks/	
Mercury	https://www.illawarramercury.com.au/story/6280497/push-for-more-electric-car-charging-stations-around-wollongong/	



Appendix D: External stakeholders emailed regarding the exhibition and copy of email script

- NRMA
- Electric Vehicle Council
- Charge Fox
- EVIE

Email

Good afternoon

Wollongong City Council has developed a draft Electric Vehicle Charging Stations on Public Land Policy to provide for the establishment of electric vehicle charging stations on public land.

Installing charging stations on public land will provide increased public access to charging infrastructure, encouraging the uptake of electric vehicles.

The policy seeks to ensure that stations are safe, well managed, accessible and an efficient asset for the community. It sets out Council's requirements and expectations for potential providers of charging stations.

To read the policy, and provide any feedback please visit https://our.wollongong.nsw.gov.au/electric-vehicle-charging-infrastructure-on-public-land-policy

We invite your feedback on the draft policy up until 5pm 16 October 2020.

Kind regards





ELECTRIC VEHICLE CHARGING STATIONS ON PUBLIC LAND COUNCIL POLICY

ADOPTED BY COUNCIL: "[TO BE COMPLETED BY GOVERNANCE]"

PURPOSE

The purpose of this Policy is to provide guiding principles to prospective providers and Council for the establishment, operation and management of Electric Vehicle Charging Infrastructure (EVCI) on Public Land in the Wollongong Local Government Area (LGA). This is to allow for consistency in approach and execution and ensure that providers are aware of Council's requirements and expectations.

POLICY INTENT

The main objectives of this Policy are to:

- provide guiding principles for the provision, establishment, operation and management, maintenance and removal of EVCI on appropriate parcels of Public Land in the Wollongong LGA;
- clearly outline the roles and responsibilities of the provider and Council in relation to the establishment, operation, management and removal of EVCI;
- promote visitation to the region by encouraging the placement of EVCI at desirable tourist locations to address Range Anxiety; and
- support the uptake of sustainable transport options which will aid the community in reducing emissions in the Wollongong LGA.

WOLLONGONG 2028 OBJECTIVES

This Policy supports the delivery of the following Wollongong 2028 goals:

- 'Goal 1 We value and protect our environment'
- 'Goal 2 We have an innovative and sustainable economy'; and
- 'Goal 6 We have affordable and accessible transport'.

Specifically, it contributes to the following strategies and deliverables:

Community Strategic Plan	Delivery Program
1.2.1 Reduce our ecological footprint, working together to mitigate the impacts of dimate change and reduce waste going to landfill.	1.2.1.3 Methods to reduce emissions are investigated and utilised.
1.2.2 Government and community work together to mitigate and adapt to the impacts of climate change on our environment and future generations.	1.2.2.1 Our community is proactively engaged in a range of initiatives that improve the sustainability of our environments.
1.5.1 Participate in the Global Covenant of Mayors and set emissions reduction targets for the city.	1.5.1.1 Set an emissions reduction target and carry out actions to reduce greenhouse gas emissions through the Global Covenant of Mayors.
2.2.1 Further diversity the region's economy through a focus on new and disruptive industries and green technology.	2.2.1.1 The development of renewable energy products and services is supported.
2.3.1 Build our city as a tourist destination of choice for conferences, events, and a place to live, learn, work and visit.	2.3.1.2 Support projects that investigate opportunities for the provision of tourism intrastructure.
6.3.3 Plan for effective future changes in transport including the option for disruptive transport technologies in the future.	6.3.3.1 Investigate the option for disruptive transport technologies and the impact on the future transport network



ELECTRIC VEHICLE CHARGING STATIONS ON PUBLIC LAND

COUNCIL POLICY

POLICY

Public Procurement Process

Council aims to ensure the appropriate establishment of EVCI on Public Land, that this infrastructure will be installed and operated in a safe, well-managed and sustainable as possible manner and will be an ongoing asset for the wider community.

The installation and operation of EVCI on Public Land requires the completion of a detailed public procurement process. Successful providers will be invited to enter into a lease/licence/agreement (unless other consent pathways are identified) with Council for the site.

Key aspects of the procurement process include:

- demonstrating experience, skills and resources in establishing, operating and managing EVCI
- contacting Council to discuss potential sites and design requirements
- obtaining public liability cover to the value of \$20 million
- · addressing the site selection criteria for a suitable location as outlined in this Policy
- developing a design layout of the overall EVCI site including details of parking, signage, type of charger/compatibility and requisite power supply in accordance with the design requirements outlined in this Policy; and
- · provision of a suitable management plan for operation and maintenance of EVCI.

In some instances the installation of an EV charging station will fall within the exempt development provisions of the <u>State Environmental Planning Policy (Infrastructure) 2007</u>. However, a Development Application (DA) may still be required depending on the proposed location. It is the provider's responsibility to obtain any required consents or approvals.

Site Selection Criteria and Design Requirements

The following site selection criterion and design requirements must be addressed in order for Council to progress the procurement process for the installation and operation of EVCI on Public land.

Location – The location of the EVCI must be on suitable Public Land, preferably in an off-street existing car park. Council may consider other areas of Council-owned and managed Public Land where the provider is able to demonstrate that public safety and traffic movement will be managed sufficiently. The location must be compliant with AS/NZS 60079.10.1, *Explosive gas atmospheres*.

The location must meet the definition of a destination charging location; frequented by visitors and showcases Wollongong's diverse destinations, tourist attractions and amenities.

In proposing the location the provider must consider a number of factors, including: the proximity to other EV charging points; potential impacts on the traffic flow and other uses of the area and close proximity to a range of amenities, including but not limited to: restrooms, seating, food outlets, tourist locations and other attractions. The provider must demonstrate how these factors have been addressed/considered in their submission to Council.

Discussion with Council will determine site-specific conditions which the provider will be subject to under the lease/licence/agreement arrangements.

Power – Charging stations must have suitable access to existing electrical supply. As chargers draw a significant amount of power, a review of the available electrical infrastructure is required prior to installation to ensure that there is sufficient existing capacity to cater for charging stations. Evidence must be provided to demonstrate the sufficient capacity of the grid, considering the number of charging stations proposed to be installed at any one location. If the existing electrical supply is found to not have sufficient capacity, it is the responsibility of the provider to organise any upgrades that may be required. Exceptions to this may be



ELECTRIC VEHICLE CHARGING STATIONS ON PUBLIC LAND

COUNCIL POLICY

considered in discussion with Council and if Council is already looking to upgrade electrical supply in proposed locations.

Safety – Destination Charging is likely to be in demand over extended hours and in locations that will be unmonitored. Dedicated EV parking bays shall comply with DCP Chapter E2: Crime Prevention through Environmental Design. The location of the charging stations must be easily seen by pedestrians and vehicles and be adequately lit. Parking signage must be in accordance with Australian Standard 1742. Wayfinding and safety signage are required to highlight the location of the facility and provide information on the use of charging stations, including but not limited to, parking restrictions, costs of charging and instructions. EVCI (including, but not limited to, supporting infrastructure such as signage, bollards, designated charging bay), must be managed and maintained by the provider throughout the operation of the facility to ensure continued good working order and to mitigate risks such as electrocution and trip hazards so that the provider can ensure public safety at all times.

Access – EVCI should be accessible at all times, available 24 hours a day, seven days a week and therefore must not be subject to traffic movement congestion. The location of charging stations must be connected to the wider transport network and must allow for disability access compliant with the *Disability Discrimination Act 1992*. The EV parking spaces should cater for all types of EV charging connections used by vehicle manufacturers and the location of their charging points on all types of vehicles; this will require two existing car parking spaces per charging bay. The dedicated EV parking bays are to only be used by EVs while charging; appropriate signage and labelling of dedicated EV parking bays must clearly identify this. Appropriate charging time restrictions will be discussed with Council and stipulated in the lease/licence/agreement; this information must be made clear to users of EV charging bays.

Sustainability – The provision, establishment, operation, management, maintenance and removal of EV charging stations and supporting infrastructure must be in line with DCP Chapter A2: Ecologically Sustainable Development.

In order to reduce the environmental impact of EV charging stations on public land in the Wollongong LGA, Council encourages the use of renewable energy or green power where practical and feasible.

Types of Charging Stations – Council will only accept the installation of chargers in accordance with NSW Government's EV charging standards and principles. As a minimum, chargers must meet the following performance criteria:

Fast charge 50kW.

However, it is Council's preference that provider's install:

Super-fast charge 120kW, or above.

As technology in this area develops, the provider may be required to upgrade existing charging infrastructure to meet community demand.

Leasing/Licencing Requirements

Providers are subject to the specific conditions and obligations outlined in the leasing/licencing/agreement as agreed with Council. The nature of the lease/licence/agreement will be determined on a case by case basis and will consider factors, including but not limited to, the provider, proposed site and design, maintenance obligations, public safety and legal liability, insurance requirements and desired length of operation of EVCI. Leasing/licencing of sites on Public Land must be in accordance with Council's <u>Leases and Licences of Council Owned and Managed Land, Buildings and Public Roads Policy</u>.

The acquittal process and terms of payment will be determined in lease/licence/agreement arrangements. The provider will be required to provide a security or bond to Council prior to the commencement of the lease/licence/agreement and installation of EVCI. Any further upgrade or expansion of the EVCI will be subject to further consideration and consent from Council.



ELECTRIC VEHICLE CHARGING STATIONS ON PUBLIC LAND

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Council reserves the right to terminate a lease/licence/agreement entered into with a provider of EVCI and require the removal of EVCI and supporting infrastructure if a breach of the lease/licence/agreement occurs. In these circumstances, the provider of EVCI would be required to make good the land.

Council's Role

Council will:

- ensure a fair and equitable selection of providers;
- · provide input into the development of site selection and designs for EVCI on Public Land;
- review and assess suitable applications for EVCI on Public Land; and
- promote EVCI by making information freely available to the wider community via our website such as the location of charging stations in the Wollongong LGA.

Provider's Role

Eligible providers will:

- be required to enter into a lease or licence agreement with Council;
- adhere to the site selection criteria and design requirements set out above, including all operational and environmental controls;
- be responsible for the installation (including appropriate power supply), operation, management, maintenance and removal associated with EVCI and all supporting infrastructure;
- be responsible for and bear the cost for any upgrades required for the existing electrical supply infrastructure to have the capacity to cater for EV charging infrastructure;
- remain responsible for any upgrades in plug and connection hardware that may be required as EV technology develops; and
- · provide access by arrangement, for educational or promotional activities in partnership with Council.

LEGISLATIVE REQUIREMENTS

The provider is required to comply with all relevant legislation and obtain all applicable approvals and consents. Consideration must be given to Council Policies that may apply to various aspects of the establishment, management, maintenance, operation and removal of EVCI on Public Land.

REVIEW

This Policy will be reviewed every two years from the date of each adoption of the Policy, or more frequently as required.

REPORTING

Reporting on the continued compliance with EVCI and supporting infrastructure being a safe facility ie any regular compliance certificates required during operation.



ELECTRIC VEHICLE CHARGING STATIONS ON PUBLIC LAND

COUNCIL POLICY

DEFINITIONS

Council - Refers to Wollongong City Council.

Provider - A company or organisation which provides/supplies EVCI.

Public land – As defined in the <u>Local Government Act 1993</u>, means any land (including a public reserve) vested in or under the control of the council, but does not include:

- a) a public road*; or
- b) land to which the Crown Lands Management Act 2016 applies*; or
- c) a common; or
- d) a regional park under the National Parks and Wildlife Act 1974.
- * For the purpose of this Policy, 'Public Land' includes public roads where Council is the roads authority under the *Roads Act 1993* and Crown land managed by Council.

Destination Charging – EVCI that is installed in locations frequented by tourists and visitors such as hotels, restaurants and points of interest.

Electric Vehicle (EV) – This describes a range of different vehicles that are powered by an electric motor with a battery on its own or accompanied by a fuel-powered internal combustion engine. This includes Plug-in Hybrid Electric Vehicles (PHEVs).

EV Charging Infrastructure (EVCI) – Infrastructure that supplies and supports the provision of electric energy to recharge EVs. This includes charging stations, signage, designated parking bays and all other supporting infrastructure.

Range Anxiety – The fear that when driving an EV vehicle, it will run out of charge and the driver will be stranded due to the inability to recharge.

	APPROVAL AND REVIEW	
Responsible Division	City Strategy	
Date/s adopled	Executive Management Committee [updated by policy owner]	Council [DD Mmmm YYYY]
Date/s of previous adoptions	[DD/MM/YYYY]	
Date of next review	[Not more than two years from date of last review]	



File: IW-250.60.014 Doc: IC20/624

ITEM 6

POST EXHIBITION - KEIRAVILLE - GWYNNEVILLE ACCESS MOVEMENT STUDY

On 24 February 2020, Council resolved to put the Draft Keiraville - Gwynneville Access and Movement Study on public exhibition. The public exhibition period ran from 25 February to 7 April 2020. This report provides information on the scope of the public exhibition period, the comments made by the community and changes made to the draft study as a result of feedback received.

As a result of the community feedback received, a range of updates have been made to the study overview document including additional actions for new footpaths, pedestrian crossings and traffic calming locations, as well as actions to undertake a kerb ramp audit in the precinct and an investigation of commuter parking enhancements around North Wollongong train station.

This report recommends adoption of the final draft Keiraville - Gwynneville Access and Movement Study overview and that Council note the accompanying action plan and consultant report.

RECOMMENDATION

- 1 Council adopt the final draft Keiraville Gwynneville Access and Movement Study Overview.
- 2 Council note the Keiraville Gwynneville Access and Movement Study consultant report and Action Plan.

REPORT AUTHORISATIONS

Report of: Trish McClure, Manager Infrastructure Strategy + Planning

Authorised by: Glenn Whittaker, Director Infrastructure + Works - Connectivity Assets + Liveable City

(Acting)

ATTACHMENTS

- 1 Summary of Public Exhibition Feedback
- 2 Final Draft Keiraville Gwynneville Access and Movement Study Overview
- 3 Keiraville Gwynneville Access and Movement Study Consultant Report
- 4 Keiraville Gwynneville Access and Movement Study Action Plan

BACKGROUND

Neighbourhood Forum 5, with input from the community, University of Wollongong and Council, developed the "Keiraville - Gwynneville Community Planning Project Report", which was considered by Council at its meeting of 28 April 2014. Council endorsed the report's 10 vision statements for the precinct. On 24 August 2015 Council endorsed the subsequent "Keiraville - Gwynneville Implementation Plan" comprised of a number of key actions, in particular:

An Access and Movement Study to be prepared to investigate a range of matters relating to traffic in the area, with a focus on:

- Traffic capacity in context of key destinations UOW; Hospital; Botanic Gardens; City Centre;
- Parking;
- Pedestrian Access and Safety.

Council and the University of Wollongong allocated funding to commence a "Keiraville - Gwynneville Access and Movement Study" in 2017. Following a competitive tender process, Cardno (NSW/ACT) Pty. Ltd was engaged to undertake the study based on the following key objectives:

• Examine and document the existing and future potential operation of the traffic and transport system within the suburbs of Keiraville and Gwynneville: and



 Develop strategies to improve the transport system, reduce impacts on surrounding suburbs, promote the use of sustainable travel modes and ensure that the transport network can adequately accommodate future development.

In order to identify issues affecting the traffic and transport system of Keiraville and Gwynneville, the consultant, with support from Council, carried out significant engagement with the local community and other key stakeholders. Furthermore, data was collected from a range of sources including on-site surveys of traffic and parking undertaken by Council and the University of Wollongong, site inspections, computer traffic simulations and reviews of other government plans and strategies. The study identified a range of issues relating to each of the key transport modes including pedestrian, cycling, public transport, vehicle network and car parking issues.

On 24 February 2020, Council resolved to put the Draft Keiraville Gwynneville Access and Movement Study on public exhibition. The public exhibition period ran from 25 February to 7 April 2020. Some 47 submissions were received over this period. The consultation and communication section of this report provides information on the scope of the public exhibition period, the comments made by the community and changes made to the draft study as a result of feedback received.

PROPOSAL

Community feedback received during the public exhibition period has been considered by Council staff and, as a result, a range of amendments have been made to the draft study overview document (see Attachment 1). A number of updates have also been made to the technical study report by Cardno including notes on sources of travel and parking data as well additional context given on the parking arrangements within the University of Wollongong main campus.

It is proposed that the attached final draft Keiraville Gwynneville Access and Movement Study Overview (Attachment 2) is endorsed and that the accompanying consultant report (Attachment 3) and action plan (Attachment 4) are noted.

CONSULTATION AND COMMUNICATION

Public exhibition of the draft study overview document and accompanying consultant report took place between 25 February and 7 April 2020. Notification of the public exhibition was carried out using the following methods:

- Letters were sent to all landowners/residents in the study area;
- An email was sent to all the people who took part in workshops throughout the completion of the study;
- An information pack was provided in Council's main library and customer service area that included the draft study overview and technical report;
- Media notices were placed in the Wollongong Advertiser, the local area free newspaper, and Council's social media channels;
- A project webpage was created on the Our Wollongong website and an email was sent to all users who had previously registered their interest in relevant topics.

Members of the public were directed to view the study documents either via the project website at the Our Wollongong website, the Customer Service Centre or Wollongong library. During the exhibition period there were a total of 460 visits to the project webpage by 336 users. 210 of those users opened a hyperlink on the project page or read one or both of the provided study documents. By the end of the public exhibition period, 30 submissions were made using the survey tool on the project website with a further 17 submissions made via email or letter.



On the whole people were supportive of the study having been undertaken but requested a clearer set of priorities and commitments by both Council, UOW and Transport for NSW to reduce traffic and parking impacts in the precinct.

People recognised that the University of Wollongong brings many benefits to Wollongong, however, they see the rapid growth of the University in recent years has resulted in a range of adverse impacts. There was a view that UOW should provide more on-campus parking for staff and students, with some advocating all vehicles should be accommodated on-campus. Others suggested places where timed parking could aid turnover, and there was a call for stronger enforcement to reduce the incidence of poor parking behaviour in residential streets, around schools and sports fields.

Many people see that improving pedestrian and cycling access to the main campus of the University of Wollongong needs to be a priority. Key missing cycle links and new pathways were identified with a strong need expressed for more separated bike lanes on key routes. Bicycle infrastructure such as racks and repair stations were also requested. Key locations for safety improvements at intersections, near schools and on existing bike paths and streets were put also forward.

The role of Council in advocating for the Mount Ousley interchange to be upgraded sooner was also made, as well as working with Transport for NSW and private bus operators to review routes and timetables to achieve better uptake of public transport.

As a result of the community feedback received, a range of updates have been made to the study overview document including additional actions for new footpaths, pedestrian crossings and traffic calming locations as well as actions to undertake a kerb ramp audit in the precinct and an investigation of commuter parking enhancements around North Wollongong train station. Attachment 4 provides a summary of the feedback received during the public exhibition as well as responses to issues raised including resulting amendments made to the study overview document and action plan.

Further to feedback received as part of the public exhibition phase, Council liaised with representatives from the University of Wollongong in relation to parking information and actions provided in the study consultant's report and Council's overview document. Amendments were made to provide more context on parking arrangements within the university campus and to clarify several parking data sources in the consultant's report. In addition, the draft study overview action for the investigation of paid parking on Northfields Avenue and O'Leary Road, Keiraville, was amended to be for the investigation of timed parking instead so as to not disadvantage UOW students who live on campus and other members of the UOW community.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 Goal 6 - We have affordable and accessible transport.

It specifically delivers on core business activities as detailed in the Transport Services Service Plan 2020-21.

SUSTAINABILITY IMPLICATIONS

A key objective of the study was to:

"Develop strategies to improve the transport system, reduce impacts on surrounding suburbs, promote the use of sustainable travel modes and ensure that the transport network can adequately accommodate future development."

Study action includes enhancements to walking, cycling and public transport networks as well as vehicle actions that will create safer environments for active transport. The expected resulting curbing in growth of motor vehicle use resulting from a greater take up in sustainable travel modes, for commuting trips and short distance trips in particular, will reduce carbon emissions and noise pollution.



FINANCIAL IMPLICATIONS

The Keiraville Gwynneville Access and Movement Study recommends a series of actions to improve the local transport system and its use. The study itself does not identify specific financial allocations, gaps or commitments.

Funding for the actions identified within the Plan will be considered alongside city wide projects and programs and allocated on a priority basis through the annual planning and infrastructure program development process. Funding consideration will include external funding provided and available under various State and Federal grant programs.

The Infrastructure Delivery Program (IDP) 2020/21 to 2023/24 lists the following projects recommended in the Keiraville Gwynneville Access and Movement Study:

FOOTPATHS - NEW

- Footpath link at western end of Madoline Street, Gwynneville;
- Vickery Street Acacia Avenue to Fairy Creek shared path, Gwynneville;
- Braeside Avenue full length, Gwynneville;
- Rose Street Robsons Road to William Street, Gwynneville;
- Gipps Road southern side Robsons Road to Foley Street, Gwynneville;
- Reserve Street Gilmore Street to Robsons Road; south side, West Wollongong.

CYCLE/SHARED PATHS - NEW

- Crawford Avenue Porter Street to Hay Street access, North Wollongong;
- Fairy Creek Shared Path Reserve Street to Foley Street via Gilmore Street, West Wollongong.

The IDP 2020/21 to 2023/24 also includes a road safety upgrade project on Foley Street, Gwynneville. The footpath projects listed above in Braeside Avenue, Rose Street and Gipps Road are funded by the Voluntary Planning Agreement (VPA) established between Council and the University of Wollongong executed in September 2018. This VPA also includes works to be carried out by the University of Wollongong including conversion of existing pedestrian blisters into pedestrian refuge crossing facilities for safer pedestrian movement and the installation of a new footpath along the southside from Botanic Gardens entrance westward to Robsons Road intersection.

CONCLUSION

The draft Keiraville - Gwynneville Access and Movement Study was undertaken in partnership with Neighbourhood Forum 5, the University of Wollongong and Transport for NSW following the development of the community-led Keiraville - Gwynneville Implementation Plan. The study identifies a range of issues facing the various transport modes for the precinct and actions to address them following extensive stakeholder engagement, data collection, literature review, site investigations and motor vehicle traffic analysis. Community feedback received during the public exhibition of the study showed community support for the study's aims and actions. A range of amendments were made to the study overview and incorporated into an action plan that will be considered for delivery alongside city wide projects and programs through the annual planning and infrastructure program development process.

It is recommended that Council adopt the final draft Keiraville Access and Movement Study overview and note the accompanying action plan and consultant report.



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
Cycling Actions	
Strong support for building designated, separated bike lanes on main thoroughfares around local schools, TAFE and UOW and linking schools to residential areas. These include Gipps Road, Murphy's Avenue, Foley Street and Acacia Avenue. It was noted that current bike lane markings do not provide separation, are often filled with parked cars and force cyclists into the dangerous "door zone".	Provision of separated bike lanes are not preferred for this precinct as they require removal of many parking spaces or high cost street rebuilds. Shared paths and on road paths in quiet low speed speeds are preferred. Existing bike markings in John Street are for cyclists to ride in the centre of the lane. Markings historically placed in car door zones such as in Crawford Ave have been removed.
On road cycling networks are in general more cost effective than shared paths and provide cyclists with a legitimacy that they need when their journey takes them beyond the limited shared network. They also enable cyclists to travel at higher (legal) speeds than are safe for other users of shared paths.	Agree that cost-effective solutions are preferred. Cycling connections in the precinct will be a mixture of shared paths and on road paths in quiet low speed speeds depending on the volume of traffic
Key missing links and/or new pathways were identified that will support people to cycle to/from the study area to reducing the parking and traffic problems around Keiraville and Gwynneville including: - The Smith Street cycleway and rail underpass	Council has completed a design for the upgrade of the railway underpass at Smith Street however there is currently no funding available for its construction.
- The Gipps Street overpass (mentioned in the consultant's report, but not Council's Overview) - A connection from Beaton Park to Gipps Street (east) at the northern end of Bunnings	A bridge over the railway line would provide limited benefit and would cost several million dollars to build. The preferred crossing of the railway to receive attention is the Smith Street underpass.
 Along the railway easement parallel to Denison Street A dedicated track from the University's main campus to the Innovation campus. 	A connection along the railway corridor east of Denison Street is not preferred to connections on Denison Street and Railway Parade due to the limited access points, impact on the potential future expansion of the railway line and personal security concerns.
	With the recent upgrade of the ramp from Porter Street to Flinders Street a complete shared path route exists between the University main campus and the Innovation Campus. There is an opportunity to improve wayfinding signage on this route.



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
A unique pathway through Gwynneville Park following the historical coal tram line from Mt Keira.	The study actions include a new shared path along the historical coal tram line from Gilmore Street through to Wiseman's Park with two additional proposed shared paths linking to Foley Street and Gipps Road.
Increased Safety for Riders	
Give more priority and prominence to cyclists and pedestrians at intersections, roundabouts and crossing locations, particularly high traffic intersections and freeway entrances and exits near UOW and TAFE. This includes ensuring traffic intersections at Gipps Road and Foleys Street, and Foleys Street and Porter Street can detect cyclists and installing crossing buttons for cyclists in all directions.	Study actions include crossing improvements at various key intersections surrounding the university and freeway access points. Any future cycling link projects either on shared paths or on roads will include treatment of end points and intersections to estalish clear priority between user groups focussing on cyclists and pedestrians where this can be carried out safely. When a dedicated facility for cyclists is built along Foley Street, appropriate cycling intersection treatments at Gipps Street and Porter Street will be included as part of that upgrade.
People wanted safer speed limits and installation of greater traffic calming measures in Keiraville and Gwynneville town centres and along Northfields Avenue. 30km/h being cited as the threshold of survival speed for the human body (pedestrian or cyclist) in a motor vehicle crash.	Traffic calming action added to Kieraville Village Centre
Bike speed limits should be reduced to 5km/h on shared tracks.	A 5km/hr speed limit on shared paths would reduce the attractiveness and hence participation in cycling. Furthermore shared paths do not have speed limits as bicycles do not generally carry speed measurement devices.
Improvements on Existing Routes	
Improved bike lane in both directions at Foley Street and Porter Street were requested, as the bike lane narrows dangerously heading south. Heading north, the exit ramp crosses the opposite side of the road to a shared path, encouraging riders to dismount and cross in an unsafe location.	Foley Street does not have bicycle lanes at present which require specific linemarking and signage. A shared path on the eastern side of Foley Street has been identified in the Beaton Park Masterplan
It was suggested that the Gipps Road Bridge over the Motorway is a vital link that could be improved greatly.	A future project identified in the city's Cycling Strategy 2030 for a connection on Gipps Road will involve an improvement to the bridge to make it suitable for cycling



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
If marked cycling lanes could be created on Eastern Street, Berkeley Road	The shared path on Paulsgrove Street links to the Nyrang Park shared path
and Francis Street, then this would allow considerably more cyclists to cross	via the shared path on Murphys Avenue and an on road link in John Street.
the area without heading towards the high-volume areas like University	High parking demand on Berkeley Road and Eastern Street makes it difficult
Avenue. It was also noted that there is already a great cycle path on	to reallocate this space to bike lanes.
Paulsgrove Street, but it does not link up to others.	
Bike Parking and Repair Stations	
There were requests to ensure bike racks allow frame and wheels to be locked to the bike rack, they fit multiple bikes of different sizes and styles, and keep bikes upright. It was commented that bike theft is a huge concern in Wollongong and a major barrier to increasing cycling. It would help if bike racks are located close to shop entrances and within sight lines of local businesses.	A range of bike parking types will be installed including u shaped rails which allow both wheels and frames to be locked. Post mounted rails allow parking to be installed in constrained locations but do not allow both wheels to be easily locked. NSW Police have advised that bicycle theft rates for Gwynneville and Keiraville and typical of the Wollongong area.
Lobbying bus companies and Transport for NSW to get bike racks on buses and Council to install bike rack stations near bus stops was suggested. This would be particularly useful for encouraging multi-modal trips to/from southern suburbs (where the rail line is not convenient or close by) to UOW and TAFE.	Council has made a number of enquiries with Transport for NSW regarding bike racks on buses who have advised a number of times that they do not plan to provide bike racks on buses.
There was a request to install more bicycle repair stations (like the ones at UOW and North Beach) in key locations, including at North Wollongong train station and Keiraville and Gwynneville town centres.	Assessments of utilisation at existing bike repair stations need to take place prior to planning for any additional sites.
Pedestrian Actions	
Safety Improvements	
A strategic approach is requested to reduce risks for children walking to all primary schools in the area. Concerning Keiraville Primary School, there was support for the extension of the 40km school zone to cover a section of Robson Road to include the 2 roundabouts at Murphy's Avenue and Gipps Road, traffic calming devices along Robson Road and pedestrian crossings at these roundabouts.	State wide strategies for safety at schools include 40km/hr school zones and crossing supervisors. School specific issues need to be investigated on a site-by-site basis given the unique characteristics of each school. These assessments are proposed as an action in this draft plan. In relation to Keiraville Primary School, school zones are generally only located on roads which have school frontage. Furthermore, Robsons Road is some distance from the school making it unsuitable for a school zone.



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
People wanted safer crossing along Northfields Avenue with pedestrian	Pedestrian actions will be updated to show pedestrian crossing
crossings suggested, including consideration for multiple crossings such as	improvements on Northfields Avenue. The UOW campus masterplan
those at Unanderra on Central Road.	included the following recommendations in this regard:
	"Interventions to improve pedestrian safety on Northfields Avenue could include:
	 Introducing raised pedestrian crossings that act as traffic calming devices
	This increases the visibility of the crossing for
	approaching vehicles and slows the traffic.
	 Introducing improved signage and flashing lights to increase visibility of the crossing.
	Maintaining median strip and narrow lane widths to slow traffic."
The pedestrian refuge on Foley Street should also be improved to make it easier for pedestrians, and easier to manoeuvre a bulky electric wheelchair or bike.	Crossing improvement action at this location added to pedestrian actions map
There was generalised concern about the difficulties for pedestrians at	Roundabout action amended to: Investigate speed reduction measure at
oundabouts, and some dismay that more are proposed. The realignment of	Braeside Avenue - Murphys Avenue. A pedestrian crossing action also
the roundabout at Murphy's Avenue and Robsons Road was supported.	added at this location to ensure pedestrians are not adversely affected.
There is concern that Gipps Road from Foley Street to Vickery Street is extremely dangerous for pedestrians and motorists alike.	Police data on towaway and injury crashes shows only two crashes east of the Foley Street intersection. which recently saw a safety upgrade. Historic data shows the last pedestrian injury occured in 2008 which when
People exiting vehicles on Gipps Road are nearly cleaned up constantly as	compared to other key streets in the city it is seen to be performing well.
there is minimal passing space. It was suggested that a section of the	Notwithstanding this history the study includes an action for traffic calming
footpath on the south side opposite the shops be reclaimed (the width of a normal shoulder) and angled reverse parking implemented to make more	at this location
spaces available, make it safer for passing traffic, as well as reduce the time	A priority pedestrian crossing action has been added to the pedestrian
for someone to reverse park as it is quicker than parallel parking.	actions map.



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
New Footpaths	
It was seen that the footpath on the west side of Robsons Road (between Northfields and Murphy's) is a low priority, with most of the foot traffic on the eastern side towards the University. There are other footpaths that are a higher priority – such as Georgina Avenue which should have a path on the western side. There were requests for a footpath on one side of Braeside Avenue, along the southern side of Gipps Road in Wisemans Park (that would improve access to the playground and beyond) and on Williams Street.	Shared path proposed on southern side of Gipps Road at Wisemans Park. Footpath from western side of Murphys Avenue removed from overview. Footpath added to Braeside Avenue. Footpath proposed for William Street from Akuna Street to Robsons Road.
It was noted that UOW had previously proposed building a footbridge over Northfields Avenue connecting with the shared pathway at Paulsgrove Street and that this should be followed up.	The following extract from the UOW Campus Masterplan addresses this point: "Pedestrian safety on Northfields Avenue is a priority for the University. Over recent years, there has been interest in introducing an elevated pedestrian and cycle bridge crossing Northfields Avenue in order to improve pedestrian and cycle access and safety. However improved on-grade pedestrian connections would provide greater benefit for users. Key reasons for this direction are listed below: — If a sky bridge was introduced, not all pedestrians would use it given the extra time it takes in comparison to crossing the road directly. This would result in an unsafe situation with pedestrians crossing in front of cars that were not expecting them to be there. — An elevated sky bridge detracts from the character of the street, giving the street the appearance of being only for cars. High quality on-grade pedestrian spaces on the other hand reinforce pedestrian priority and improve the quality of the street."



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
There was support for better wayfinding signage to key destinations and the installation of solar lighting including between the railway line and Beaton Park (under Throsby Drive to Denison Street), Wiseman's Park and Nyrang Park.	Wayfinding signage to key destinations in included as an action in the study. Use of secluded paths at night is not encouraged due to personal security concerns. The study generally recommends paths on streets surrounding these parks which are preferred for night time use as they have better passive surveillance and street lighting.
There was a call for an accessibility audit of intersections and footpaths.	Kerb ramp audit added to pedestrian actions. Council recently completed and audit of all footpaths in the city which included factors that affect accessibility. This audit data is used to identify footpath maintenance and renewal projects.
It was requested that any traffic signals should automatically have the pedestrian crossing included in the cycle without having to press a button.	Automatic calls for pedestrians are only suitable at sites where there is very high pedestrian use. If automatic calls are used at sites without high pedestrian use, efficiency of the intersection will be very low and non-pedestrian road users will incur higher delays.
Traffic Actions	
There was support for a reduction in vehicle travel speeds to 30km/hr, particularly in high pedestrian areas.	Locations proposed for traffic calming in the study will involve treatments that create a 30km/hr environment in locations of high pedestian activity. Council also aware that Transport for NSW will be updating guidance on speed zoning following a number of 30km/hr speed zone trials which are underway in NSW. Council will utilise the revised guidelines for future projects.
Address speeding vehicles on Gooyong Street	The steep grade of Gooyong Street precludes the installation of traffic calming measures.
Install speed hump on Murphy's Avenue westbound approach and on approach to Gipps Street roundabout on Robsons Road both northbound and sound bound	These locations are identified for traffic calming in the study and the most appropriate measures will be investigated when those projects commence
Install speed humps on William Street approach to Keiraville Village precinct	This location is identified for traffic calming in the study and the most appropriate measures will be investigated when those project commences



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
Install roundabout at Eastern Avenue and Murphy's Avenue intersection.	This location is identified for a safety improvement in the study and the most appropriate treatment will be investigated when those project commences
There was also a request for more one-way streets, including John Street.	The narrow road width in John Street encourages low vehicle speed. The last recorded vehicle crash in the street was in 2009 which does not indicate that there is a signficant safety issue in the street that would suggest the need to make it one-way.
Several respondents called for the Mt Ousley upgrade separated interchange, with a northern access to the University of Wollongong to be made a priority. The draft Study notes problems with the present intersection but appears to treat it as a project for the late 2020s and this was not good enough. There was a comment that the construction of the Mount Ousley interchange may lead to induced demand exacerbating the car parking pressures.	Noted. The study recommends that Council lobby the NSW Government to progress this key project. The interchange will enhance access to existing an future car parking facilities on the campus and will include active transport connections to support non-car trips from surrounding areas.
It was reported that there are many abandoned vehicles across the area that take up parking spaces with a request for Council to assist in their prompter removal.	Under the Impounding Act, Council has to abide by time restrictions and notification processes before it can legally impound a vehicle and remove it from the street. This can result in some abandoned vehicles being on the street for periods of time. If council receives this type of request it is actioned and if abandoned these vehicles are removed as soon as legally possible.
	Council will issue fines to the last registered owner if it can be determined that they have abandoned the motor vehicle on the street, these fines are in excess of \$550.
Parking Actions	
Many people called for UOW to provide parking on campus for all its students, while others suggested park and ride facilities should be pursued.	Provision of parking for all students at UOW would result in high levels of traffic congestion on streets surrounding the campus. The campus UOW masterplan nominates sites for future additional car parking on the campus.



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Council comment
Investigation of timed parking restrictions on O'Leary Road is one of the parking actions in the study.
The potential for expansion of time restrictions and marked parking bays is recommended in the study. This will include significant consultation with local residents.
The study recommends investigating the adjustment of the two hour parking limit area in Muphy's Avenue near the Botanic Garden.
Marked parking bays as recommended in the study will encourage better parking bevahiour by clearly prohibiting parking too close to driveways and intersections.
The suburbs of Keiraville & Gwynneville are proactively patrolled by our Parking Rangers on a daily basis Monday to Friday. Patrols over the weekend in these suburbs are generally on a more random or reactive basis. The times of the patrols through the week (Monday to Friday) can vary between morning & afternoon, depending on operational requirements & priorities. It is also common for Rangers to patrol these areas twice per day.



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
More proactive enforcement by Rangers is requested, and the addition of patrols around the Kooloobong sports field on weekends and after hours as many drivers park in the wrong direction, and outside the bays. It was also noted that the intended increase in the use of Kooloobong sports fields for more hours than currently used will put pressure on the surrounding areas and has this been factored in.	The Kooloobong Sportfields and surrounds are captured in the abovementioned random & reactive patrols that are conducted in this area, with proactive patrols generally occurring when a sporting event is scheduled.
If paid parking is implemented, this will affect UOW accommodation students and the opportunity of parking permits for residents should be investigated.	Resident parking permits are not applicable to these areas as the majority of homes have available off street parking spaces. Resident parking schemes are used in areas where there is minimal off street parking.
It was suggested that Council liaise with Transport for NSW to investigate commuter parking options for North Wollongong Station to remove strain on local streets, as that contributes heavily to parking shortages in the North Wollongong precinct.	Action added to work with Transport for NSW to investigate commuter parking enhancements around North Wollongong train station
Disabled parking for access to the Botanic Garden's Robsons Road gate was expected in the perpendicular parking area near Kooloobong sports fields and this should be included in the plan.	Accessible parking spaces on Robsons Road will be investigated near the rainforest walk entry. This item is captured in the study action to investigate special parking restrictions at the western end of the Botanical Gardens
There was support for line marking bays, with a recognition that although less car parks might be available, it can help to make sure that vehicles are not parked over driveways, making exiting and entry easier and safer for residents.	Noted



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment	
Public Transport Actions		
<u>Bus Transport</u>		
There was strong recognition that the free shuttle bus is a highly valued service and needs to be maintained. It was suggested that "park and ride" facilities be considered with Route 55 services.	Council will investigate the potential for improvements to car parking in Beaton Park to support park and ride to Wollongong CBD	
Respondents pointed to a lack of detail on any suggested bus route/service improvements in the actions, with numerous suggestions made to support the greater usage of and access to bus services.	The study recommends working with Transport for NSW on bus route/service improvements. Community comments received throughout the development of the draft Access and Movement study will be relayed to Transport for NSW as part of these discussions.	
Route 10 bus - Run more frequently (every 30 minutes) but with smaller buses.	The study recommends working with Transport for NSW on bus route/service improvements. This suggestion will be relayed in these discussions.	
Route 55C - Re-routing the 55C so that after stopping on University Avenue just east of the freeway overpass, it goes via Gipps Street and Robsons Road, stopping at Keiraville shops and Gleniffer Brae, instead of straight to UOW (and the opposite in reverse of course) - this would provide an extremely frequent service to Keiraville and the Conservatorium of Music.	The study recommends working with Transport for NSW on bus route/service improvements. This suggestion will be relayed in these discussions, however it is unlikely that the gong shuttle route will be lengthened to the route suggested as the existing loop distance is very high and other higher order destinations are not serviced directly for this reason (eg Wollongong Entertainment Centre)	
Routes 11, 41, 53, etc - Increasing the frequency of those that do come via Keiraville locations but only come a few times a day. To be viable, a service needs to be at least twice an hour for most of the day and early evening. Then it becomes a real alternative to needing to drive.	The study recommends working with Transport for NSW on bus route/service improvements. This suggestion will be relayed in these discussions.	
Route 887 to Campbelltown - Increasing the frequency and/or service times to improve bus patronage and reduce commuter times.	The study recommends working with Transport for NSW on bus route/service improvements. This suggestion will be relayed in these discussions.	
All routes - Concerns about the provision of bus services that allow for access by people living with disability, calling for all private buses and UOW shuttle services to have these facilities. Mention was made of route 9/9N being a priority.	The study recommends working with Transport for NSW on bus route/service improvements. This suggestion will be relayed in these discussions as Transport for NSW manage vehicle requirements and licensing.	



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
Rail transport	the state of the second
Advocacy is suggested to improve South Coast rail services to North Wollongong Station so that students and staff that live to the north and south can better utilise it. It was seen that Council and Illawarra Shoalhaven Joint Organisation should advocate for the travel times and frequency of South Coast rail services to be improved through a range of means including signalling, track realignment, a new Sutherland-Thirroul tunnel, duplication of the line south of Unanderra, or electrification of the line between Kiama and Bomaderry.	Council will advocate for enhanced travel times and frequencies through independant advocacy as well as through engagement on the "Sydney-Wollongong Faster Rail" initiative identified in the NSW Government Future Transport 2056 REGIONAL NSW SERVICES AND INFRASTRUCTURE PLAN
Evidence and Omissions	
Modelling of future traffic flow being based on the original proposed Mt Ousley interchange and not the current proposal.	Mount Ousley interchange design coded in modelling was current when modelling was undertaken. Text added to consultant report to clarify this point.
Another respondent also asked that the Study recognise the community planning activities previously undertaken.	Text added to study overview in recognition of community planning activities.
There was concern that there was no mention of the UOW Voluntary Planning Agreement or Fairy Creek Corridor Master Plan in the Study document.	Information on the UOW Voluntary Planning Agreement relates to potential funding and implementation of study actions. The relevant funded projects are mentioned in the financial implications section of the Council report. The Fairy Creek Corridor Masterplan is mentioned in the study and key movement links from that masterplan are included in the cycling actions of the overview document.
There were various concerns raised regarding movement, parking and access around Edmund Rice College and it being omitted from the Study.	Mt Keira Road was excluded from the Gwynneville - Keiraville study area. Council will be undertaking a safety around schools assessment at all schools around the city on a priority basis and the issues raised will be considered as part of that assessment.



Attachment 1 - Summary of Draft Keiraville Gwynneville Access and Movement Study Public Exhibition Feedback

Community Feedback	Council comment
Implementation	
People wanted priorities for implementing actions developed, as this would give the residential community more certainty that the movement and access situation will be improved.	The attached implementation plan provided priorities to each action listed. Infrastructure items will be added to priority lists that encompass city wide projects. Highly ranked projects in city wide priority lists are added to future iterations of the infrastructure delivery program (IDP) and ranked alongside those.
There were requests for a quick revision of the Study with a steering committee of key stakeholders established to support priority setting and co-ordinated implementation - including NF5, UOW, Transport for NSW, and the Keiraville Resident Action Group (KRAG).	Steering committees are not generally established to work on priority setting following the preparation of a precinct study. Stakeholder feedback that informs priority setting is obtained through a range of other means such as public exhibition of study documents and delivery programs.
It was commented that there was no indication of how any of the actions will be funded, with suggestions about how revenue from parking fines in the area could assist in funding actions. It was suggested that if paid parking was introduced an "Infrastructure Fund" be established to direct monies gathered into funding actions. There was also mention of the VPA with UOW as a potential source of funds.	The recommendation for paid parking on UOW frontage roads in the draft study has been replaced with a recommendation for parking restrictions. Information on the UOW Voluntary Planning Agreement relates to potential funding and implementation of study actions. This is addressed in the report the Council on the draft exhibition feedback and document amendments.
There is concern that Council's advocacy is focused on predominantly road infrastructure, even though funding active transport infrastructure and improved integrated public transport is far more cost-effective for reducing traffic congestion through supporting a modal shift.	Council advocates for funding of local active transport projects through work on the NSW Government Walking and Cycling Funding programs. Recommended active transport links in the study will be considered along with other key city wide connections for funding applications from the NSW for active transport projects.



Keiraville - Gwynneville Access and Movement Study

Overview

December 2020





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Background

Keiraville and Gwynneville will experience significant growth in the coming decades as a result of expansion of the education and health precinct in Wollongong. This future expansion will increase the number jobs and students in the region, therefore increasing demand for housing, infrastructure and transport.

In 2014 and 2015, Neighbourhood Forum 5, with input from the community, University of Wollongong and Council developed the "Keiraville – Gwynneville Community Planning Project Report", and the subsequent "Keiraville – Gwynneville Implementation Plan" comprised of a number of key actions including the completion of an access and movement study for the area.

Wollongong City Council commissioned the Keiraville–Gwynneville Access and Movement Study to improve understanding of existing and future access and transport demand in the area, and to mitigate the impacts of more growth through traffic and transport strategies to encourage sustainable travel behaviour and ease pressure on the transport network. Improvements for pedestrians, cycling, public transport, motor vehicles and car parking are recommended by this study.

Study Objectives

The University of Wollongong, Neighbourhood Forum 5 and Transport for NSW are partners in the study. These partners with Council jointly agreed to the objectives of the study that are to:

- Examine and document the existing and future potential operation of the traffic and transport system within the suburbs of Keiraville and Gwynneville; and
- Develop strategies to improve the transport system, reduce impacts on surrounding suburbs, promote the use of sustainable travel modes and ensure that the transport network can adequately accommodate future development.



Keiraville Village Centre



Study Area

Keiraville and Gwynneville are located within the City of Wollongong, in the Illawarra region of NSW. The two suburbs lie between the Princes Motorway (M1) to the north and east, the Illawarra Escarpment State Conservation Area to the west, and extend south towards Mount Keira Road.

There are many important land uses that generate a high number of trips each day and influence access, movement demand and behaviour in the study area including:

- Keiraville and Gwynneville village centres
- The University of Wollongong (UOW)
- Wollongong CBD
- · Wollongong Hospital
- Wollongong Botanic Garden
- · North Wollongong Railway Station
- TAFE Illawarra Wollongong Campus
- · Mount Ousley residential area
- · Local schools
- · Sports and recreation facilities





Strategic Context

The Keiraville and Gwynneville Access and Movement study was carried out in the context of planning work done for the surrounding metro Wollongong area in order to recommend effective strategies to improve the overall transport network. Various Council and external plans, strategies and projects informed the study including:

- Keiraville Gwynneville Implementation Plan
- Illawarra Shoalhaven Regional Plan
- · Our Wollongong 2028 Community Strategic Plan
- · Wollongong Cycling Strategy 2030
- City of Wollongong Pedestrian Plan 2017-2021
- University of Wollongong 2016–2036 Wollongong Campus Master Plan
- · Mount Ousley Interchange Project
- · Beaton Park Regional Precinct Masterplan
- Fairy Creek Corridor Masterplan
- Wollongong City Centre Access and Movement Strategy 2013











Beaton Park Regional Precinct Masterplan











Existing Transport Network and Demand

The range of significant land uses both within and surrounding the study area are serviced by a transport network that includes walking, cycling, public transport and motor vehicle components. The network serves a range of trip purposes and has varying levels of demand.

Pedestrian Network

The footpath network in Keiraville-Gwynneville is limited, particularly away from UOW. The only roads that have footpaths on both sides of the road are Irvine Street, Paulsgrove Street, Foley Street, Northfields Avenue and Gipps Road. Most local streets have either a footpath on one side or no footpath at all.

On approach to Gwynneville village centre, footpaths are present on the north side of Gipps Road only. Keiraville village centre has footpaths provided on both sides of Gipps Road.

Pedestrian crossing facilities in the study area include a mixture of pedestrian refuges, zebra crossings, school crossings and signalised crossings. Pedestrian refuges are provided throughout the study area, particularly along Northfields Avenue, Robsons Avenue and Gipps Road. The majority of pedestrian refuges are located at roundabouts within splitter islands.

There are six zebra crossings, three school crossings, and six signalised pedestrian crossings located within the study area, four of which are located within the UOW campus.



Vickery Street Pedestrian Provisions



Public Transport Network

Bus routes servicing Keiraville and Gwynneville include three free shuttle buses and locally run services that provide connections throughout the study area and to nearby suburbs in the Illawarra and as far as Campbelltown and Port Kembla.

The free GK Shuttle bus service is operated by UOW and connects the campus with North Wollongong Station, the Wollongong CBD, Keiraville and Gwynneville. UOW also runs the free North Gong shuttle service which directly connects the UOW Northfields Avenue Bus Interchange with North Wollongong Station. This is the only bus route to service the bus stops on the UOW campus Ring Road; it connects passengers with trains arriving at North Wollongong Station.

The Gong Shuttle bus service is run by Transport for New South Wales, and connects the UOW campus with the Wollongong CBD, the Innovation campus and Fairy Meadow. This service is currently free, however a longer term decision on whether the service will remain free has yet to be made.

Local bus services connecting to Austinmer, Bulli, Campbelltown, Dapto and Shellharbour are provided by the following operators:

- Busabout, providing the 887 service to Campbelltown;
- · Dion's Bus Service, providing services to Austinmer and Bulli;
- Premier Illawarra, providing services to the Wollongong CBD, Dapto, and Shellharbour.



Foley Street Gong Shuttle Stop



Road Network

The road network within and surrounding the study area consists of both major arterial and local roads. Local roads provide east-west access, while the Princes Motorway bisects the study area constraining connectivity. Access to the motorway is provided via on/off ramps located to the south east of the University, and to the north of North Wollongong station.

The traffic assessment of existing conditions identified congestion at:

- · Mount Ousley Road / Princes Motorway
- Irvine Street / University Avenue
- Princes Motorway / University Avenue

The impact of future traffic growth and the Mount Ousley Interchange upgrade roughly 10 years in the future was assessed using the AIMSUN computer simulation model. The Mount Ousley Interchange upgrade is predicted to remove congestion at Mount Ousley Road / Princes Motorway while providing a new access to the UOW campus. The modelling also predicts some reduction in traffic in the roads surrounding the University such as Robsons Road and Northfields Avenue. However, the results also indicate there could still be congestion issues at the Princes Motorway / University Avenue and nearby intersections, in future (2027) year with the Mount Ousley Interchange upgrade in place.

The modelling assessment also indicated that additional capacity is required at the Pacific Motorway / University Avenue and University Avenue / Porter Street intersections. Further investigations are recommended to investigate options to relieve congestion in this area.



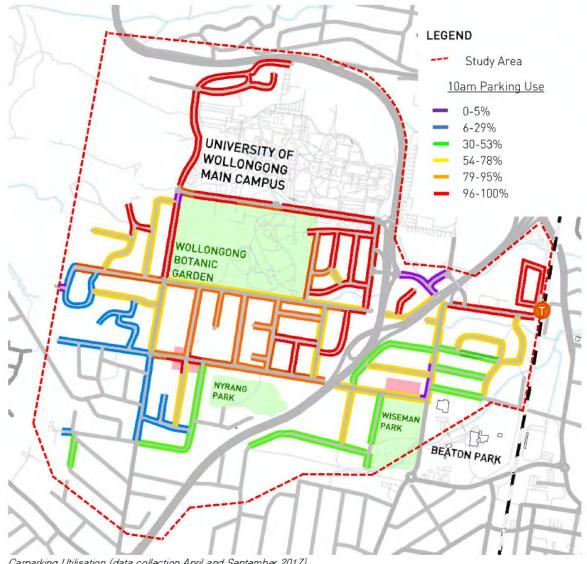
University Avenue



Car Parking

High parking generating land uses within the study area include the UOW, Keiraville and Gwynneville village centres. A mixture of on and off-street options are available throughout the study area. Within the Keiraville village centre, one hour parking is available along Grey Street and Gipps Road. The parking situation is similar close to Gwynneville village centre, with one hour parking available along Gipps Road. Unrestricted parking is available further away from both village centres. Within the UOW campus, there are many parking options with varied capacities and parking types.

Surveys completed by UOW found that on average, both the carpool and ticketed car parks reached or exceeded capacity on all days. Reserved parking was found to have an average of 54% usage throughout the day.



Carparking Utilisation (data collection April and September 2017)



Stakeholder Engagement

Council engaged with a range of stakeholders including residents, businesses and several organisations throughout the completion of this study via:

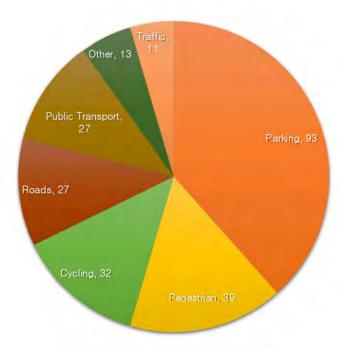
- · Letters to tenants, owners and other stakeholders
- · Visits to all businesses in the study area
- · Workshops and face-to-face meetings
- The Have Your Say web page which included a mapping tool,
 FAQ page, feedback form and document library.

Overall, there were 242 issues raised by members of the community, the majority of which concerned car parking.

Council, UOW, Transport for NSW, NF5 and other community members have worked together to draft up actions to address the issues identified during the study.

Key Transport Network Issues

In addition to issues raised by the community as part of the stakeholder engagement described above, data collected from a range of sources was used to identify key issues affecting the network including on site surveys of traffic and parking, site inspections, computer traffic simulations and reviews of other plans and strategies. The following sections of this document provide key issues identified.



Types of issues raised by stakeholders



Key Pedestrian Issues

- · Lack of footpaths in various streets
- Uneven and cracked footpaths in several locations
- · Pedestrian signage and wayfinding are limited
- · Lack of safe pedestrian crossings
- Existing crossing facilities that don't meet current standards
- Limited connections exist to the east of the UOW campus.
- Difficult to access Mount Ousley Area from UOW
- Street lighting is limited in some areas



Gap in traffic island is too small to accommodate wheelchairs, prams or bicycles



Some cyclists ride on the footpath in lieu of a dedicated path or lane

Key Cycling Issues

- Missing paths in a number of routes between key destinations
- Missing connection between Mount Ousley and UOW
- . Missing connections between east and west of the rail line
- · Lack of secure bike parking at key destinations
- · Lack of end of trip facilities at UOW
- · Wayfinding signs missing on some routes
- Existing roundabouts can be difficult for cyclists to use safely due to topography and vehicle speeds



Key Public Transport Issues

- · Infrequent route bus services
- · Bus services during peak periods are overcrowded
- Poor integration of bus services with train timetables
- Shuttle services are limited outside of peak and session
- Lack of shelter and accessible infrastructure at bus stops
- · Poor connectivity of bus services with surrounding suburbs
- · Poor frequency of train services in both directions
- · Poor alignment of train services with UOW schedule



Few bus stops provide a boarding area or path that is accessible, the majority lack bus shelters



Crash data 2014 to 2018

Key Vehicle Network Issues

- There is congestion in various streets within the study area including:
 - o Various University Avenue intersections
 - o Queuing along Mount Ousley Road in the peak hours
 - o The UOW Ring Road
 - o Foley Street
- · Some drivers use minor streets to avoid congestion
- Vehicles speeds are of concern to community members



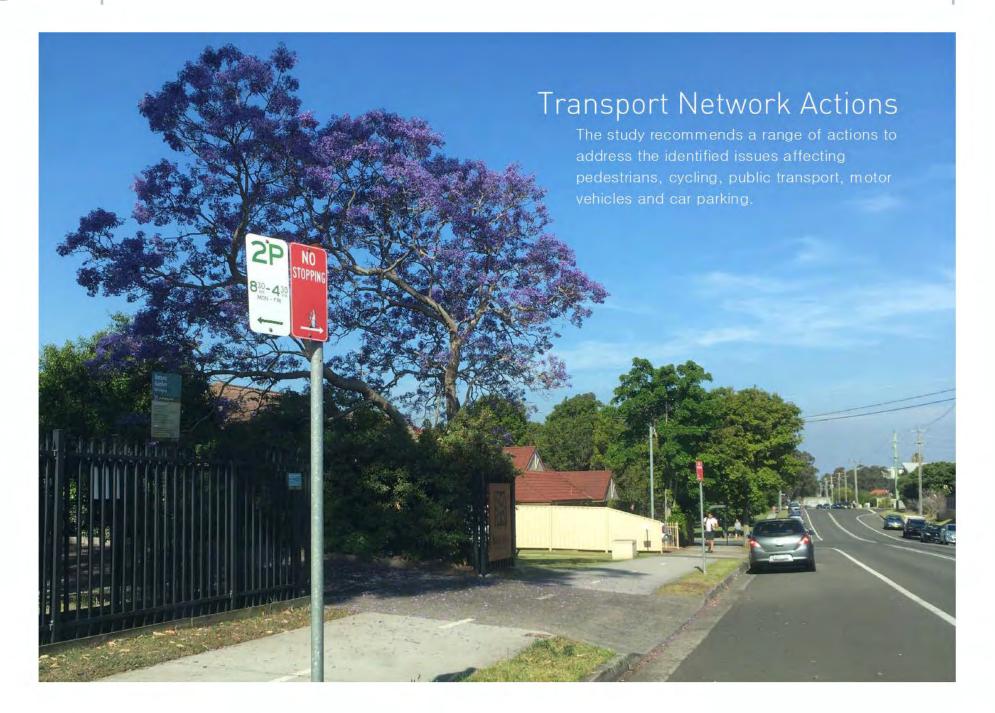
Key Car Parking Issues

- Parking utilisation is very high in the streets south of the UOW campus, including Keiraville village
- Two-hour parking spaces are not long enough for students attending lectures
- Accessible parking is not provided in the village centres
- Lack of enough pick up/drop off zones at key destinations such as schools, UOW, and Beaton Park
- Parking close to key destinations is often heavily utilised by employees
- Vehicles are often parked over driveways
- High amount of unrestricted parking provided in residential areas near the University
- Poor sightlines at some intersections within the precinct due to vehicles parking too close
- Multi occupancy dwellings and student accommodation generate street parking demand
- Significant numbers of vehicles parking illegally throughout the study area
- Number of residential streets throughout the study area which have been reduced to one lane in each direction due to parking on both sides of the road.



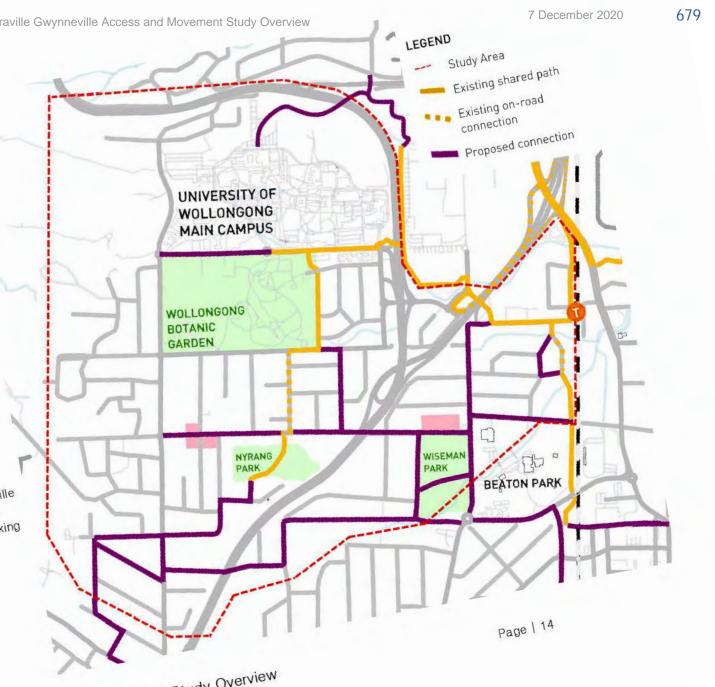
High street parking use associated with key destinations





Cycling Actions

- Include suggested shared path locations in future programs.
- Provide active transport connection across train line close to Beaton Park.
 - Provide improved cycling wayfinding on the key existing and future cycle routes.
 - Provide a widened shared path through Wiseman Park in line with the Fairy Creek Corridor Master
 - Provide increased number of secure and undercover bicycle parking at key land uses such as the UOW, Keiraville and Gwynneville village centres, Beaton Park, the local schools and off-street parking locations.



Keiraville - Gwynneville Access and Movement Study Overview



Pedestrian Actions

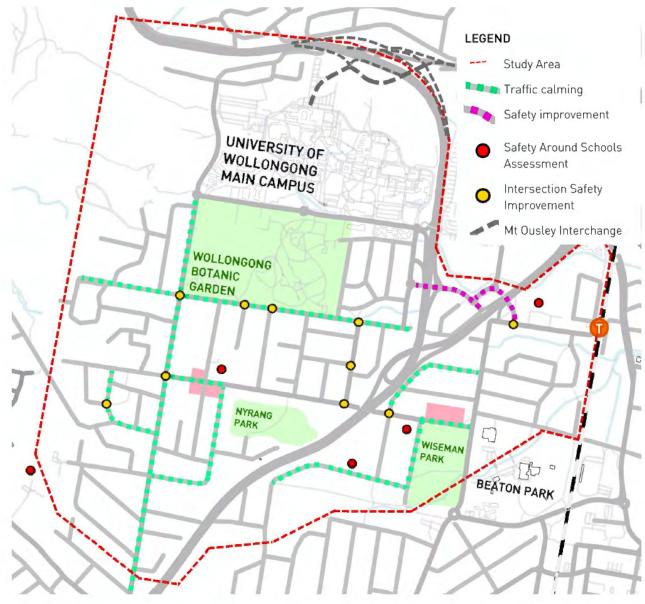
- Provide compliant pedestrian refuge island at roundabouts.
- Ensure that all crossing facilities comply with Australian Standards (upgrade where needed).
- Provide a direct pedestrian connection towards the north and east of UOW.
- Provide wayfinding to key destinations including train stations, UOW, key centres and recreation facilities.
- Provide increased pedestrian priority within the village centres.
- Provide increased marketing especially in schools, workplaces and town centres to show the benefits of walking and cycling.
- Review street lighting with respect to pedestrian needs
- Undertake audit of pedestrian kerb ramps
- Include suggested footpath locations in future programs.





Vehicle Movement Actions

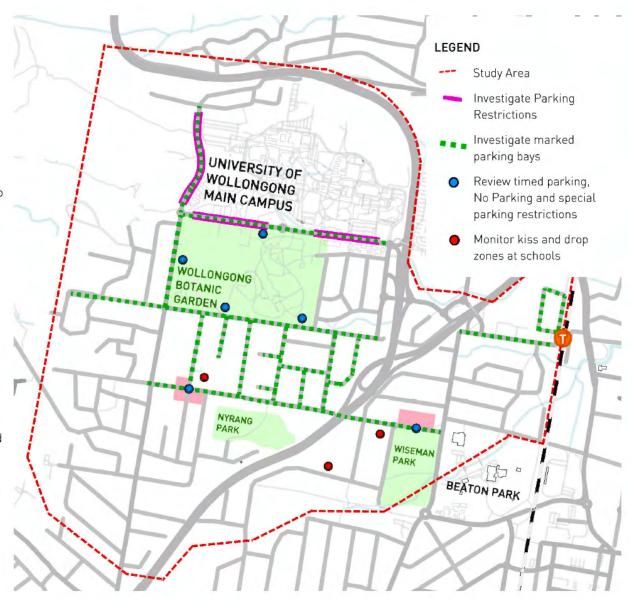
- Realignment of roundabout at Murphys Avenue and Robsons Road.
- Undertake safety around schools assessments.
- Advocate for implementation of the Mount Ousley Interchange project.
- Investigate traffic calming measures on Robsons Road to manage vehicle speeds, particularly on the north and south downhill sections to the Gipps Rd intersection.
- Investigate intersection improvements (refer to map).
- Investigate traffic calming improvements (refer to map).
- Investigate traffic calming device at Braeside Avenue – Murphys Avenue to reduce vehicle speed.
- Investigate safety improvements on University Avenue.



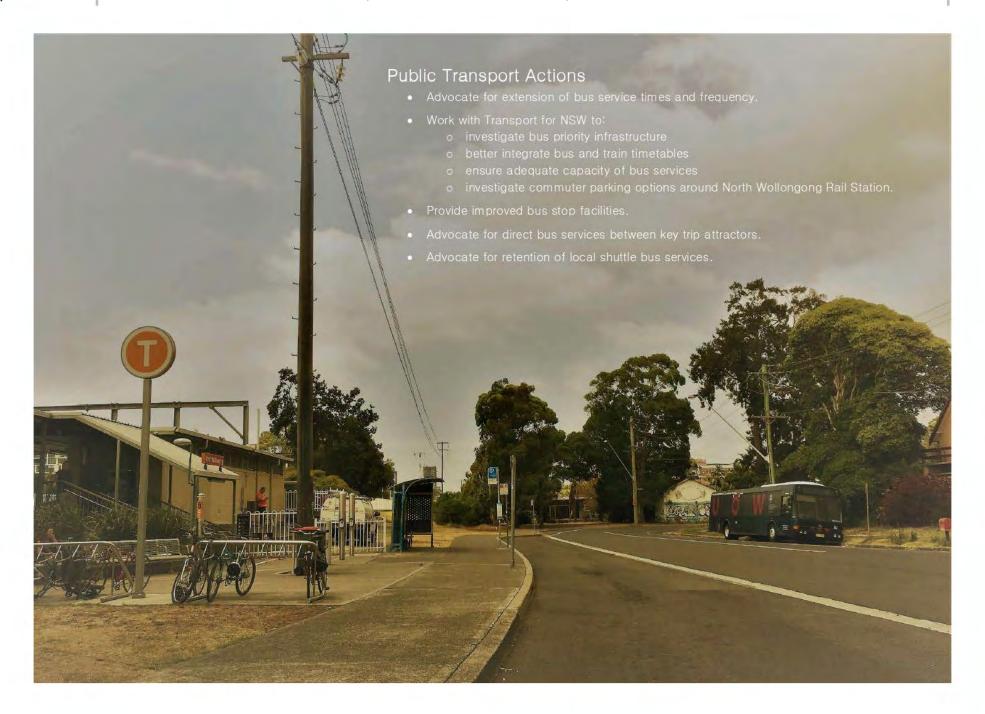


Car Parking Actions

- Investigate the provision of marked parking bays to increase the efficiency of parking spaces within the precinct.
- Review timed parking, pick up and drop off and special parking restrictions surrounding key destinations.
- Review ranger patrols to ensure all vehicles abide by the corresponding parking restrictions.
- Investigate introduction of parking restrictions in close vicinity of the University.
- Develop a special event parking and traffic management plan for significant events at Beaton Park.
- Monitor school kiss and ride zones to prevent parking and expand as required to support demand.
- Investigate parking wayfinding opportunities to parking at attractors such as Beaton Park and the Botanic Garden.
- Work with schools to manage parking and safe drop off/pick up.











Consultant Report





Access and Movement Study 80018018

Prepared for Wollongong City Council









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4	11/09/20	Revised parking commentary	Lukas Labutis Jacob Martin	Ivo Pais
3.1	03/02/20	Cost estimates added	Lukas Labutis	Ivo Pais
3.0	19/12/19	Revised for Council comments	Lukas Labutis	Ivo Pais
2.0	06/08/19	Final	Elizabeth Muscat Jane Parker	Ivo Pais
1.0	10/12/18	Draft	Elizabeth Muscat	Jane Parker

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1 Introduction

1.1 Background and purpose

Keiraville and Gwynneville will experience significant growth in the coming decades as a result of expansion of the education and health precinct in Wollongong. This future expansion will increase the number jobs and students in the region, therefore increasing demand for housing, infrastructure and transport.

Wollongong City Council (WCC) commissioned a Keiraville–Gwynneville Access and Movement Study (the study) to improve their understanding of existing and future access and transport demand in the area, and to mitigate the impacts of more growth. This includes traffic and transport strategies to encourage sustainable travel behaviour and ease pressure on the transport network. Improvements for the pedestrian, cycling, bus, train, private vehicle and parking networks are recommended by this study.

The University of Wollongong (UOW) provided funding contributions to help enable the study to be completed.

1.2 Project objectives

The key objectives of this study are to:

- > Examine and document the existing and future potential operation of the traffic and transport system within the suburbs of Keiraville and Gwynneville; and
- Develop strategies to improve the transport system, reduce impacts on Keiraville and Gwynneville and surrounding suburbs, promote the use of sustainable travel modes and ensure that the transport network can adequately accommodate future development.

1.3 Keiraville and Gwynneville study area

Keiraville and Gwynneville are located within the City of Wollongong, in the Illawarra region of NSW. The two suburbs lie between the Princes Motorway (M1) to the north and east, the Illawarra Escarpment State Conservation Area to the west, and extend south towards Mount Keira Road. The study area is shown in **Figure 1-1**.

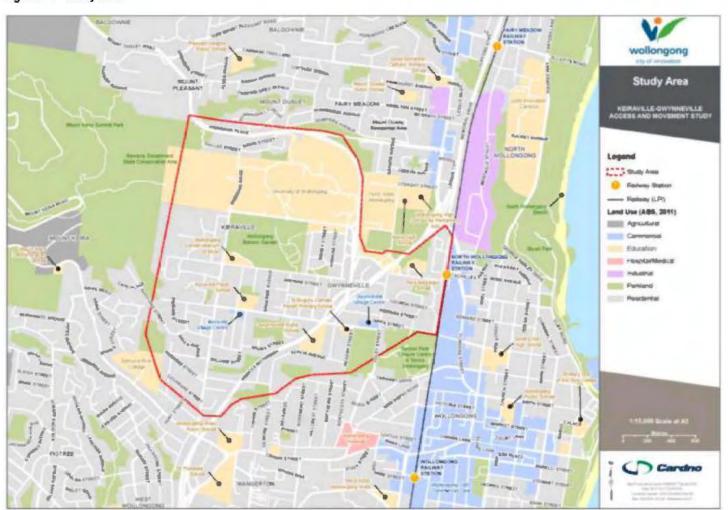
There are many important land uses that generate a high number of trips each day and influence access, movement demand and behaviour in the study area. These land uses include:

- Keiraville and Gwynneville village centres;
- > The UOW Campus;
- UOW Innovation Campus (iC);
- > Wollongong CBD;
- Wollongong Hospital;
- > Wollongong Botanic Garden;
- North Wollongong Station;
- > TAFE Illawarra Wollongong Campus;
- > Mount Ousley residential area;
- > Local schools; and
- > Sports and recreation facilities.

Ordinary Meeting of Council Item 6 - Attachment 3 - Keiraville Gwynneville Access and Movement Study Consultant Report



Figure 1-1 Study area



2 25 November 2020 Cardno

7 December 2020





2 Strategic Context

Understanding the position of Keiraville and Gwynneville in the broader context of the greater Wollongong area is essential in order to recommend effective strategies to improve the transport network. This section provides an overview of the broader context, including Council plans, UOW strategies, regional plans and transport projects.

2.1 Regional strategic plans

This section outlines the strategies, policies and plans for the greater Illawarra region that play an important role in the transport network.

2.1.1 Illawarra-Shoalhaven Regional Plan, NSW Department of Planning and Environment, 2015

The Illawarra Shoalhaven Regional Plan provides the strategic policy, planning and decision-making framework to guide the region to sustainable growth over the next 20 years. The key principle of integrating transport and land use, and the support of improvements to the active and public transport networks are important components of the transport element of the plan.

Relevance for Keiraville - Gwynneville Access and Movement Study

The Plan includes a goal to maintain a region with communities that are strong, healthy and well-connected which could be achieved in part by:

- Investigating options to improve public transport service levels which better link centres, corridors and growth
 areas to Metro Wollongong;
- · Improving access to centres, particularly in the northern corridor, to encourage development; and
- Investigating tourism-related transport services in Kiama and Shoalhaven.

2.1.2 Illawarra Draft Regional Growth and Infrastructure Plan, NSW Department of Planning and Environment, 2014

The Regional Growth and Infrastructure Plan for the Illawarra region is a framework that will guide development and growth to 2031, through integration with land use planning and the transport network.

Some of the particular transport challenges facing the Illawarra as it grows include growing demand for freight, the need for improved train travel times, heavy reliance on private vehicles, catering for peak tourism travel demand, pressure to complete road construction in the region, catering for an ageing population, ongoing investment in bus priority and funding regional cycling infrastructure.

Current infrastructure commitments from the NSW Government include upgrades to the Princes Highway, a safety upgrade of the Picton Road/ M1 intersection and slow vehicle climbing lanes on Mount Ousley Road that will also improve freight capacity.

Relevance for Keiraville - Gwynneville Access and Movement Study

Wollongong is classified as a regional city, providing higher order administration, education and health services, cultural and recreational facilities and higher density commercial and residential development for the region. Revitalisation of Wollongong will strengthen its economic and employment significance in the region.

2.1.3 Illawarra Regional Transport Plan, Transport for New South Wales, 2014

The Illawarra Regional Transport Plan 2014 contains a number of programs that may assist in the delivery of new infrastructure, services and information. It states that the population of the Illawarra region is expected to increase by more than 75,000 people in the next 20 years through development of employment, health, education and retail land uses. Some of the initiatives underway in the Illawarra region outlined in this plan are:

> \$80 million commitment to maintenance and improvement of safety and reliability of the rail network;





- New timetabling of rail services in 2012 that delivered 7,000 additional seats on Illawarra and South Coast Services:
- > Introduction of NSW TransLink, an operating division dedicated to improving regional rail services; and
- > Introduction of new bus services in the Illawarra region.

Relevance for Keiraville - Gwynneville Access and Movement Study

The following plans and ideas will directly impact Gwynneville and Keiraville:

- The free shuttle buses and local access buses will continue to operate, with peak frequencies supporting convenient access:
- Providing free public transport will help to increase the mode share of public transport to and from the CBD and local centres will reduce congestion on roads and the pressure placed on parking capacity;
- New developments in the region will contain planning for active and public transport; and
- The improvement of walking and cycling infrastructure at transport interchanges will support mode change.

2.2 Wollongong City Council strategic plans

It is important to incorporate and build upon WCC's existing plans and strategies in the development of this study. Council's relevant transport directions are outlined in this section.

2.2.1 Keiraville Gwynneville Community Planning Project, Neighbourhood Forum 5, 2014

Neighbourhood Forum 5's (NF5) Keiraville Gwynneville Community Planning Project acknowledges population growth in the coming years and captures the community's concerns regarding future development and the transport network. The Project collated community consultation outcomes regarding the future of Keiraville and Gwynneville, for Council to consider in the development of an Implementation Plan.

Community consultation activities isolated four key themes identified as essential in planning for Keiraville and Gwynneville. These themes are parking and access, street safety, village protection and development, and building the community and relationships. The challenges identified by this project are the increasing population and visitors. Future opportunities for the study area include planning ahead for impacts on infrastructure, forecasting future growth, directing development to achieve sustainable outcomes, and working closer with UOW and with the community.

Relevance for Keiraville – Gwynneville Access and Movement Study

Prioritised actions arisen from this community consultation are:

- Construction of a walking track through the Botanic Gardens, TAFE and to the beach;
- Provision of bike parking at the Botanic Gardens;
- Lobby Council for a parking strategy that includes regular enforcement of parking regulations at shops to keep passing trade moving, and the provision of short term parking near shops;
- Lobby Council to provide bike parking and improved pedestrian facilities at shopping centres to improve access;
- Request Council to place more signage indicating availability of parking;
- Request Council to extend the areas with painted parking bays to help with dangerous parking and improve parking efficiency;
- Community liaison group to work on developing a parking strategy for new university accommodation;
- Improve cycling infrastructure to encourage increase in cycling trips;
- Expand shuttle buses to other areas to decrease parking demand;
- Collaboration with UOW, RMS and WCC to address Mount Ousley Road as a barrier to pedestrians and cyclists;
- Request a whole traffic management study beginning at Mt Keira Road and Robson Road, including review of sight lines for parking;
- Investigate traffic calming measures at the Gwynneville village centre; and
- Investigate full audit of footpaths to address safety and connectivity concerns.





2.2.2 Keiraville Gwynneville Implementation Plan, WCC, 2015

Refinement of NF5's Keiraville Gwynneville Community Planning Project led to the production of an Implementation Plan to carry out the visions emerging from the project. This Implementation Plan contains potential timeframes, responsibilities and estimated costs for each recommended action.

Relevance for Keiraville - Gwynneville Access and Movement Study

An implementation plan is provided for each of the actions:

- Commission of an Access and Movement Study, with a focus on traffic capacity in context of key destinations, parking and pedestrian access and safety;
- Regulation and enforcement, focusing on monitoring illegal parking and a review of timed parking at village centres:
- Investigation of bicycle parking, including a plan for bicycle parking facilities in village centres; and
- Investigation of parking signage, including signage and wayfinding at the Keiraville and Gwynneville village centres
 to ensure current parking supply is beneficial to the community and visitors.

2.2.3 Wollongong 2022 Community Strategic Plan, WCC, 2012

The Community Strategic Plan outlines the Wollongong community's prioritised standards and goals and how they are to be achieved. The relevant goals are to protect the natural environment, cultivate an innovative and sustainable economy, maintain a healthy community in a liveable city, and enjoy a sustainable, affordable and accessible transport network. The main identified issues for transport network are the need for improved public transport services and infrastructure, including a fast train to Sydney, and increased safety.

Relevance for Keiraville - Gwynneville Access and Movement Study

The Plan identifies that to achieve WCC's goal of a sustainable, affordable and accessible transport network, the following strategies must be implemented:

- Establish Wollongong as a bike friendly City;
- Extension of the free Gong Shuttle bus service;
- Delivery of interconnected and accessible cycleways and footpaths;
- Establish a 'Park and Ride' commuter bus network to encourage the community to use alternate transport modes;
- · Provide an effective and integrated regional transport system with a focus on road, bus, rail and freight movement;
- Improve rail services and stations across the Local Government Area;
- Investigate opportunities to reduce travel time between Sydney and Wollongong;
- . Improve availability of late night transport options; and
- · Promote community transport options for people with disabilities.

2.2.4 Wollongong Local Environmental Plan, NSW Government, 2009

The Wollongong Local Environmental Plan (LEP) sets out planning provisions for land in Wollongong in accordance with the relevant zoning and development controls.

Keiraville and Gwynneville are mainly classified as (R2) Low Density Residential land, with areas of (RE1) Public Recreation land, such as the Botanic Gardens. To the east of Keiraville and Gwynneville, the Wollongong CBD is classified as (B3) Commercial Core land, and (B6) Enterprise Corridor, and the Wollongong Hospital precinct is classified as (SP1) Special Activities land. Land to the west of the UOW campus is classified as (E2) Environmental Conservation land, and (E1) National Parks and Nature Reserves land.

Relevance for Keiraville – Gwynneville Access and Movement Study

The transport related requirements for each land zone in the study area are as follows:

- R2 (Low Density Residential) classified land is required to maximise public transport patronage and encourage walking and cycling.
- B3 (Commercial Core) classified land is required to maximise public transport patronage and encourage walking and cycling.
- B6 (Enterprise Corridor) classified land is required to allow some diversity of activities that will not have an adverse impact upon the efficient operation of the surrounding road system.
- The remaining land types do not have transport related requirements.





2.2.5 Wollongong City Council Community Engagement Policy, WCC, 2013

The purpose of the WCC Community Engagement Policy is to show a commitment to engaging with and informing the community with decision-making processes. Council engages with the community via the following processes:

- > Council communicates clearly with the community via Council's website and online media channels, Council's newsletters, letters and emails, fact sheets, customer service, events and festivals, kiosks and information sessions.
- Council seeks feedback from the community before final decisions are made through public access forums, ward meetings, community forums, kiosks, surveys and submissions, online engagement, communication channels and independent Hearing and Assessment panels.
- Council involves the community in designing possible solutions via ward meetings, community forums, kiosks, reference and advisory groups, focus groups, workshops, online engagements and communication channels.
- Council collaborates with the community to make decisions through focus groups, workshops, reference and advisory groups, online engagements and communication channels.

Relevance for Keiraville - Gwynneville Access and Movement Study

In this study, Cardno engages with the community via workshops to inform, consult, involve and collaborate, in accordance with Council's Community Engagement policy.

2.2.6 City of Wollongong Pedestrian Plan 2017 – 2021, WCC, 2017

WCC's Pedestrian Plan sets out Council's vision for walking and recommends a range of strategies to address key walking issues facing the City, and to promote walking as the preferred mode for short trips. The Plan identifies pedestrian safety and convenience as a major concern. Some of the main factors deterring people from walking as a key mode of transport are:

- > Low pedestrian priority in areas of high pedestrian activity;
- Large distances between key locations and residential areas, as well as steep topography that is unsuitable for footpaths;
- > Lack of wayfinding for pedestrians in village centres; and
- > Presence of busy roundabouts that hinder safe crossing for pedestrians.

Relevance for Keiraville - Gwynneville Access and Movement Study

The following five goals will assist Council to achieve its vision for walking across the Local Government Area and address associated challenges:

- Encourage walking;
- 2. Create pedestrian friendly places;
- Makes walking safe;
- 4. Make walking easy and convenient; and
- Work efficiently to implement the Pedestrian Plan.

2.2.7 City of Wollongong Bike Plan 2014 – 2018, WCC, 2014

The main objectives of the City of Wollongong Bike Plan 2014-2018 are increasing participation in cycling, developing a safe and connected network of bike routes, growing bicycle tourism and improving cycling awareness, safety and proficiency.

The plan identifies the benefits of cycling as health, reduced road congestion, recreation, travel time saving, environmental, financial, tourism and economic. A lack of safe cycling connections between the UOW campus, the Innovation Campus and the Wollongong City Centre is noted. A dramatic increase in cycling mode share is considered achievable in the Wollongong City Centre because of the high employment density and short travel distances between major trip generators. A key missing link in the cycling network was identified as the route between the UOW campus and the suburb of Figtree to the south-west.





Relevance for Keiraville - Gwynneville Access and Movement Study

This plan provides an understanding of:

- Council's vision for the cycling network, including construction of cycle way links on McGrath Street north of campus, Northfields Avenue, and south of the Botanic Gardens;
- · The cycling constraints and opportunities that exist within the greater Wollongong area; and
- Council's priorities for proposed works.

2.2.8 Wollongong City Centre Access and Movement Strategy, WCC, 2013

The 2013 Access and Movement Strategy was developed to support the revitalisation of Wollongong's City Centre, as an update to the original 2005 Access and Movement Strategy. This study outlines the land use context, and pedestrian, cycling, vehicular, car parking and public transport access and movement.

This Strategy also outlines the vision for Wollongong Station and the railway precinct to be a fully integrated transport interchange with station access from elevated concourse access off Crown Street. The redevelopment of Piccadilly centre will allow for improved pedestrian access to the station and an interchange with buses, taxis and drop off zones.

Relevance for Keiraville - Gwynneville Access and Movement Study

Many issues regarding the transport network in the Wollongong City Centre are outlined in this report, as well as the following strategies to address these issues:

- Pedestrian strategies include a reduction in traffic speeds in the City Centre, a new footpath program, kerb ramp replacement program, a footpath replacement program, safety hazards program, and pedestrian crossing improvements.
- Key actions proposed to address cycling issues in the City Centre are developing a network of shared paths and
 road treatments, public bicycle parking in the City Centre and reduction in traffic speeds in the City Centre.
- Traffic management strategies include a road upgrade program with intersection modifications, new traffic signals
 within the City Centre, an extension to Ajax Avenue, road widening and extensions, City Centre West Precinct
 traffic calming measures, and parking bay line markings.
- The major elements of the car parking strategy are: encouraging developers to provide parking in consolidated offstreet parking locations, improved parking guidance systems, improved pedestrian, cycling and public transport facilities, and a comprehensive on and off-street parking survey to be completed every three years.
- The bus operations strategy includes design modifications to the Wollongong Station interchange, bus priority
 programs, relocation of the bus terminal at Lang Park, implementation of an integrated ticketing system, installing
 bus priority measures where appropriate, and extending bus services to South Wollongong.

2.2.9 Beaton Park Precinct Needs Assessment Project, WCC, 2015

The Needs Assessment Project for Beaton Park contains extensive reviews of existing facilities and input from key precinct stakeholders, providing an overall strategic approach for the precinct and enhanced community access. This study arose from population trends that indicate greater local demand on the Beaton Park Precinct facilities.

Transport access related aims for the precinct are to maximise accessibility to the site for all transport modes and minimise conflicts between them, maximise car parking on site in a safe and environmentally friendly manner, and ensure access to the site is safe whilst minimising disruption to the surrounding neighbourhood.

Relevance for Keiraville - Gwynneville Access and Movement Study

WCC meeting minutes from 9 May 2016 indicate that a Beaton Park Traffic Management Plan is to be completed. This plan will include a redeveloped access point and internal road network with linked car parks at key activity nodes. This also may include a new entry and bridge link from Gipps Street and more parking at the Beaton Park Leisure Centre site.

2.2.10 Beaton Park Plan of Management, WCC, 2007

The Beaton Park Plan of Management outlines directions to transform the park into a major regional sporting complex in Gwynneville. However, major concerns for the park include the availability of car parking and transport access. Plans to construct a new car parking area, with 281 spaces, will also eliminate the existing causeway crossing and provide for a more practical vehicular and bus access between Foley Street and Gipps Street. Upgrades to access points are also included in these plans.





Relevance for Keiraville - Gwynneville Access and Movement Study

A number of actions are proposed to achieve the following transport related objectives and performance targets:

- Maximise car parking capacity on site within environmental, recreational and social constraints;
- Maximise site access while reducing congestion and conflict for all users;
- Improve traffic flow in and around the site;
- Improve public transport access to the site; and
- Improve pedestrian access.

2.3 University of Wollongong strategic plans

UOW's location within the study area places it as one of the key destinations influencing travel demand within Keiraville and Gwynneville. Expected growth in student population, expansion of student accommodation and evolving transport behaviour will heavily influence future transport demand for the area. It is crucial to understand and consider this adapting context for the Access and Movement Study.

2.3.1 <u>Draft University of Wollongong Transport Strategy and Survey, Cardno, 2017</u>

The 2017 Draft UOW Transport Strategy and Survey is the most recent edition of the biennial study. The 2017 Draft Transport Strategy aims to increase social and environmental sustainability at the UOW campus through encouraging a modal shift for staff, student and visitor travel towards public and active modes. The process of shifting travel behaviour should include understanding people's decision making processes, addressing their travel needs, and integrating the urban form with their desire lines.

A number of transport actions were recommended to support the achievement of each of the strategic transport objectives, listed in **Appendix A**.

Relevance for Keiraville - Gwynneville Access and Movement Study

A number of actions are proposed to achieve the following transport related objectives and performance targets:

- Improve existing campus access constraints to meet current and future demand;
- Improve active transport as a means of accessing the campus;
- Improve public and shared transport as a means of accessing the campus; and
- Maximise the use of UOW parking to meet current and future demands.

2.3.2 University of Wollongong Campus Master Plan 2016 – 2036, UOW, 2016

The UOW Campus Master Plan provides the vision for the campus from 2016 – 2036, which is due to have a growth in students and learning spaces by 2036. This Master Plan also provided a vision in terms of governance, landscape, access and sustainability which aligned with regional strategies for the area.

Key strategies and actions of this master plan are provided in Appendix B.

Relevance for Keiraville - Gwynneville Access and Movement Study

Key strategies from access and sustainability include:

- Introduce pedestrian friendly gateways to provide a welcoming entrance to the campus that connects to the neighbourhood;
- Introduce a series of pedestrian walks and improve pedestrian safety throughout the campus;
- Improve access to the campus for cyclists and upgrade bike infrastructure;
- Consolidate car parking on the periphery, providing easy access to the campus;
- Support the introduction of a new northern entrance to the campus; and
- Maintain car park to 1 space per 5.4 effective student full time load by 2036.





3 Existing transport network and demand

This section of the study outlines the existing and planned active transport, public transport, and road networks, the traffic and travel behaviour, and crash analysis for the study area. It identifies infrastructure and safety issues and opportunities for travel behaviour change.

3.1 Key user groups

Due to the range of land uses within and surrounding the area, there are a variety of different transport network users. The key user groups and their characteristics and travel behaviour are shown in **Table 3-1**.

Table 3-1 Key user groups, characteristics and travel behaviour

User group	Characteristics and travel behaviour
UOW students	Includes students who live on campus and who travel to campus. Typically rely more on active and public transport to travel than other user groups. Often park in local roads and walk to UOW to avoid parking costs. Seasonal users – create higher demand during UOW session times.
UOW staff	Tend to drive to UOW. Often require specific parking allocation at UOW. Seasonal users – create higher demand during UOW session times.
Commuters	Includes employees working within the study area and workers travelling to other areas. Various travel behaviours and patterns. More consistent throughout the year. Less aware of local users and vulnerable modes in certain areas. Value low travel times and efficient transport networks.
Residents	Travel to various areas within and outside the study area. Often desire on-street parking for visitors. Value local access and safety.
Local school students	Includes students of local primary and high schools and TAFE. Often reliant on parents for pick-up / drop-off. Often comprise of vulnerable users and have potential conflict with vehicle traffic. Require active and public transport connections to places of education.
Recreational users	Includes people walking and cycling for recreation. Require active transport infrastructure such as shared paths.

Competing needs among these users can cause potential conflict and different desirable outcomes for the transport networks. For example, through traffic created by commuters can clash with local access requirements and safety for vulnerable users. This can be exacerbated in areas such as the interfaces of the motorway with local roads, and roundabouts within the study area.

3.1.2 Demand throughout the year

Since the UOW is a key driver for travel demand throughout the study area, transport patterns vary depending on session times. The UOW administers two sessions each year, commencing in March and August respectively. A four-week mid-year break between sessions occurs in July. Travel demand and demand for parking is therefore increased during session times when students and staff travel to and from classes

Increased traffic due to the start of university session can lead to increased congestion on the M1 Motorway, creating queues on the off ramps intertering with through traffic. Associated increases in congestion also occurs on local roads, impacting performance of the road network within the study area. The community has expressed concerns regarding traffic congestion at the M1 Motorway, University Avenue and surrounding streets as documented in the *UOW Transport Strategy* (Cardno, 2017).





Consultant Report



Keiraville-Gwynneville Access and Movement Study

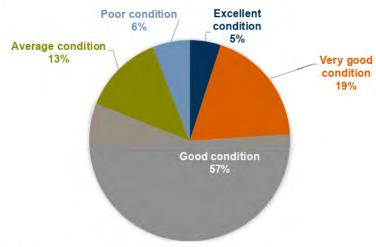
3.2 Pedestrian network

3.2.1 Footpaths

The active transport network within Keiraville-Gwynneville encompasses a combination of shared paths and footpaths.

An audit of the entire Wollongong Local Government Area (LGA), including the study area, completed by WCC identified that 19 per cent of all paths were in very good condition, and 57 per cent were in good condition. Six per cent were in poor condition. The breakdown of path condition is shown in **Figure 3-1**.

Figure 3-1 Condition of footpaths/ shared paths



Source: Draft City of Wollongong Pedestrian Plan, 2017

The footpath network in Keiraville-Gwynneville is limited, particularly away from UOW. The only roads that have footpaths on both sides of the road are Irvine Street, Northfields Avenue and Gipps Road. The majority of local streets have footpaths on one or no sides of the road.

On approach to Gwynneville village centre, footpaths are present on the north side of Gipps Road only. Keiraville village centre has footpaths provided on both sides of Gipps Road.

The locations of all footpaths are shown in Figure 3-2.

3.2.2 Crossings

Pedestrian crossing facilities in the study area include a mixture of pedestrian refuges, zebra crossings, school crossings and signalised crossing. Pedestrian refuges are provided throughout the study area, particularly along Northfields Avenue, Robsons Avenue and Gipps Road. The majority of pedestrian refuges are located at roundabouts (splitter islands).

There are six zebra crossings, three school crossings, and six signalised pedestrian crossings located within the study area, four of which are located within the UOW campus.

The locations of crossing facilities are shown in Figure 3-2.



Figure 3-2 Existing pedestrian infrastructure







3.3 Cycling network

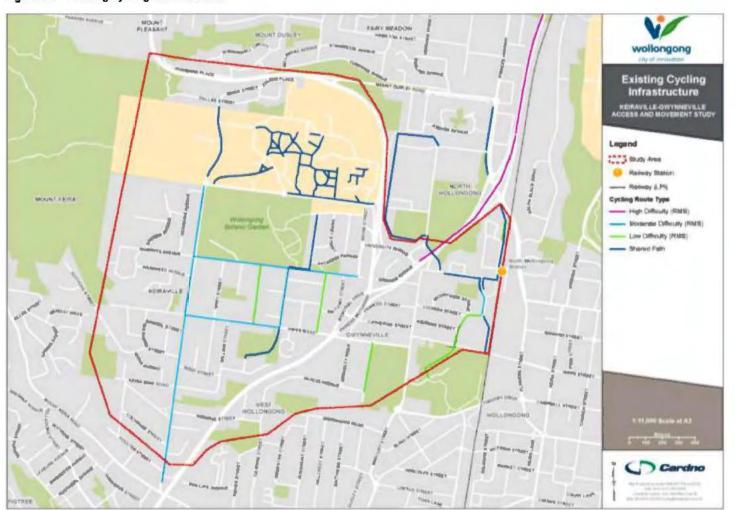
There are a number of shared paths and separated cycleways within the study area. There are also on-road route options nominated as low or moderate difficultly by Roads and Maritime (Cycleway finder).

The majority of off-road cycle routes are located between North Wollongong Station and UOW. Shared paths are generally provided through parks and reserves.

The existing cycling infrastructure is shown in Figure 3-3.



Figure 3-3 Existing cycling infrastructure



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Keiraville-Gwynneville Access and Movement Study

Bus network

Bus routes servicing Keiraville and Gwynneville include three free shuttle buses and locally run services that provide connections throughout the study area and to nearby suburbs in the Illawarra and as far as Campbelltown and Port Kembla.

The free GK Shuttle bus service is operated by UOW and connects the campus with North Wollongong Station, the Wollongong CBD, Keiraville and Gwynneville.

UOW also runs the free North Gong shuttle service which directly connects the UOW Northfields Avenue Bus Interchange with North Wollongong Station. This is the only bus route to service the bus stops on the UOW campus Ring Road; it connects passengers with trains arriving at North Wollongong Station.

The Gong Shuttle bus service is run by Transport for New South Wales, and connects the UOW campus with the Wollongong CBD, the Innovation campus, Fairy Meadow, Wollongong TAFE, Wollongong and Keira High Schools, Wollongong Hospital, Wollongong Station, North Wollongong Station (on weekends only), Burelli Street and Wollongong Harbour. This service is currently free, however a longer term decision on whether the service will remain free has yet to be made. Both the UOW and WCC currently provide funding for the Gong Shuttle operations to subsidise the free service.

Local bus services connecting to Austinmer, Bulli, Campbelltown, Dapto and Shellharbour are provided by the following operators:

- > Busabout, providing the 887 service to Campbelltown;
- > Dion's Bus Service, providing services to Austinmer and Bulli; and
- > Premier Illawarra, providing services to the Wollongong CBD, Dapto, and Shellharbour.

Bus route destinations and frequencies are summarised in Table 3-2.

Table 3-2 Bus routes servicing Keiraville and Gwynneville

Service	Destinations	Frequency
Gwynneville Keiraville Shuttle	UOW to Keiraville, Gwynneville and Wollongong	The GK-C shuttle runs clockwise from 7:45am to 10:45pm on weekdays during session and exam periods.
(clockwise – GK-C and anti-clockwise – GK-A)		The GK-A shuttle runs anti-clockwise around the route, at peak times (7:30am to 10:15am and 3:45pm to 7:15pm) on weekdays during session and exam periods.
North Gong Shuttle (9/9N)	North Wollongong Station to UOW	Services run on weekdays between 7:30am and 10:00pm approximately every 10 minutes during the morning/ afternoon peaks, and every 15-25 minutes at non peak times. Reduced service on weekdays outside of session time and exam periods. Limited Saturday service during exam periods only.
Gong Shuttle (55A/ 55C)	Wollongong City to UOW (loop service)	Services run approximately every 10 minutes between 7:00am and 6:00pm and every 20 minutes between 6:00pm and 10:00pm on weekdays. On weekends and public holidays services run from 8:00am to 6:00pm approximately every 20 minutes. The route also stops at North Wollongong station on weekends.
887	Campbelltown to UOW and Wollongong via Appin	Services operate every 1-2 hours on weekdays between 6:45am and 6:45pm. No services stop at UOW on weekends or Public Holidays.
10	Austinmer to UOW via Thirroul, Woonona, Bulli, Corrimal and Fairy Meadow	Services are limited, with 1-2 buses operating during the morning and afternoon peak periods. No services operate on weekends or Public Holidays.
4U	Bulli to UOW via Thirroul, Woonona, Bulli, Corrimal and Fairy Meadow	Weekday services operate every 1-2 hours between 8:45am and 6:00pm. No services operate on weekends or Public Holidays.
11	UOW to Wollongong via Keiraville, Westfield Figtree & Coniston	Services to and from UOW operate hourly between 7:30am and 7:45pm on weekdays, and between 7:30am and 6:00pm





Service	Destinations	Frequency
		on Saturdays. Services run every two hours on Sundays between 8:30am and 6:45pm.
41	Dapto to UOW via Kembla Grange, Unanderra, Figtree, West Wollongong and Keiraville	Services run on weekdays only, between 7:45am and 8:15pm. Services to UOW run hourly between 7:50am and 9:50am, and from 5:50pm to 6:50pm in the evening. Services from UOW run hourly between 9:40am and 10:40am and then again from 3:40pm to 7:40pm.
53	Stockland Shellharbour to UOW via Flinders, Shell Cove, Shellharbour Beach, Warilla, Primbee, Warrawong & Five Islands Road	Weekday services operate hourly between 8:30am and 9:00pm. Services on Saturday run hourly between 9:30am and 6:00pm. There are no services to UOW on Sundays or public holidays.

In general, across the study area bus stops are located adjacent to the footpath network. In many cases they consist of a shelter to provide weather protection, but they tend not to provide service information. However, on some routes such as along Gipps Road, the bus stop consists only of a yellow sign attached to an existing electrical pole.

The Keiraville and Gwynneville bus network, including bus stops, is shown in Figure 3-4.

3.5 Train network

The South Coast Line, operated by NSW TrainLink, links Sydney's CBD with Bomaderry, stopping at both Wollongong Station and North Wollongong Station.

North Wollongong Station is located two kilometres north-east of the Keiraville village centre, and 0.7 kilometres north-east of the Gwynneville village centre. The station is accessed via Station Street to the east and via Porter Street to the west. Bus services to the UOW campus operate from the bus stop outside the station on Porter Street, and pedestrian access to the station is via Porter Street.

Services to Sydney run approximately every 30 minutes during the morning and afternoon peak, and once an hour at other times. Local services stopping at all stations to Watertall run approximately once an hour. Southbound services run approximately once an hour to Kiama and Port Kembla.

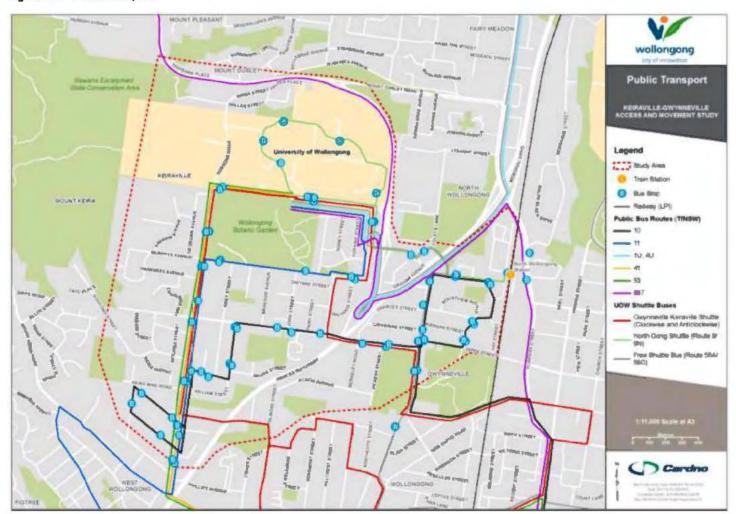
Wollongong Station is located approximately one kilometre south-east of the Gwynneville village centre, and two kilometres south-east of the Keiraville village centre.

The station locations within the study area is shown in Figure 3-4.





Figure 3-4 Public transport



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3.6 Road network

The road network within and surrounding the study area consists of both major arterial and local roads. Local roads provide east-west access, while the Princes Motorway bisects the study area constraining connectivity. Access to the motorway is provided via on/off ramps located to the south east of the University, and to the north of North Wollongong station.

The key roads in the network are summarised in Table 3-3.

Table 3-3 Study area road characteristics

Road	Characteristics
Princes Motorway	Princes Motorway (M1) is a major motorway that connects Sydney to Wollongong through to Albion Park Rail. This route provides key access to destinations in the Wollongong, Illawarra and South Coast regions for tourists. It is also a major freight route from Port Kembla. This corridor is located around the south-west of the model study area, running in a north-south direction to the north-west. The number of lanes vary between two to three lanes in either direction within the study area. The speed limit is 80km/h, however, at the steep downhill grade further north of the motorway, trucks and buses are limited to 40km/h and all other vehicles to 80km/h.
Mount Ousley Road	Mount Ousley Road is an arterial road located in the north of the model study area that connects the Princes Highway and the Princes Motorway. Once the road joins the Princes Motorway through a right turn, the speed limit is 80km/h.
Princes Highway	Princes Highway is a highway that runs in a north-south direction that provides access from Mount Ousley Road, Memorial Drive and Princes Motorway. It runs almost parallel to the Princes Motorway and the coastline in the model study area. There are three lanes in both directions with speed limits that varies from 60km/h to 50km/h.
Memorial Drive	Memorial Drive is a major arterial road that runs in a north-east to south-west direction within the modelled area. Memorial Drive is connected to Princes Highway, Princes Motorway by ramps, which provides access to the Keiraville and Gwynneville area.
Robsons Road	Robsons Road is a collector road which operates as a north-south corridor connecting to the western entrance of University of Wollongong and West Wollongong residential suburbs.
Irvine Street	Irvine Street is a collector road which provides access to Princess Motorway ramps and connection to the University of Wollongong Ring Road, Northfields Avenue and Murphys Avenue.
Gipps Road	Gipps Road runs is a collector road which operates as an east-west corridor connecting to the Keiraville and Gwynneville village centres, the Beaton Park precinct and to Robsons Road.
University Avenue	University Avenue provides east-west road access between North Wollongong Station and Irvine Street. This collector road is one of the main connections between North Wollongong, Keiraville and Gwynneville.
Murphys Avenue	Murphys Avenue is a local road and runs east-west along the southern side of the Botanic Garden, and connects to Irvine Street and Robsons Road.
Northfields Avenue	Northfields Avenue is collector road located on the southern boundary of the UOW campus, running east-west and connecting between Robsons Road and Irvine Street. Two UOW campus access points and the Bus Bay are located on Northfields Avenue.

Traffic surveys of all key intersections in the study area were commissioned as part of the study, and the results are provided in **Appendix C**. These were used to understand peak demand, together with the traffic modelling detailed in **Section 3.9.5**.





3.7 Parking provision

High parking generating land uses within the study area include the UOW, Keiraville and Gwynneville village centres. A mixture of on and off street options are available throughout the study area.

3.7.1.1 Keiraville and Gwynneville village centre parking

Within the Keiraville village centre, one hour parking is available along Grey Street and Gipps Road. The parking situation is similar close to Gwynneville village centre, with one hour parking available along Gipps Road and Foley Street. Unrestricted parking is available further away from both village centres.

3.7.1.2 TAFE NSW Wollongong

The TAFE site appears to provide a relatively high rate of parking, with a corresponding decrease in the overspill effects into the surrounding residential catchment. There is a relatively low parking fee of \$2/day for student and staff permit parking which may also assist to retain parking on-site.

3.7.1.3 Wollongong Hospital and Wollongong Private Hospital

Hospitals are intense sources of visitor and staff parking. It is generally expected that parking demands will be catered for on-site and managed via paid parking. However, a large number of residential streets in the vicinity provide unrestricted parking, and it is likely that a proportion of all-day staff parking is accommodated in the public realm.

3.7.1.4 UOW campus and surrounds parking

The UOW campus provides many parking options with varied capacities and parking types, shown in **Figure 3-5**. Within the overall supply of ~3,300 spaces surveyed in 2017 (including student accommodation), dedicated on-campus parking for faculty, staff and operational uses comprise approximately 50% of the total. Student parking is limited to shared use of approximately 1,600 spaces, the majority of which operate as short-stay or long-stay ticket parking. A sizeable supply of car pool spaces and motorcycle bays are available to support more sustainable personal travel options, with positive impacts on student travel behaviour. General visitors use ticket parking, or are able to use carpool parking if they contain three people per vehicle. Discovery Space members can also access limited free parking underneath the centre, which are reserved spaces.

The ticketed parking bays provide a flexible parking arrangement that can adapt to varying demand across the day and year, for use by discovery centre and other visitors, staff, students and contractors. Additional parking management systems implemented by UoW, including daily 'scratchies' and the UoW parking app, which allows drivers to determine parking availability prior to arrival on-campus, maximising both useability and efficiency for the shared supply. The app is currently under redevelopment.

It is noted that the parking supply has increased since 2017, to a total of ~3,700 spaces in 2020 (including student accommodation). This reflects a small decrease in staff parking offset by additional shared ticketed parking.

Figure 3-5 UOW parking locations

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Data source: data provided by UOW during April 2017

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3.7.1.5 North Wollongong Station parking

Unrestricted parking near the North Wollongong Station is available on Railway Crescent, Porter Street, Crawford Avenue, Exeter Avenue, Achilles Avenue, Bourke Street, Wiseman Avenue and Edward Street.

3.7.1.6 Parking near schools

Parking arrangements for schools in the Keiraville and Gwynneville study area are shown in Table 3-4.

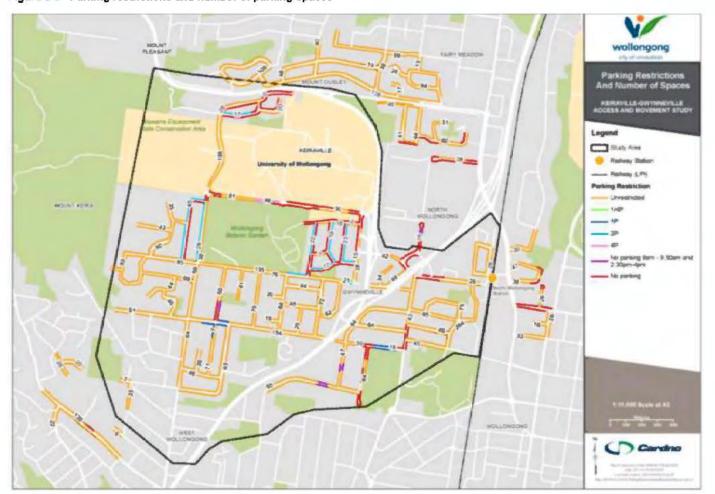
Table 3-4 School parking

School	Location	Parking availability
Keiraville Public School	At the north-eastern side of the intersection of Grey Street and Gipps Road	Parking is prohibited on Grey Street directly outside of Keiraville Public School between 8:30am and 9:00am on weekdays. There is also 1-hour parking on Gipps Road outside of the school between 8:30am and 6:00pm Monday to Friday.
		There is limited availability for parent drop-off and pick- up, which is provided for through No Parking zones from 8-9:30am and 2:30-4pm. Council works closely with Keiraville Public School to adjust these areas to suit the school's needs.
Keiraville Community Preschool	Gooyong Street	Parking is provided on-site for children to be safely picked up and dropped off.
		There are no parking restrictions on Gooyong Street outside of Keiraville Community Preschool, however the road is narrow, there is a steep grade and parents are not encouraged to park here.
Gwynneville Public School	At the intersection of Acacia Avenue and Berkeley Road	No parking is allowed on Acacia Avenue directly outside of Gwynneville Public School between 8:00am – 9:30am and 2:30pm – 4:00pm, however a bus zone and accessible parking is provided. Around 100m of the frontage on Acacia Avenue is unrestricted parking.
KU Gwynneville Preschool	Berkeley Road	This is an older preschool and no on-site parking is provided. No stopping is allowed on Berkeley Road directly outside of the KU Gwynneville Preschool between 8:00am – 9:30am and 2:30pm – 4:00pm.
		The street frontage is narrow and a children's crossing serving Gwynneville Public School is adjacent, so parking opportunities are limited and parents rely on on-street parking away from the entrance.
Tinkerbell Pre School	Gwynne Street, near the	There is adequate parking provided on-site.
and Long Day Care Centre	intersection of Eastern Street	There is also unrestricted parking on Gwynne Street, Eastern Street and other nearby roads.
St Brigid's Catholic Parish Primary School	At the south-western side of the intersection of Vickery Street and Gipps Road	There is no parking on either Vickery Street or Gipps Road directly outside of the St Brigid's Catholic Parish Primary School. However, there is unrestricted parking on Vickery Street further south of the school.
Para Meadows School	Porter Street, near the intersection with University	All parking demand for students and visitors is accommodated on-site.
	Avenue	There is also unrestricted parking is available on both sides of Porter Street directly outside of Para Meadows School, however parking demand is very high.

A summary of the on-street parking restrictions and the number of parking spaces across the study area is shown in **Figure 3-6**.



Figure 3-6 Parking restrictions and number of parking spaces



Data source: parking surveys undertaken on 14 February 2017

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3.7.2 Parking utilisation

On-street parking utilisation data was analysed from two data sources. In 2017, a sub-contractor collected parking utilisation data at 10am on 14 February, 7 March and 4 April. On 19 September 2017, Cardno's audit team completed the parking utilisation audits for the remaining streets in the study area. The dates all fall within university session timeframes.

Parking audits of the study area reveal that the streets located closer towards the UOW campus reach capacity, such as Northfields Avenue, Robsons Road, Irvine Street, Madoline Street, Hoskins Street, Sidney Street, Spearing Parade, Dallas Street, Binda Street, Falder Place, Ashcroft Place and Waitangi Street.

The streets in Mount Ousley, such as Dumfries Avenue and Sunninghill Circuit, achieve a low utilisation of below 20 per cent, despite close proximity to the UOW campus. This is because Mount Ousley Road forms a barrier to pedestrian movements north of the UOW campus.

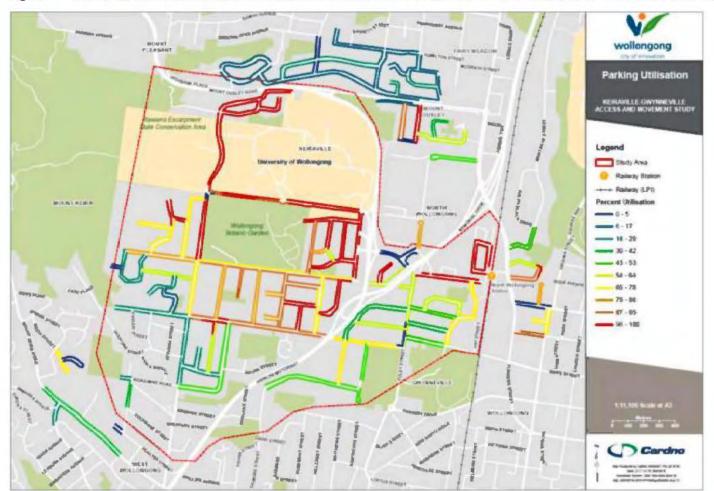
The 1-hour parking spaces in the Keiraville village centre had high parking utilisation, reaching close to 100 per cent. There was less demand for parking in the Gwynneville village centre. Parking utilisation in the streets near North Wollongong Station was high.

Parking utilisation by street is shown in **Figure 3-7**, with key generators of parking demand discussed in the following sections. The results are based on spot counts generally undertaken on Tuesday 4 April 2017, with some counts undertaken on 19 September 2017 for areas not covered by the initial counts. The utilisation was calculated as the number of parked cars per available parking spaces on each street at the time of the audit. The parking management of these on-street bays does not greatly discourage use by students: nearby, on-street parking is generally unrestricted or reduced to 2-hour parking only within 400m of the campus (as shown in **Figure 3-6**). This parking is also free, in contrast to parking on-campus, which ranges from \$3.50 (for up to 4 hours) to \$9.60 (for 6+ hours).

Parking utilisation is discussed further in the Parking Analysis Technical Memorandum in Appendix D.



Figure 3-7 Parking utilisation for a typical weekday (based on spot counts undertaken at 10am on Tuesday 4 April and 19 September 2017)



Data source: site visits undertaken on 4 April and 19 September 2017

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3.7.2.2 Keiraville and Gwynneville village centres

The Keiraville and Gwynneville village centres are both located approximately one kilometre from the UOW campus, at the periphery of a 12 to 15 minute walking catchment. It is unlikely that there is a great deal of impact from students parking in the villages.

Retail centres generally must consider the needs of visitors and staff. The parking hotspot shown on the parking utilisation map near the Keiraville village centre suggests that this area is heavily used by visitors. It is noted that bays are generally restricted to 1-hour parking in this vicinity.

Additional off-street parking within the village centres is available for use by employees and visitors.

3.7.2.3 TAFE NSW Wollongong

On-site parking for UoW staff is permitted at the TAFE via a permit system, improving the overall efficiency of on-site parking while alleviating pressure on the university campus supply.

3.7.2.4 UOW campus and surrounds

Overall, UOW students make up the largest group for parking demand within the Study Area. Results from studies of other universities, such as the Curtin University Transport Study (2010), have shown that students are generally willing to walk further to obtain free parking, and are willing and able to move their vehicle multiple times to circumvent timing restrictions.

The impact of student parking is reduced significantly where students are housed in nearby accommodation. Surveys completed in 2017 showed that 12% of UoW students lived in student accommodation, though only 4% on-campus. Previous surveys (Draff UoW Transport Strategy and Survey Report, 2017 and UoW Transport Survey, 2015) indicated that as many as 55% of students live within 2.5km of the campus. This represents a significant proportion of student travel that has the capacity to shift to alternative modes, particularly cycling and public shuttle services.

In 2016, the ratio of total car parking spaces to Effective Full Time Student Load (EFTSL) was 5.4. The ratio is maintained by UoW to constrain on-site parking and encourage the use of public transport options, including walking, cycling and the free shuttle services.

Parking status reports for the UOW car parks during the week of 3 April and 7 April 2017 were obtained as part of previous studies. These reports indicated that on average, both the carpool and ticketed car parks reached or exceeded capacity on all days. These surveys suggest that some Reserved parking operated at lower levels of utilisation, with an observed average occupancy of 54% across the day. This can be expected from their intended function: allocated spaces to individual staff / faculty vehicles, and dedicated spaces for pool vehicles. Innovation in this space, perhaps leveraging the excellent UoW parking app, could improve efficiency and allow for reallocation of spaces. It is noted, however, that Reserved spaces are often poorly accessible to other users, being located in small car parking areas adjacent to on-site facilities. This places a limit on the efficiency of such parking.

A proportion of existing student parking demand is satisfied on-site by approximately 1,600 ticket parking bays, with 17,080 EFTSL at UOW in 2017. Through self-reported surveys, 41% of students stated they drove for some or all of their journey to UOW (2017 draft questionnaire survey), with 33% of students parking on campus or the surrounding streets. This results in a significant overspill into the surrounding on-street parking to the south of the University.

Data extracted from the ABS Census (2016) shows 70% of employees working in UoW's ABS Census zone on the day of the Census (which includes the UoW, Conservatorium and Botanic Gardens) drove to work, accounting for 2,150 spaces consumed. This figure has been confirmed through interrogation of the survey data obtained for the Draft UoW Transport Strategy and Survey Report, 2017.

UoW staff demands can therefore be expected to consume a significant proportion of the parking available on-campus, and the results suggests that staff are likely using both on-site paid parking and surrounding on-street parking, in addition to the dedicated staff parking bays. In total, peak parking demand generated by UoW staff and students may be as much as 5,000 spaces during peak periods.





37.25 North Wollongong Station

The North Wollongong Station is located at the edge of the study area. There are a small number of formal commuter parking bays immediately adjacent to the station (Porter Street, west of the station), but commuters appear to park on-street along Porter Street and within the local residential neighbourhood (Hindmarsh Avenue, Railway Crescent and Crawford Avenue).

The North Gong Shuttle runs direct from the station to the UOW campus, and there is the potential for parking along this route to be consumed by students and staff from the University. This could increase if onstreet parking management forces out long-stay staff / student parking in the Wollongong catchment. Neighbourhood parking surveys undertaken by UoW illustrate a consistent demand for parking in the vicinity of the Station remains high all year round, suggesting that student and staff demand is not clustered in the vicinity of the Station itself, and the parking demand is driven by the station rather than the shuttle.

3.7.2.6 Schools

Demand for school parking is intense and short-lived, restricted to less than an hour in the morning and afternoon. Generally, staff parking is easily retained on-site, leaving only student pick up/drop off activities on-street. The high generation of demand during peak periods can create safety and network operation issues. Effective management requires extensive intervention from both the Local Government and the schools themselves

There are several schools in the study area, including the Keiraville Public School, Gwynneville Public School, St Brigid's Catholic Parish Primary School, Para Meadows School and Kiera High School.

Future transport projects 3.8

This section highlights the importance of aligning any planned major transport projects with the Access and Movement Study for Keiraville and Gwynneville.

3.8.1 Mount Ousley Interchange

Road and Maritime are planning an interchange on the M1 Princes Motorway at the base of Mount Ousley. The upgrade will address safety concerns and traffic congestion challenges associated with the motorway. An artist's impression of Mount Ousley Interchange is shown in Figure 3-8.

Figure 3-8 Artist impression of Mount Ousley Interchange



Source: Roads and Maritime Mount Ousley Interchange (2017)





Planned upgrades to Mount Ousley Road and the M1 Princes Motorway include:

- > A new access to the UOW campus;
- > Separation of heavy vehicles to access Mount Ousley Road;
- A grade separated interchange on the M1 Princes Motorway at the base of Mount Ousley that replaces the existing intersection;
- > An overpass from Mount Ousley Road to the M1 Princes Motorway;
- Pedestrian and cyclist bridges over Mount Ousley Road and the M1 Princes Motorway connecting suburbs to the north with the UOW campus;
- > Provision for a future third southbound lane; and
- A preferred design option that provides an exit from the UOW campus onto the M1 Princes Motorway reducing congestion within the campus and surrounding local road network, particularly targeting the afternoon peak times.

The Mt Ousley interchange will provide cycling opportunities to / from the north through the provision of shared paths adjacent to the motorway connecting directly to the UOW and areas to the north-east. The shared paths will provide a continuous link for cyclists across the motorway from Dumfries Avenue to the UOW. This will extend the cycling catchment, allowing easy cycling travel to and from the residential areas to the north.

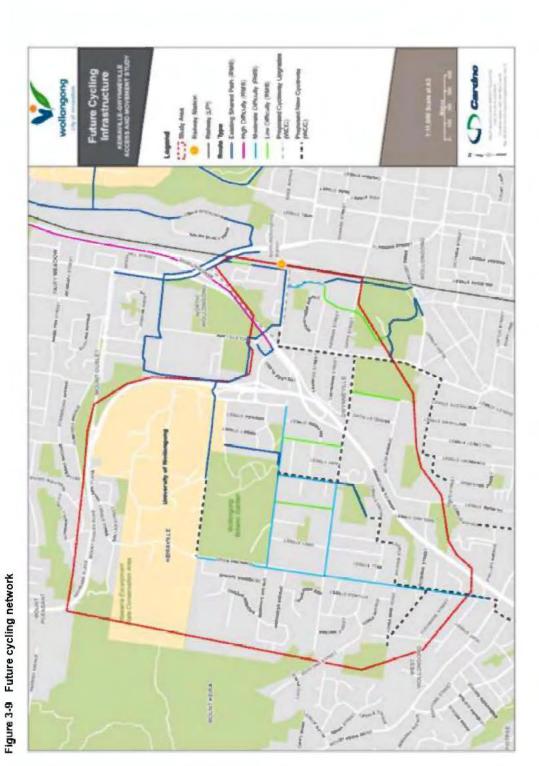
Once the interchange is completed, parking issues may also emerge in Mt Pleasant and Mt Ousley due to the increased connectivity created by a pedestrian link to the north. On-street parking utilisation here is currently quite low due to the circuitous walking route to access the UOW, however the Mount Ousley Interchange upgrade will provide an additional link which will increase the walking catchment from the UOW and may increase parking demand on these local roads.

3.8.2 <u>Future cycle network</u>

The 2014 – 2018 Bike Plan recommended a number of infrastructure improvements. This was developed to improve cycling connectivity throughout the region.

Figure 3-9 provides a summary of the key cycleways infrastructure and upgrades that are proposed. The implementation of these cycleways will improve connections to UOW and North Wollongong Station.





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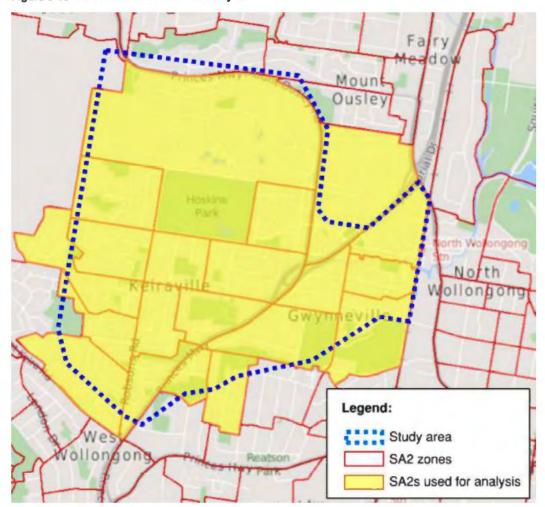
3.9 Travel behaviour

This section provides a summary of the residents and worker characteristics in the precinct to understand the link between population and trip generation. The data used is gathered from the Census by the Australian Bureau of Statistics (ABS) in 2016.

3.9.1 Population and employment

The Statistical Area Level 1s (SA1s) to which the data described in this section applies are shown in **Figure 3-10**. These areas closely align with the study area and so are considered to represent the study area, but also include small areas of land outside.

Figure 3-10 Statistical areas used for analysis



Source: adapted from Australian Bureau of Statistics maps, https://itt.abs.gov.au/itt/r.jsp?ABSMaps, viewed 09/11/2020

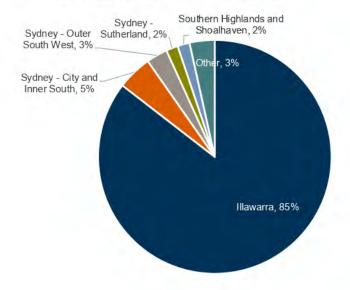
Similar areas, Destination Zones (DZNs), were used for the analysis of Journey to Work data for workers in the study where SA1s could not be used. These areas included DZNs 111467351, 111467352, 115490001 and 115490006, which cover a very similar areas to that shown above.

Approximately 8,700 people live within the selected SA1s (the study area) within Keiraville and Gwynneville (including campus accommodation students). Of these 8,700 residents, the workforce consists of 7,625 employed people. The employment location of study area residents shown in **Figure 3-11**.





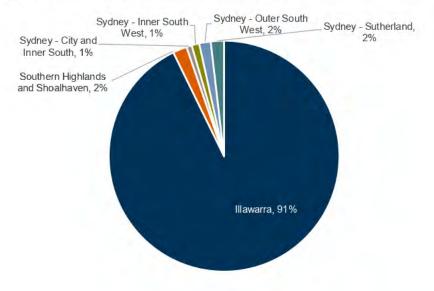
Figure 3-11 Employment location for residents in the study area



Source: Journey to Work, ABS Census 2016

The home locations of workers who travel to jobs in the study area is shown proportionately in Figure 3-12.

Figure 3-12 Location of residence for workers in the study area



Source: Journey to Work, ABS Census 2016

3.9.2 <u>Dwelling types</u>

The majority of dwellings in the study area are separate houses, followed by flats or apartments and semidetached dwellings. The number and proportion of each dwelling type is shown in **Table 3-5**. The Illawarra

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Region dwelling proportions are also listed for comparison; the study area has higher proportions of high density dwellings.

Table 3-5 Dwelling types

Suburb	Separate house	Semi-detached	Flat or apartment	Other
Keiraville	764 (64.3%)	196 (16.5%)	228 (19.2%)	0 (0%)
Gwynneville	563 (55%)	198 (19.3%)	259 (25.3%)	4 (0.4%)
Illawarra Region	73%	13%	13%	1%

Source: ABS, 2016

3.9.3 Motor vehicle ownership

Vehicle ownership gives a good indication of mode share, as households with no vehicles will rely on other transport modes more heavily. The majority of households within the study area own one or two private vehicles, but there is also a high number of households that own no vehicle. This indicates that walking, cycling, and public transport are important modes of transport for many residents in the study area. The number and proportion of household vehicle ownership by households is shown in Table 3-6. The Illawarra Region vehicle ownership is also given for comparison.

Table 3-6 Motor vehicle ownership

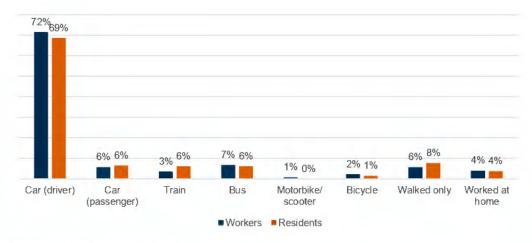
Suburb	None	1 motor vehicle	2 motor vehicles	3 or more vehicles	Not stated
Keiraville	98 (8.2%)	463 (38.9%)	386 (32.4%)	193 (16.2%)	51 (4.3%)
Gwynneville	164 (16.0%)	431 (42.2%)	253 (24.8%)	141 (13.8%)	33 (3.2%)
Illawarra Region	7.9%	34.4%	35.7%	18.3%	3.7%

3.9.4 Transport mode share

3.9.4.1 Study area

The Journey to Work data, based on 2016 census data, shows that over half of the people who both live and work within the selected travel zones use private vehicles to access their workplace. Walking and bus were the second most common mode choices for both residents and workers. The mode share for both workers and residents of the travel zones is shown in Figure 3-13.

Figure 3-13 Transport mode share for people who live and work in the study area



Source: Journey to Work, ABS Census 2016

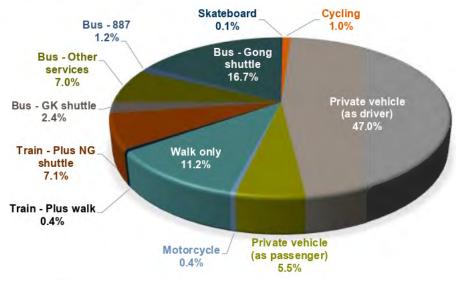


3.9.4.2 University of Wollongong

The transport mode share for accessing the UOW campus was calculated in the 2017 Draff UOW Transport Survey and Strategy (Cardno, 2017). A Headcount Access Survey indicated that the majority of people accessed the campus via a private vehicle, either as the driver or as a passenger; this was followed by access via bus services.

The UOW campus mode share for all trips (staff and student) is shown in Figure 3-14.

Figure 3-14 UOW campus mode share



Source: Cardno, 2017

The Draft UOW Transport Survey (2017) results show that car as driver mode share is 47% for UOW commuters. Based on self-reported data in the 2017 questionnaire survey, staff car-as-driver mode share was found to be 69%. ABS Census data from 2016 shows that car-as-driver mode share was 70% in the UOW, Conservatorium and Botanic Gardens zone.

The above difference can be accounted for by a number of factors:

- > the student population is located closer to the campus, with 55% of students living within 2.5km.
- > staff are much more likely to require a vehicle during the day, and
- in contrast to the student population, university staff have a much higher ratio of available parking, with over 1,600 parking bays available for staff located in Permit and Reserved areas, not including car pool and specialty bays, for a staff population of approximately 2,400 FTEs.

3.9.5 <u>Traffic modelling</u>

As part of this study, the existing and future operation of the Keiraville-Gwynneville traffic and transport network was examined with a view to developing strategies to reduce congestion and enable greater sustainable transport mode share in the area. The planned future development was assessed to determine the impact on traffic generation and flow, as well as accessibility, parking demand, and the overall operation of the network.

3.9.5.1 Objectives and scope of works

The aim of the traffic modelling was to test different future year scenarios in the study area. The modelling process involved the following steps:



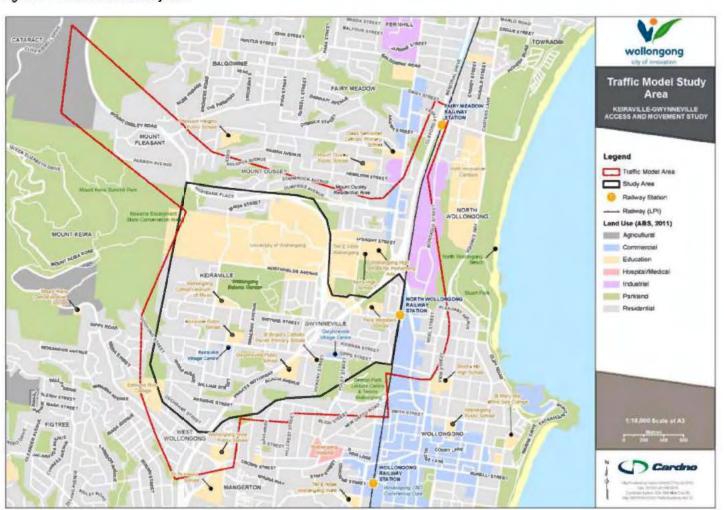


- Assess the travel demand during the academic session (in-session) which is a characteristic for the month of August and the non-academic session (out-session) which is a characteristic for the month of September;
- Assess the impacts of potential developments on the study area and changes in road network and surrounding intersections;
- > Evaluate existing and future year transport network performance; and
- Identify and evaluate mitigation measures to accommodate traffic likely to be generated from future developments and growth.

The traffic model study area is shown in Figure 3-15, and a full modelling report is provided in Appendix C.



Figure 3-15 Traffic model study area



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The scope of works for the traffic modelling was as follows:

- Extract the study network from an existing Roads and Maritime Aimsun Mount Ousley Interchange hybrid model (which include the future (2022 and 2037) year scenarios) and develop a purpose built microsimulation model;
- Adjust the 2015 volumes at the interchange and surrounding junctions to balance the discrepancies between the 2015 and 2017 data;
- > Determine the traffic demand for "in-session" and "out-session" AM and PM peak periods which consists of the peak academic session and the period outside of the academic session respectively;
- Calibrate and validate a microsimulation model in accordance with Traffic Modelling Guidelines (Roads and Maritime Services, 2013);
- > Assess options regarding the Mount Ousley Interchange;
- Import intersection turning volumes from the Mount Ousley Aimsun Model (Jacobs, 2015) for the Memorial Drive / Princes Highway Interchange;
- Obtain outputs from the microsimulation model to be used for a SIDRA assessment of key intersections within the Keiraville-Gwynneville precinct.

3.9.5.2 Road demand and congestion locations

The road network performance can be largely determined by assessing the theoretical capacity of the midblock and the average speed of traffic, as per the *Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis*. The performance of key roads within the precinct indicate the demand on the road network. The performance of the road network was measured using the following variables:

- Peak period volumes (veh/h);
- > Average speed (km/h); and
- > Percentage of speed limit (%).

The key indicator of mid-block performance is the Level of Service (LoS). This is the average speed as a percentage of the base Free Flow Speed (FFS), where results are placed on a continuum from 'A' to 'F', as shown in **Table 3-7**.

Table 3-7 Austroads Mid-Block Criteria for Speed Level of Service Analysis

LoS	Description	on Travel speed as a percentage of base FFS (%)		
Α	Good operation	> 85		
В	Good with acceptable delays and spare capacity	67-85		
С	Satisfactory	50-67		
D	Operating near capacity	40-50		
Е	Al capacity	30-40		
F	Unsatisfactory and requires additional capacity	≤ 30		

The data used for this analysis considers weekdays during in-session (August 2017) and out-session (September 2017). The roads which were assessed are Northfields Avenue, University Avenue, Porter Street, Robsons Road, Gipps Road, and Foley Street.

Areas of concern include Northfields Avenue and Robsons Road, which provide direct access to the University of Wollongong campus and local schools. However, overall performance at the route level shows that the speed performance is satisfactory, with the worst performance identified as the westbound direction of Northfields Avenue during the AM peak in-session period.

Observations made about congested intersections are summarised in Table 3-8.





Table 3-8 Congestion intersections in the study area

Intersection Location	Time of Day	Observation	
Mount Ousley Road / Princes Motorway	АМ	The ratio between the speed level of service and the posted speed is less than 30% at a 200 metres approaching distance of the intersection. On Mount Ousley Road the maximum queue length is around 15 vehicles between in the AM peak. This is partially captured in the image below.	
		Queuing is most likely caused by drivers having difficulty to find safe acceptable gaps between vehicles to turn right onto Princes Motorway. Vehicles are often reaching around 80km/hour along Princes Motorway and no queuing was identified on Princes Motorway.	
	PM	The ratio between the speed level of service and the posted speed is 50% to 69% at a 200 metres approaching distance of the intersection. On Mount Ousley Road, the maximum queue length is roughly around the same length of the AM peak in the PM peak. There is no queuing on Princes Motorway.	
Irvine Street / University Avenue	AM	The ratio between the speed level of service and the posted speed is 40% to 49% when approaching roundabout and interchange ramps. The figure below shows queuing on University Avenue in the AM peak. The community gave feedback indicating that this intersection is a stoppage	
		point on weekday mornings and the traffic moves very slowly, if not at all, with very long waiting times.	
	РМ	The ratio between the speed level of service and the posted speed is 50% to 69%. On the northern and southern sides of Irvine Street, extensive queueing can be observed in the PM peak.	



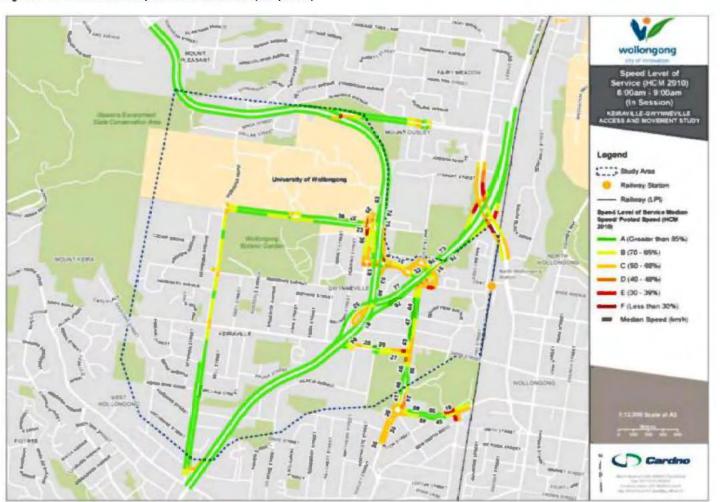


Princes Motorway / University Avenue	AM	The ratio between the speed level of service and the posted speed is 50% to 69%. Queueing on the off ramp of Princes Motorway is mostly likely caused by the number of vehicles coming from the motorway at high speeds and giving way at the roundabout at the intersection. During the moming peak period, there will be a large proportion of vehicles using this intersection to access the University of Wollongong and schools. The figure below illustrates the queuing behaviour in the moming. The community provided feedback that the traffic banks up around 8am
		exiting the freeway, heading south.
	PM	The ratio between the speed level of service and the posted speed is 70% to 85%. In comparison to the AM peak period, there may be less queues because people may not use the same route and may visit other destinations in the Keiraville – Gwynneville area.

The existing Level of Service for these roads is shown in **Figure 3-16** (AM peak) and **Figure 3-17** (PM peak). It is clear that the majority of the road network operates satisfactorily during the AM and PM peak periods. However, there are notable issues on approach to key intersections and roundabouts within the study area.



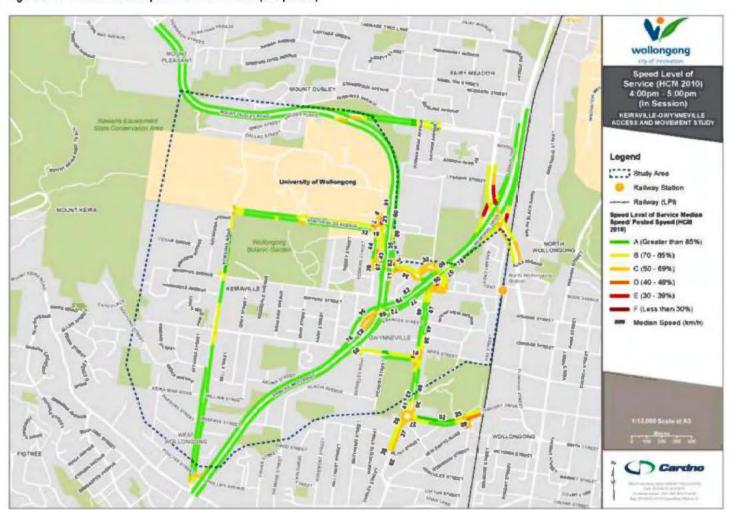
Figure 3-16 Road network speed level of service (AM period)



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Figure 3-17 Road network speed level of service (PM period)



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3.9.5.3 Future year traffic modelling

Microsimulation AIMSUN models were developed for the future (2022 and 2027) years with consideration of the following:

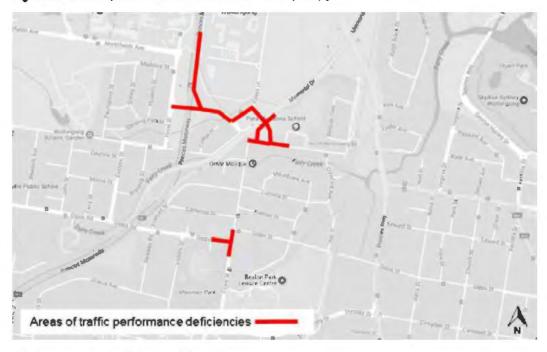
- > University Avenue and Foley Street corridor.
- > Mercury Street / Throsby Drive / Foley Street intersection.
- > Foley Street / Gipps Road intersection.
- > Impact of Mount Ousley Interchange in 2027.

3.9.5.4 Future (2022) year traffic analysis

The future (2022) year traffic models identified traffic performance deficiencies at (see **Figure 3-18** for locations):

- > University Avenue off-ramp, particular in the AM peak.
- > University Avenue and Foley Street corridor in the PM peak.
- > Foley Street / Gipps Road intersection in the PM peak.

Figure 3-18 Traffic performance deficiencies in future (2022) year



3.9.5.5 Future (2027) year traffic analysis

The future (2027) year traffic models considered the impact of traffic growth and the upgrade of the Mount Ousley Interchange. As part of the Mount Ousley Interchange upgrade (**Figure 3-19**), the alignment of the University Avenue off-ramp is proposed to be modified so that southbound traffic will exit the motorway at the new interchange). The existing Mount Ousley Road right turn to Prices Motorway is proposed to be removed as part of the upgrade (this was identified as a traffic performance and safety issue in the existing and 2022 conditions).

Traffic modelling was undertaken in 2017 based on information available at the time. The design of the Mt Ousley Interchange and associated assumptions relating to the road network may have changed and may impact potential future road network performance.



Figure 3-19 Proposed Mount Ousley Interchange upgrade







Comparison of the future (2022) year and future (2027) traffic model results indicate the Mount Ousley Interchange (and traffic growth) will impact the following roads as shown in the respective figures:

- > Robsons Road (Figure 3-20)
 - Significant reduction of vehicles per hour in the southbound direction during the AM and PM peak
- > Gipps Road (Figure 3-21)
 - Minor reduction of vehicles per hour in both directions during the AM
 - Minor increase of vehicles per hour in both directions during the PM
- > Murphys Avenue (Figure 3-22)
 - Reduction of vehicles per hour in the eastbound direction during the AM
 - Increase of vehicles per hour in the westbound direction during the PM
- > Northfields Avenue (Figure 3-23)
 - Significant reduction of vehicles per hour in both directions during the AM and PM peak
- > Irvine Street (Figure 3-24)
 - Reduction of vehicles per hour in the northbound direction during the AM
 - Increase of vehicles per hour in both directions during the PM
- > Foley Street (Figure 3-25)
 - No significant difference in vehicles per hour.

Figure 3-20 Robsons Road - future (2022) year vs future (2027) year







Figure 3-21 Gipps Road - future (2022) year vs future (2027) year



Figure 3-22 Murphys Avenue – future (2022) year vs future (2027) year

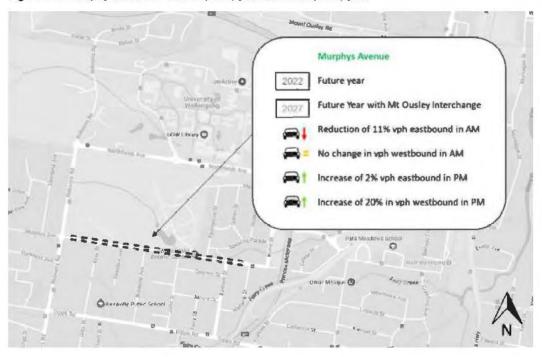






Figure 3-23 Northfields Avenue - future (2022) year vs future (2027) year

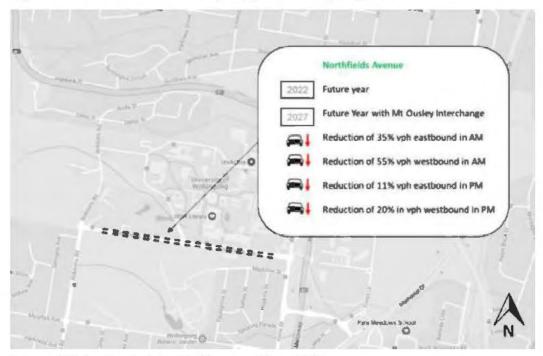


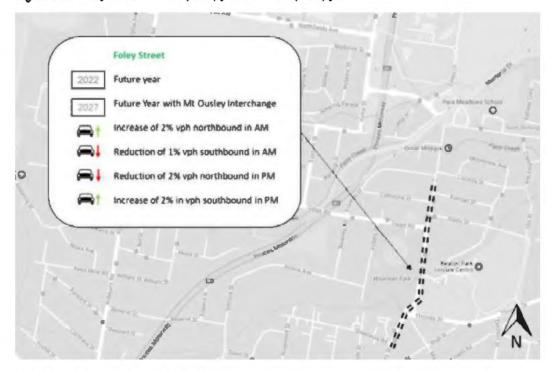
Figure 3-24 Irvine Street - future (2022) year vs future (2027) year







Figure 3-25 Foley Street - future (2022) year vs future (2027) year



3.9.5.6 Intersection performance

The future year model results indicated University Avenue / Pacific Motorway off-ramp and University Avenue / Porter Street intersections require additional capacity, with an intersection performance of LOS F during peak periods in 2022 and 2027 (even with the Mount Ousley Interchange upgrade).

No significant issues are anticipated for the other assessed intersections in 2022 or 2027, which have a satisfactory intersection performance of LOS $\rm C$ or better:

- > University Avenue / Irvine Street
- > University Avenue / University Avenue
- > University Avenue / Foleys Lane
- > Foley Street / Gipps Road
- > Foley Street / Throsby Drive
- > Foley Street / Gipps Street
- > Porter St signals
- > Gipps Road / Eastern Street.

A summary of the intersection performance of the assessed intersections are shown in **Figure 3-26**, **Figure 3-27**, **Figure 3-28** and **Figure 3-29** for the future (2022 and 2027) years.





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Figure 3-26 Intersection performance – future (2022) year AM peak

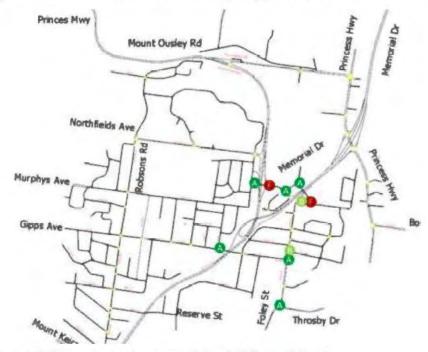


Figure 3-27 Intersection performance – future (2022) year PM peak

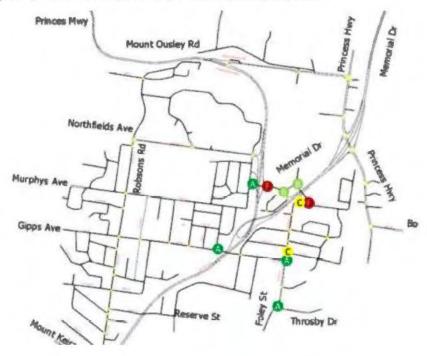






Figure 3-28 Intersection performance - future (2027) year AM peak



Figure 3-29 Intersection performance - future (2027) year PM peak







3.9.5.7 Summary

The traffic assessment identified existing (2018) congestion locations at:

- > Mount Ousley Road / Princes Motorway
- > Irvine Street / University Avenue
- > Princes Motorway / University Avenue.

The impact of future traffic growth and the Mount Ousley Interchange upgrade in the future (2027) year was assessed using the AIMSUN models. The Mount Ousley Interchange upgrade removes the congestion at Mount Ousley Road / Princes Motorway (by realignment) and provides a new access to the UOW campus. The AIMSUN models indicate there is some reduction of vehicles per hour in the roads surrounding the University such as Robsons Road and Northfields Avenue. However, the modelling results indicate there would still be congestion issues at the Princes Motorway / University Avenue and nearby intersections, in future (2027) year with the Mount Ousley Interchange upgrade.

Detailed intersection assessment in SIDRA confirmed the conclusions from the AIMSUN model. Additional capacity is required at the Pacific Motorway / University Avenue and University Avenue / Porter Street intersections. Further investigations are recommended to propose and assess either strategic or localised options to relieve congestion in this area.

3.9.6 Crash analysis

105 crashes occurred between 19 January 2010 and 28 May 2016 within the study area. This included 94 crashes involving cars, 7 involving motorcycles, 7 involving cyclists, 9 involving pedestrians, 8 involving light trucks and 4 crashes involving a bus.

A basic tool for understanding the context of a vehicle crash is Road User Movement (RUM) coding, which describes the first cause of every recorded crash. Vehicle crashes in Keiraville and Gwynneville were analysed by identifying RUM codes and trends.

Of the total 105 crashes, 54 per cent caused either a serious, moderate, minor or uncategorised injury, shown by the crash data in **Figure 3-30**. No vehicle collisions during this time caused a fatality.

The location and type of crashes within the study area during the six year period are shown in Figure 3-31.

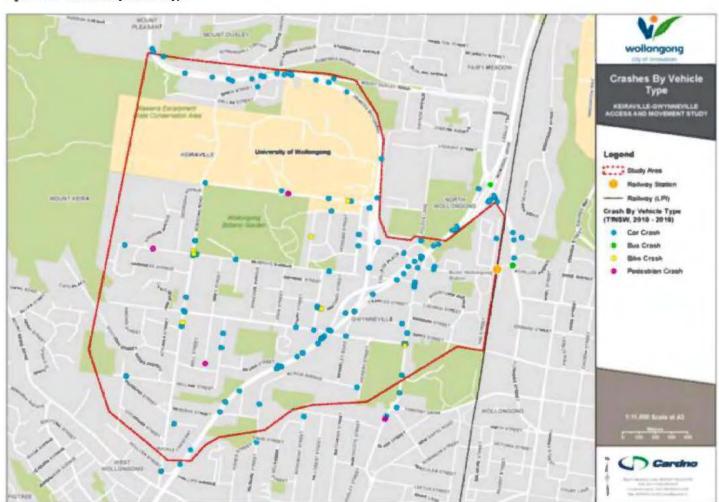
Figure 3-30 Injuries from vehicle crashes



Source: TfNSW Crash Data, 2016

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Figure 3-31 Crashes by vehicle type



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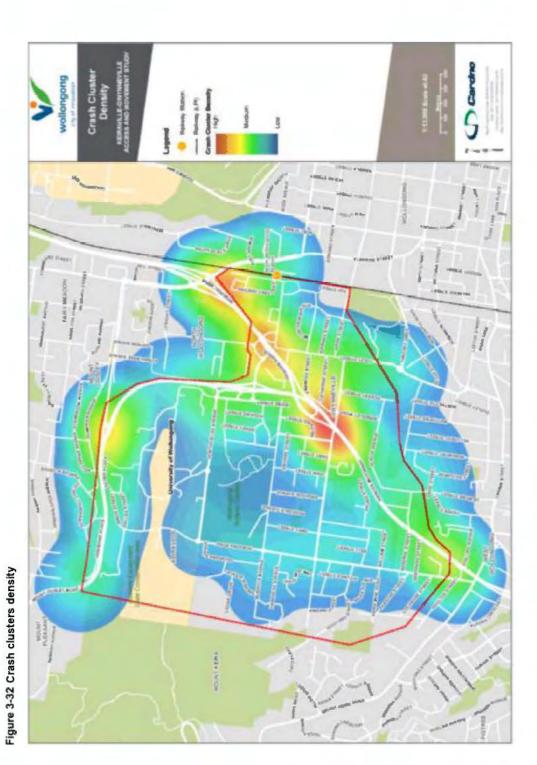


3.9.6.2 Crash clusters

The most densely clustered vehicle crashes occurred at the following locations:

- > 20 crashes on the Princes Motorway near the Gipps Road Bridge;
- > 29 crashes on the Princes Highway off and on ramps at the eastern side of the intersection with Memorial Drive; and
- > 33 crashes on Memorial Drive near the intersection with University Avenue.

Four serious injuries occurred on Foley Street, and three occurred on both Northfields Avenue and Gipps Road. A density map summarising crashes in the study area is shown in **Figure 3-32**.



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3.9.6.3 Vehicle crashes

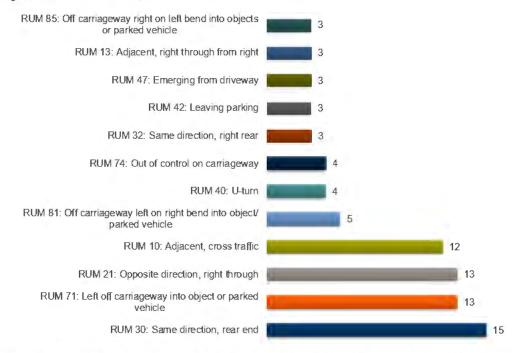
The most common crash type overall was rear end collisions between vehicles travelling in the same direction, accounting for 14 per cent of all crashes. This type of collision is common on heavily trafficked roads and can be caused by distracted drivers, tailgating, unexpected braking and loss of tracking in poor weather. These crashes mainly occurred on Robsons Road, Northfields Avenue and Foley Street.

Other common crash types were:

- Right through collisions occurring between vehicles travelling in opposite directions (12 per cent of all crashes);
- > Left off carriageway into object or parked vehicle crashes (12 per cent of all crashes); and
- > Cross traffic collisions between vehicles travelling in adjacent directions (11 per cent of all crashes).

The top 12 most common crashes are shown in Figure 3-33.

Figure 3-33 Vehicle crash type



Four crashes in the study area involved a bus, located on Mount Ousley Road, University Avenue, Princes Highway and Memorial Drive.







3.9.6.4 Pedestrian crashes

A total of nine crashes involving pedestrians occurred in the study area between 2010 and 2016. The most common pedestrian crash types involved pedestrians playing, working, lying or standing on the carriageway, pedestrians hit in the far side lane, and pedestrians hit in the near side lane. These occurred on Murphys Avenue, Northfields Avenue, Grey Street, Gipps Road, Eastern Street, Frances Street, Gipps Street and Foley Street, where the speed limit is 50 kilometres per hour for all streets except Irvine Street, which is 40 kilometres per hour. Five of these crashes resulted in serious injuries, and the rest resulted in minor or other injuries. The number and types of pedestrian crashes are shown in Figure 3-34.

Figure 3-34 Pedestrian crash type



3.9.6.5 Cyclist crashes

Seven crashes within the study area involved cyclists. These occurred on Gipps Road, William Street, Northfields Avenue, Waitangi Street, Paulsgrove Street and Foley Street. Four of these crashes involved another vehicle, and three did not. The number and type of cyclist crashes are shown in Figure 3-35.

Figure 3-35 Cyclist crash type







4 Consultation

Stakeholder engagement and consultation for this project informed understanding of the key issues affecting both WCC as well as the community.

4.1 Key stakeholders

The key stakeholders for this study included:

- > WCC Infrastructure Strategy & Planning Division;
- > TINSW Roads and Maritime Services;
- > Neighbourhood Forum 5 (NF5);
- > University of Wollongong;
- > Department of Planning and Environment;
- > Transport for NSW;
- > WCC Active Transport Reference Group;
- Botanic Gardens;
- > Department of Defence;
- Residential community;
- > Bicycle User Group;
- > Business operators;
- > TAFE Illawarra; and
- > Schools.

4.2 Communication and engagement objectives

The stakeholder engagement for this study aimed to ensure that:

- Information on the progress of the project is communicated to key stakeholders in a timely and appropriate fashion;
- Any key issues from stakeholder groups are identified early and are captured in the study during its development; and
- > The findings and recommendations of the study are comprehensive and address stakeholder inputs.

The Stakeholder Engagement Plan for this project is attached in Appendix E.

4.3 Survey

Community feedback was collected via the following sources:

- > Keiraville-Gwynneville Access and Movement Study Workshop #1;
- > Wollongong City Council's Have Your Say forum; and
- Neighbourhood Forum 5 KEG workshop.

Overall, there were 242 issues raised by members of the community, the majority of which concerned parking. The number of issues logged per category is broken down below:

- > 93 Parking issues
- > 39 Pedestrian issues
- > 32 Cycle issues





- > 27 Roads issues
- > 27 Public Transport issues
- > 13 Other issues
- > 11 Traffic issues

4.4 Consultation outcomes

The issues, expectations, and proposed solutions were captured in a single Consolidated Community Comments spreadsheet, attached as **Appendix F**. The spreadsheet is organised according to the structure shown in **Table 4-1**.

The community and stakeholder issues are reflected in Section 5.

Table 4-1 Consolidated Community Comments – spreadsheet structure

Category	Notes	
WS1 Community Expectations	This tab contains the expectations of the Keiraville-Gwynneville Access and Movement Study identified by the community in Workshop #1 held on 29 November 2017.	
WS1 Transport Solutions	This tab contains the transport solutions proposed by the community in Workshop #1 held on 29 November 2017.	
Road	This tab contains the community's road related issues. These were collated from the following three sources: Community in Workshop #1 held on 29 November 2017; WCC's online portal; and Neighbourhood Forum 5 workshops.	
Parking	This tab contains the community's parking related issues. These were collated from the following three sources: Community in Workshop #1 held on 29 November 2017; WCC's online portal; and Neighbourhood Forum 5 workshops.	
Public Transport	This tab contains the community's public transport related issues. These were collated from the following three sources: Community in Workshop #1 held on 29 November 2017; WCC's online portal; and Neighbourhood Forum 5 workshops.	
Pedestrian	This tab contains the community's pedestrian related issues. These were collated from the following three sources: Community in Workshop #1 held on 29 November 2017; WCC's online portal; and Neighbourhood Forum 5 workshops.	
Cyclists	This tab contains the community's pedestrian related issues. These were collated from the following three sources: Community in Workshop #1 held on 29 November 2017; WCC's online portal; and Neighbourhood Forum 5 workshops.	
Other	This tab contains the community's pedestrian related issues. These were collated from the following three sources: Community in Workshop #1 held on 29 November 2017; WCC's online portal; and Neighbourhood Forum 5 workshops.	





4.5 Workshops

As part of the stakeholder engagement, three workshops were completed to discuss each stage of this study. A summary of each workshop is provided below.

4.5.1 Workshop 1 - Brainstorm

The purpose of workshop 1, held on 29 November 2017 was to present an overview of the existing transport network to the community and to capture any specific comments or concerns that the community and key stakeholders may have. The key stakeholders were given the opportunity to comment on:

- > Expectations for the transport network and the project;
- > Any issues with the existing transport network; and
- > Potential solutions to mitigate transport issues.

Individuals also provided photos of various issues.

4.5.2 Workshop 2 - Refining

The purpose of Workshop 2, held on 23 February 2018 was to provide the key stakeholders an update of the project, and key deficiencies of the existing network and potential opportunities.

4.5.3 Workshop 3 – Prioritisation

The final workshop was held on 5 June 2018. At this workshop, the community was updated on the progress of the project including issues analysis, solutions development, and the prioritisation process.

4.5.4 Workshop 4 - Supplementary Workshop

A supplementary community workshop was held following the initial three workshops. The purpose of this workshop was to give the community an additional opportunity to provide comments on the proposed actions for Council.





5 Transport network issues and opportunities

This section outlines the issues with the existing transport network gathered from background review, stakeholder and community consultation, and the transport analysis.

5.1 Pedestrian network issues and opportunities

The majority of issues within the pedestrian network involve missing and non-compliant infrastructure. This includes missing footpaths and crossing facilities that contribute to poor connectivity within the study area.

Some of the key issues noted during the site visit, as well as through community and stakeholder consultation are as follows:

Footpaths

- Footpaths are missing on Murphy's Avenue, Eastern Street, Grey Street, Williams Street, Throsby Drive, and Robsons Road.
- > There is no footpath on Gooyong Street.
- > Uneven footpaths are dangerous for pedestrians.

Signage

- > Signage and wayfinding is limited within the study area.
- > Poor wayfinding throughout the precinct.

Crossings

- > Lack of safe pedestrian crossings within Keiraville and Gwynneville.
- > Kerb ramps missing at the Vickery Street children's crossing.
- > A number of non-compliant crossing facilities throughout the study area.

Connectivity

- > Limited connectivity to the east of the UOW campus.
- Traffic signal timings and phasings in the Keiraville and Gwynneville retail village centres are focused on vehicle movements.
- A pedestrian path is needed linking the UOW campus and suburbs to the north.
- > It is difficult to access the Mount Ousley area from UOW.

Safety

- > The community expressed concern regarding insufficient street lighting in some areas.
- > There are opportunities for Council to review street lighting along key routes such as Robsons Road, Dallas Street and Greenacre Road to improve safety.

Behavioural

Walking rates to school have been in decline for decades despite increases in footpaths, suggesting that families are choosing other transport modes to access schools.

The criteria used to assess the compliance of pedestrian crossing facilities were adopted from Australian Standards 1742.10 – Pedestrian Control and Protection, RMS supplements to the Australian Standards and RMS technical directions and included:

- > Crossing width and length;
- > Sightlines (at a high level);
- > Signage;





- > Linemarking;
- > Crossing and kerb ramp alignment;
- > Provision of signalised crossings at each leg of an intersection;
- > Presence of push-buttons at signalised crossings; and
- > Posts for children's crossings.

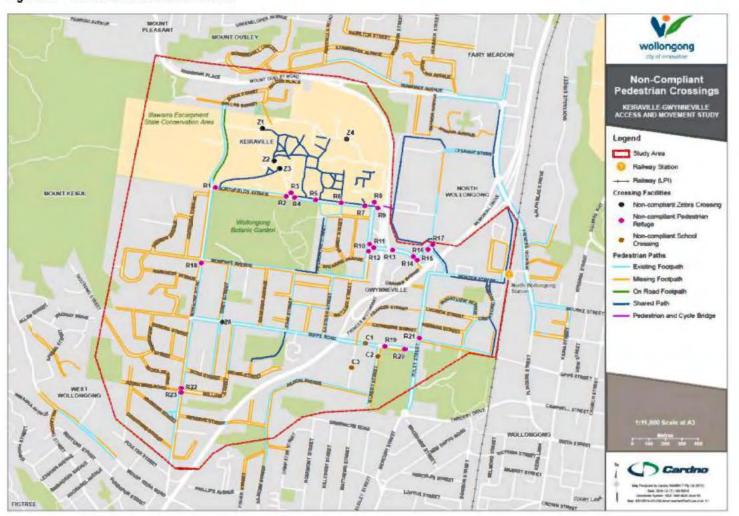
A summary of the key non-compliant and missing pedestrian footpaths is shown in **Figure 5-1**. The labels correspond to the schedule of non-compliant pedestrian crossing facilities presented in **Appendix H**.

5.1.1 Opportunities

The key opportunities for the pedestrian network include addressing crossing facilities, pedestrian priority and connectivity, and wayfinding to important destinations. The associated actions are detailed in **Section 6**.



Figure 5-1 Pedestrian infrastructure issues



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5.2 Cycling network issues and opportunities

Cycling network issues include gaps in the off-road network (not proposed by the WCC Bike Plan) and lack of end of trip facilities at key land uses:

- > Missing link in off-road network along Gipps Road, between Robsons Road and John Street;
- > Missing strategic connections between Mount Ousley and UOW;
- > Missing strategic connections between east and west of the railway line, particularly close to Beaton Park;
- > Missing strategic connections between UOW and the Innovation Campus;
- > Lack of end of trip facilities at Keiraville and Gwynneville village centres; and
- > Dangerous roundabouts for cyclists at intersection of Robson Road and Murphys Avenue and Robson Road and Gipps Road.

The key issues are shown in Figure 5-2, overlaid on the existing cycle network.

5.2.1 Opportunities

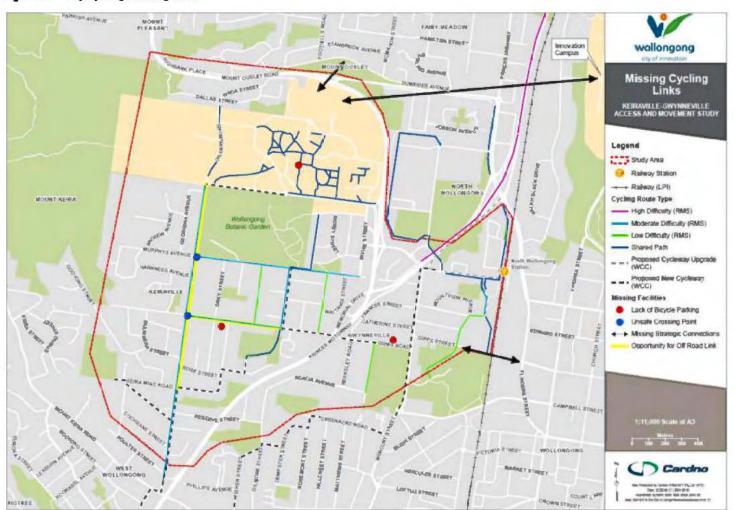
The key opportunities for the cycling network include shared path infrastructure, bicycle parking, and wayfinding, and include:

> Opportunity for an off-road cycle link along Robsons Road between William Street and Northfields Avenue:

The associated actions are detailed in Section 6.



Figure 5-2 Key cycling missing links



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5.3 Bus network issues and opportunities

Bus issues are focused on poor service quality, frequency and infrastructure around the study area. The key issues are as follows:

- > Infrequent bus services;
- > Poor levels of on-time running;
- > Bus services, particularly during peak periods are overcrowded;
- > Poor integration of bus services with train timetables;
- Shuttle services are limited outside of peak times and out of session time;
- > Wet weather shelter is not provided at all bus stops within the study area; and
- > Poor connectivity of bus services with surrounding suburbs.

5.3.1 Opportunities

The key opportunities for the bus network include improved bus stop facilities, integrating bus and train timetables, and investigating bus priority infrastructure. The associated actions are detailed in **Section 6**.

5.4 Train network issues and opportunities

The key issues related to the train network are:

- > Poor frequency of services in both directions;
- > Poor integration of services with buses; and
- > Poor alignment of services with UOW schedule.

5.4.1 Opportunities

The key opportunities for the train network include integrating bus and train timetables, and increasing service frequency. The associated actions are detailed in **Section 6**.

5.5 Road network issues and opportunities

The key issues for road network were largely around increasing congestion and unsafe locations. A summary of these issues are as follows:

- > There is heavy traffic in many of the streets within the study area;
- > The roundabout at the intersection of the M1 Princes Motorway offload ramp and University Avenue is congested and dangerous in peak times;
- > Intersection of Irvine Street / University Avenue has extensive queuing in the PM peak.
- > Queuing at Mount Ousley Road in the AM and PM peaks;
- University Avenue / Pacific Motorway off-ramp and University Avenue / Porter Street intersections require additional capacity by 2022;
- > The UOW Ring Road is congested during the affernoon peak period;
- > Foley Street experiences high traffic congestion;
- > There is a community perception of high vehicle speeds prevalent throughout the study area; and
- > There is a community perception that local roads near the UOW are used as rat runs for UOW students during congested periods.





5.5.1 Opportunities

The key opportunities for the road network include increased traffic calming measures, and working with schools to increase the efficiency of kiss and ride locations. The associated actions are detailed in **Section 6**.

5.6 Parking network issues and opportunities

Parking was a significant issue discussed by the community and key stakeholders. Some of the key issues with parking include:

- Parking utilisation is very high in the streets south of the UOW campus during in-session periods, including Keiraville village;
- > Two hour parking spaces on local roads such as Robsons Road, Paulsgrove Street and Sidney Street are not long enough for students attending lectures;
- > Accessible parking is not provided in the village centres;
- > Lack of sufficient pick up/drop off zones at key destinations such as schools, UOW, and Beaton Park;
- > Parking close to key destinations is offen heavily utilised by employees;
- > Vehicles are often parked across driveways;
- Large quantum of unrestricted parking provided in residential areas in close proximity to the University;
- > Poor sightlines at some intersections within the precinct due to vehicles parking too close;
- > Current and planned student accommodation generates parking demand;
- > Multi occupancy dwellings where each occupant owns a car generates greater on-street parking demand;
- > High number of vehicles parking illegally throughout the study area; and
- Number of residential streets throughout the study area which have been reduced to one lane in each direction due to parking on both sides of the road.

5.6.1 Opportunities

The key opportunities for the parking network include investigating paid and resident parking schemes in certain areas, and increasing enforcement of parking restrictions. The associated actions are detailed in **Section 6**. However, it is noted that resident parking schemes are not supported by Council, especially given how most residential properties in the area have off-street parking.





6 Actions and prioritisation

6.1 Key actions

The transport network opportunities were used to inform the proposed actions for the study area. These opportunities are complemented by Council identified actions in response to additional community comments, some of which have already been completed by Council. The full list of actions is provided in **Table 6-1**. Detailed locations for the Council identified actions are included in **Appendix G**.





Table 6-1	Transport:	actions

4	Mode	Issue	Action	Details MICC to with the second for
1	Bus	Poor bus service times and frequency	Extend bus timetables and frequency.	WCC to work with bus operators to increase operation times and frequency of existing bus services.
2	Bus	Poor reliability of bus services.	Work with RMS to provide bus priority infrastructure at key points.	WCC could work with RMS to provide bus queue jumps and priority at key intersections to increase reliability of bus services.
3	Bus	Poor integration of public transport.	WCC to work with bus operators to better integrate bus and train timetables.	WCC should work with bus operators to ensure bus services provide good interchange times for commuters to encourage interchanges between modes.
4	Bus	Poor bus stop facilities.	WCC to work with bus operators to provide improved bus stop facilities.	WCC should work with bus operators to ensure at a minimum DDA compliance of all bus stops are provided. Potential for bus stop relocation to allow for DDA compliance, and placed close to key land uses.
5	Bus Poor bus capacity.		WCC to work with bus operators to ensure adequate capacity is provided to bus services.	WCC should work with bus operators to ensure safe use of all bus services Bus operators should ensure that the demand for bus services is being provided.
В	Bus	Poor bus service coverage.	Provide direct bus services between key trip attractors.	All major centres within the precinct should be catered for by direct bus services - WCC to work with bus operators to provide additional services to key destinations.
7	Bus	Shuttle bus services.	Maintain and further promote the local shuttle bus services.	WCC to work with TfNSW and UOW to maintain Keiraville/Gwynneville Shuttle, the North Wollongong Shuttle, and the Wollongong Shuttle.
В	Cyclist	Limited safe off-road cycle path facilities throughout the precinct.	Include suggested shared path locations in future programs.	Various locations identified across the study area – see Appendix H for details.
9	Cyclist	Limited direct cycle and pedestrian facilities across railway line.	WCC to work with TfNSW to investigate active transport connection across train line close to Beaton Park.	WCC could work with TfNSW to provide an active transport connection across the railway line close to Beaton Park. This could be a shared pedestrian and cyclist bridge linking Gipps Street east and west of the train line.
10	Cyclist	Poor cycling wayfinding to key destinations.	WCC to provide improved cycling wayfinding on the key regional cycle routes.	WCC to provide improved signage and wayfinding as per NSW Bicycle Guidelines to key destinations including the University of Wollongong, Keiraville, Gwynneville, Wollongong CBD etc.
11	Cyclist	Poor lighting and footpath width along Wisemans Park (Vickery Street) shared path.	WCC to provide a widened shared path and lighting through Wisemans Park as per the Fairy Creek Master Plan.	WCC to provide a 2.5m wide shared path within Wisemans Park in accordance with the adopted Fairy Creek Master Plan.
12	Cyclist	Lack of secure or undercover bioyole parking at key land uses,	Provide increased number of secure and undercover bicycle parking at key land uses such as the UOW, Keiraville and Gwynneville village centres, Beaton Park, the local schools and especially off-street parking locations.	WCC to work with key land uses and town centre to provide an increased number of secure or undercover cycle parking.
13	Pedestrian	Roundabouts within the precinct do not have pedestrian refuges.	Provide compliant pedestrian refuges at all roundabouts.	WCC to investigate provision of compliant pedestrian refuges at all roundabouts within the precinct.
14	Pedestrian	Number of crossing facilities not to Australian Standards.	Ensure that all crossing facilities comply with Australian Standards (upgrade where needed).	All pedestrian, signalised crossings as well as pedestrian refuges should be provided to Australian Standards. Adequate lighting should also be provided.
15	Pedestrian	Poor pedestrian connectivity to the north and east of UOW.	Provide a direct pedestrian connection towards the north and east of UOW.	WCC to investigate the provision of pedestrian/ cyclist connections across Mt Ousley Road and Princes Motorway towards the north and east of UOW. It is believed that this is part of the proposed Mt Ousley interchange design
16	Pedestrian	Poor wayfinding within the precinct.	Provide wayfinding to key destinations including train stations, UOW, key centres and recreation facilities.	WCC to develop a wayfinding strategy similar to that of the City of Sydney to encourage walking and cycling. Wayfinding to be provided to key locations.
17	Pedestrian	Vehicle priority in key centres across the precinct.	Provide increased pedestrian priority within the town centres.	WCC to work with RMS to update signal phasings. WCC could also provide lower speed limits in key centres to provide increased pedestrian/ cyclist priority. Traffic calming could also be provided in these centres.
18	Pedestrian	Poor walking rates throughout the precinct.	Provide increased marketing especially in schools, work places and town centres to show the benefits of walking and cycling.	WCC to develop marketing tool to present the benefits of active transport, especially to schools and University.
19	Pedestrian	Poor lighting along streets impacting security.	WCC to review street lighting.	Key routes for investigation: > Robsons Rd, Dallas St, Greenacre Rd.
20	Pedestrian	Missing footpath links in study area.	Include suggested footpath locations in future programs.	Various locations identified across the study area – see Appendix H for details.
21	Vehicles	Vehicles speed down slope on Gooyong Street, in close proximity to the preschool.	Provide traffic calming along Gooyong Street	Provide warning signage and traffic calming along Gooyong Street to help regulate speed along this slope, which could include road narrowing, kerb extensions, linemarking and pavement treatments.
22	Vehicles	Poor salety at the Murphys Avenue and Robsons Avenue roundabout	Realignment of roundabout at Murphys Avenue and Robsons Road	The Murphys Avenue and Robsons Road roundabout is too small, and may not slow vehicles down enough. WCC should investigate the enlarging of this roundabout to slow vehicles down.
23	Notused		-	
24	Vehicles	High vehicle speed throughout the study area.	WCC to investigate extending school zones on the northern and southern sides of Robsons Road near the intersection with Gipps Road.	
25	Notused		-	
26	Notused	-		
27	Vehicles	High vehicle speed throughout the study area.	WCC to investigate traffic calming measures on Robsons Road to manage vehicle speeds, particularly on the north and south downhill sections to the Gipps	This was mentioned by a number of members of the community.





ID	Mode	Issue	Action	Details
28	Vehicles	Safer crossings needed across study area.	Council has identified a number of intersections where improvements will be investigated.	Various locations identified across the study area – see Appendix H for details.
29	Notused	-	-	
30	Vehicles	High vehicle speed throughout the study area.	WCC to investigate traffic calming improvements.	Various locations identified across the study area – see Appendix H for details.
31	Vehicles	High vehicle speed throughout the study area.	WCC to investigate roundabout installation.	Consider a roundabout for Braeside Ave/Murphys Ave intersection to slow traffic.
32	Vehicles	Safety issues close to schools.	Council has identified a number of locations where safety improvements close to schools will be reviewed.	Various locations identified across the study area — see Appendix H for details.
33	Vehicles	Safety issues on University Avenue.	Investigate safety improvements on University Avenue.	Guardrail installed on University Avenue between Memorial Drive and Porter Street (east) in 2018/2019.
34	Parking	Poor line marking of parking spaces.	WCC to investigate the provision of marked parking bays to increase the efficiency of parking spaces within the precinct.	Focus on high-demand roads without existing linemarking, including: Northfields Avenue O'Leary Road Robsons Road north of Gipps Road Murphys Avenue Gipps Road Local roads between Murphys Avenue and Gipps Road Porter Avenue Railway Crescent
35	Parking	Parking restrictions.	Review timed parking.	Various locations identified across the study area – see Appendix H for details.
36	Parking	Poor monitoring of parking in the precinct.	Review ranger patrols to ensure all vehicles abide by the corresponding parking restrictions.	Focus on all suburbs within the study area. Key areas for investigation: Increase the number of parking rangers to ensure vehicles do not park fo longer than they should and parking in designated parking spaces only. Consider varying patrol locations at the start of the University session. Enforce current parking restrictions. Enforce parking bay restrictions on weekends as well.
37	Parking	Lack of sufficient pick up/drop off zones at key destinations such as schools, UOW, and Beaton Park.	WCC to review parking restrictions on the western side of Grey St and consider amendments to match those on the eastern side with school zone timing restrictions.	
38	Parking	High amount of unrestricted parking provided in residential areas in close proximity to the University.	WCC to investigate introduction of paid parking in the vicinity of the University, with pricing generally be highest adjacent to the university.	Pricing is recommended to start at about \$2.00 per hour (equivalent to or slightly higher than the student rate on-campus), decreasing to zero based on distance and demand. Pricing should be set at a level such that peak occupancy is maintained at around 90%.
39	Notused	-	-	
40	Parking	Lack of sufficient pick up/drop off zones at key destinations such as schools, UOW, and Beaton Park.	WCC to consider developing a special event parking and traffic management plan to manage events at Beaton Park and other locations.	A combination of parking wardens, event parking permits for organisers, drop off/pick up points, wayfinding tools and temporary traffic management measures can be used to ensure a satisfactory experience for visitors. Council could also consider improving the opportunities for overflow parking (through facilitating agreements with demand generators) to improve peak accessibility and increase safety in the area.
41	Parking	Lack of sufficient pick up/drop off zones at key destinations such as schools, UOW, and Beaton Park.	WCC to consider implementing parking restrictions such as timed or paid parking in certain areas, to relocate staff to the periphery of these land uses or off-site.	Facility users may not be aware of alternative parking locations and parking congestion occurs in the immediate vicinity, causing safety issues for both users and residents.
42	Parking	Accessible parking is not provided in the village centres.	WCC to consider implementing parking user priority system in commercial centres.	The two village centres of Keiraville and Gwynneville should have parking signage modified to include loading zones, motorcycle parking, disability and short-term drop-off/pick-up.
43	Notused			-
44	Parking	Safety at school crossings.	WCC to advocate for the Department of Education and local schools to consider appointing wardens to assist parents with considerate and formalised kiss and ride facilities, as well as coordinating safe passage of children from the roadside into schools.	Wardens should be school teachers if possible to increase authority. If such an approach does not produce compliance, rangers can attend the school and issue warnings or infringements as necessary. Enforcement should be used as a tool to ensure compliance in conjunction with more positive approaches to parking management.
45	Parking	Lack of sufficient pick up/drop off zones at key destinations such as schools, UOW, and Beaton Park.	Local schools could consider monitoring kiss and ride parking to prevent parking, and expand it as required to support demand.	
46	Parking	Lack of sufficient pick up/drop off zones at key destinations such as schools, UOW, and Beaton Park.	Local schools could consider staggering start and finish times to help alleviate parking issues.	The fact that school start and finish times are so clearly defined means that hundreds of people are arriving and departing a single location within a very short period of time.
47	Parking	Lack of sufficient pick up/drop off zones at key destinations such as schools, UOW, and Beaton Park.	WCC to work with UOW to investigate pick up and drop off locations along Northfields Avenue.	Requested by UOW in their review of the Parking Tech Memo.
48	Perking	Signage and wayfinding is limited within the study area.	WCC to consider developing a wayfinding strategy to help manage parking at schools and other attractors such as Beaton Park and the Botanic Garden.	Council could also provide some guidelines to assist schools/local attractions in communicating parking availability to parents.





ID	Mode	Issue	Action	Details
49	Parking	Uniform approach to kiss and ride facilities does not suit every location.	WCC to work with schools to manage parking and safe drop off/pick up.	Key areas for investigation: > Meet with Schools and School Crossing Supervisors/Rangers/RMS/Police to determine the best option for that specific location, investigate drop off zones for set times of the day. Consider 'Slow Down' signage as part of the kis s and ride strategy; Consider that parents may want to get out of their car to pick up younger children, so a kis s and ride solution may not work for everyone; Ensure drop off/pick up issues are considered in the rebuild of Gwynneville Public School; Work towards long term reduction in demand for kis and ride zones by encouraging walking/riding by students through provision of extra pedestrian crossings and bike paths; Consider staggering start/finish times to better manage traffic.
50	Miscellaneous	High vehicle mode shared from UOW.	Potential for UOW to increase student accommodation close to the main campus to reduce the need to travel to the University.	UOW to investigate providing additional student accommodation close the main campus to reduce student travel to the University.





Prioritisation

The transport network actions were assigned a priority, based on planning principles developed in consultation with WCC. The principles are:

- > Safety,
- > Accessibility / Connectivity;
- > Travel mode sustainability;
- Cost / Constructability;
- Addresses impacts to local community;
- > Addresses impacts to UOW operation;
- > Parking management;
- Improves access for vulnerable user groups;
- > Aligned with government strategies.

The actions were prioritised using a multi criteria analysis (MCA), and by scoring each action against the planning principles. Each principle was assigned a weighting of 10 per cent, except for safety, which was assigned a higher weighted score of 20 per cent. The actions with the highest score are the highest priority actions. Priority is categorised according to high, medium, and low priority, as shown in Table 6-2.

Table 6-2 Priority Level

Priority Level	Score	
High Priority	4.0 and above	
Medium Priority	3.5 to 4.0	
Low Priority	0 to 3.5	

The prioritisation matrix is presented in Table 6-3. Actions are listed in order of highest priority.

Implementation

Based on the results of the prioritisation matrix, the actions and their priority for the implementation of works is presented in Table 6-3. The higher priority actions should be delivered first.

Cost estimates 6.4

Strategic cost estimates were developed for each action involving improvement works and are presented in Table 6-3. The costs are based on unit rates provided by Council, include a 50% contingency and have been rounded to the nearest \$100. The costs do not allow for elements such as:

- > Project management;
- Design;
- > Property acquisition;
- Temporary works or traffic control;
- Site establishment or disposal of material costs;
- Relocation of services or drainage; or
- > Provision of barriers and fences.

The total cost of the works is estimated to be \$10,611,700.



Table 6-3 Prioritisation matrix

ID	Mode	Action	Safety	Accessibility / Connectivity	Travel mode sustaina- bility	Price / Constr- uctability	Address impacts to local community	Address impacts to UoW operation	Parking Manage- ment	Improve access for vulnerable user groups	Aligned with government strategies	Total Score (out of 5)	Priority	Estimated cost
ī		Weighting	20%	10%	10%	10%	10%	10%	10%	10%	10%	100%		
В	Pedestrian/ Cyclist	WCC to include suggested shared path locations in future programs.	5	5	5	3	5	4	2	5	5	4.4	High	\$990,000
14	Pedestrian	WCC to ensure that all crossing facilities comply with Australian Standards (upgrade where needed).	5	5	5	5	5	2	2	5	5	4.4	High	\$75,000
13	Pedestrian	WCC to provide compliant pedestrian refuges at all roundabouts.	5	5	5	4	5	2	2	5	5	4.3	High	\$1,312,500
30	Vehicles	WCC to investigate traffic calming improvements in key locations.	5	5	3	3	5	3	4	5	5	4.3	High	N/A
32	Vehicles	WCC to investigate identified locations for safety improvements close to schools.	5	5	4	3	5	2	4	5	5	4.3	High	N/A
33	Vehicles	Investigate safety improvements on University Avenue.	5	5	3	3	5	4	3	5	5	4.3	High	N/A
20	Pedestrian	WCC to include suggested footpath locations in future programs.	5	5	5	3	4	3	2	5	5	4.2	High	\$1,875,000
12	Cyclist	WCC to provide increased number of secure and undercover bicycle parking at key land uses.	4	4	5	5	4	3	4	4	4	4.1	High	\$225,000
28	Vehicles	WCC to investigate identified intersection improvements.	5	4	5	3	5	2	2	5	5	4.1	High	\$97,50
34	Parking	WCC to investigate the provision of marked parking bays to increase the efficiency of parking spaces within the precinct.	4	3	3	5	5	5	5	3	4	4.1	High	\$16,80
36	Parking	WCC to review ranger patrols to ensure all vehicles abide by the corresponding parking restrictions.	4	3	3	5	5	5	5	3	4	4.1	High	N//
19	Parking	WCC to work with schools to manage parking and safe drop off/pick up.	5	5	2	4	4	4	5	4	3	4.1	High	NV
3	Bus	WCC to work with bus operators to better integrate bus and train timetables.	3	5	5	4	5	4	2	4	5	4.0	High	N/A
4	Bus	WCC to work with bus operators to provide improved bus stop facilities.	4	4	5	4	4	3	2	5	5	4.0	High	N/A
11	Pedestrian/ Cyclist	WCC to investigate widening shared path and lighting along Wisemans Park shared path.	5	5	5	4	4	2	2	4	4	4.0	High	\$1,342,500
15	Pedestrian	WCC to work with stakeholders to provide a direct pedestrian connection towards the north and east of UoW.	3	5	5	2	4	5	3	5	5	4.0	High	N//
7	Pedestrian	WCC to provide increased pedestrian priority within the town centres.	5	5	5	4	4	2	2	4	4	4.0	High	NV
14	Parking	WCC to advocate for the Department of Education and local schools to consider appointing wardens to assist parents with considerate and formalised kiss and ride facilities, as well as coordinating safe passage of children from the roadside into schools.	5	5	2	3	4	2	5	5	4	4.0	High	N/
6	Pedestrian/ Cyclist	WCC to work with stakeholders to provide wayfinding to key destinations including train stations, UoW, key centres and recreation facilities.	3	5	5	5	3	4	3	4	4	3.9	Medium	N/

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ID	Mode	Action	Safety	Accessibility / Connectivity	Travel mode sustaina- bility	Price / Constr- uctability	Address impacts to local community	Address impacts to UoW operation	Parking Manage- ment	Improve access for vulnerable user groups	Aligned with government strategies	Total Score (out of 5)	Priority	Estimated cost
24	Vehicles	WCC to investigate extending school zones on the northern and southern sides of Robsons Road near the intersection with Gipps Road to calm traffic.	5	3	2	4	5	3	2	5	5	3.9	Medium	\$9,900
5	Bus	WCC to work with bus operators to ensure adequate capacity is provided to bus services.	3	4	5	4	5	4	2	4	5	3.9	Medium	N/A
10	Cyclist	WCC to provide improved cycling wayfinding on the key regional cycle routes.	3	4	5	5	4	4	2	4	5	3.9	Medium	\$24,000
37	Parking	WCC to review parking restrictions on the western side of Grey St and consider amending these to match those on the eastern side with school zone timing restrictions.	3	5	2	5	5	3	5	4	4	3.9	Medium	N/A
7	Bus	Maintain and further promote the local shuttle bus services.	3	4	5	4	5	4	2	4	5	3.9	Medium	N/A
46	Parking	Local schools could consider staggering start and finish times to help alleviate parking issues.	3	5	2	4	4	3	5	5	4	3.8	Medium	N/A
27	Vehicles	WCC to investigate traffic calming measures on Robsons Road to manage vehicle speeds, particularly on the north and south downhill sections to the Gipps Rd intersection.	5	3	2	3	5	3	2	5	5	3.8	Medium	\$114,200
40	Parking	WCC to consider developing a special event parking management plan to manage events at Beaton Park and other locations.	4	5	12	4	4	3	5	4	3	3.8	Medium	N/A
19	Pedestrian	WCC to review street lighting, particularly along Robsons Road, Dallas Avenue, and Greenacre Road.	5	4	2	3	4	3	3	5	4	3.8	Medium	N/A
18	Pedestrian/ Cyclist	WCC to work with stakeholders to provide increased marketing especially in schools, workplaces and town centres to show the benefits of walking and cycling.	3	4	5	5	4	2	3	3	5	3.7	Medium	N/A
1	Bus	WCC to work with stakeholders to extend bus timetables and frequency.	2	5	5	4	4	4	2	4	5	3.7	Medium	N/A
47	Parking	WCC to work with UoW to investigate pick up and drop off locations along Northfields Avenue.	3	5	2	3	3	5	5	4	3	3.6	Medium	N/A
45	Parking	Local schools could consider monitoring kiss and ride usage to prevent parking, and expand it as required to support demand.	3	5	12	4	3	2	5	5	4	3.6	Medium	N/A
48	Parking	WCC to consider developing a wayfinding strategy to help manage parking at schools and other attractors such as Beaton Park and the Botanic Garden.	3	5	2	3	3	4	5	3	4	3.5	Medium	N/A
42	Parking	WCC to consider implementing parking user priority system in commercial centres.	2	5	2	4	4	2	5	4	4	3.4	Low	N/A
35	Parking	WCC to review timed parking.	2	5	3	3	4	4	5	2	3	3.3	Low	N/A
2	Bus	WCC to work with RMS to provide bus priority infrastructure at key points.	2	5	5	2	4	3	2	3	5	3.3	Low	N/A
9	Pedestrian/ Cyclist	WCC to work with TfNSW to investigate active transport connection across train line close to Beaton Park.	3	5	5	1	3	3	2	5	3	3.3	Low	\$3,924,300
21	Vehicles	WCC to investigate centre line marking and traffic calming along Gooyong Street.	5	3	2	4	4	(4)	4)	4	4	3.3	Low	\$114,200
31	Vehicles	WCC to investigate roundabout installation at Braeside Avenue/Murphys Avenue intersection.	5	4	3	2	4	2	2	3	3	3.3	Low	\$225,000

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ID	Mode	Action	Safety	Accessibility / Connectivity	Travel mode sustaina- bility	Price / Constr- uctability	Address impacts to local community	Address impacts to UoW operation	Parking Manage- ment	Improve access for vulnerable user groups	Aligned with government strategies	Total Score (out of 5)	Priority	Estimated cost
50	Parking	UoW to investigate increasing student accommodation close to main campus to reduce the need to travel.	2	5	5	T	4	5	4	3	2	3,3	Low	N/A
41	Parking	WCC to consider implementing parking restrictions such as timed or paid parking in certain areas, to relocate staff to the periphery of these land uses or off-site.	2	4	3	4	4	2	5	3	3	3.2	Low	N/A
6	Bus	WCC to work with stakeholders to provide direct bus services between key trip attractors.	2	5	5	2	4	3	2	3	4	3.2	Low	N/A
38	Parking	WCC to investigate introduction of paid parking in the vicinity of the University, with pricing generally be highest adjacent to the university.	2	3	2	3	3	5	5	3	4	3.2	Low	N/A
22	Vehicles	WCC to investigate realignment of roundabout at Murphys Avenue and Robsons Road.	5	3	2	3	3	1	1	4	4	3.1	Low	\$225,000

The structure plans indicating the actions to be undertaken for each mode are presented in Figure 6-1, Figure 6-2 and Figure 6-3 for the active transport, vehicle and parking actions respectively. A public transport structure plan was not developed since the related actions are not location-specific.



Figure 6-1 Active transport structure plan

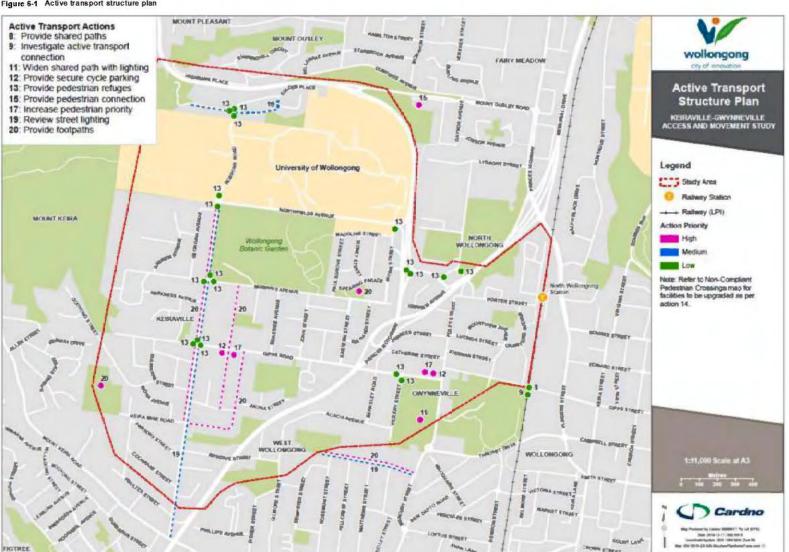
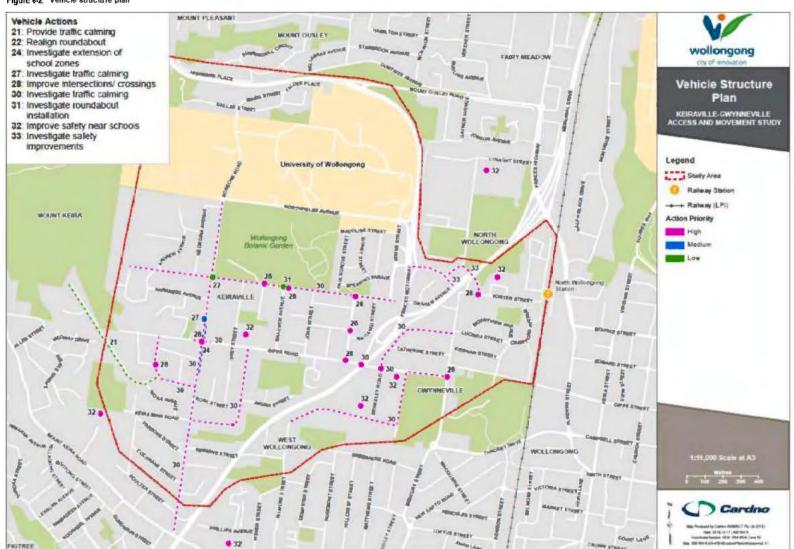




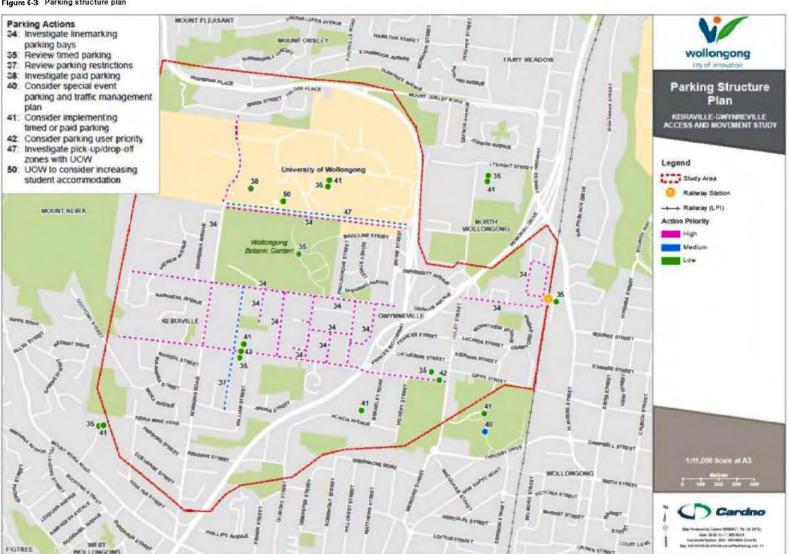
Figure 6-2 Vehicle structure plan



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Figure 6-3 Parking structure plan



December 2020





Conclusion

The Keiraville-Gwynneville Access and Movement Study highlights a number of issues with the traffic and transport network in the precinct, which will become more challenging as land use changes in the area and further development increases the number of daily trips made by residents, workers, students, and visitors.

At the same time, the study has identified a number of opportunities to make improvements to the network and facilitate easier movement of people in the precinct, through better parking management, optimised public transport connections, and enhanced infrastructure to improve safety for pedestrians and cyclists.

The proposed actions provide a comprehensive framework to assist Council in addressing the issues and capitalising on the opportunities to support access and movement in Keiraville and Gwynneville. The Access and Movement Study:

- > Discusses the strategic context and the relevance of other plans and strategies to the study;
- > Examines the existing transport network and travel behaviour;
- Summarises the results of community consultation activities;
- > Outlines the issues observed through the existing network analysis, and highlighted by community members;
- Identifies the opportunities to improve access and movement;
- Proposes actions to address the issues and capitalise on the opportunities, covering the whole transport network; and
- > Recommends 50 actions to enable better access and movement in the precinct, and a prioritised listing for implementation to help Council achieve these actions.

6.5 Next steps

The next steps to implement the Access and Movement Study should include:

- > Working with internal stakeholders to develop a detailed implementation plan;
- > Consulting with external stakeholders to gather input for the implementation plan;
- Developing detailed cost estimates of the proposed actions;
- Aligning the proposed actions with other planned capital works and available budget, and delivering on these actions;
- > Continuing to work with external stakeholders to engage the community in sustainable travel behaviour; and
- Continuing to work with external stakeholders on the proposed actions that will need their input and assistance to deliver.

Consultant Report





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DRAFT UOW TRANSPORT SURVEY AND STRATEGY - SUMMARY OF RECOMMENDED ACTIONS



Code	Actions
	Work with authorities to provide an active transport bridge into the University from the M1 Princes Motorway on the south eastern side and improve cycle connectivity on the Ring Road.
	Work with authorities surrounding any planned increase to residential densities at North Wollongong Station, aiming to increase walking catchment for UOW but also achieve state government objectives for increased density around transport and employment nodes.
	Work with authorities to prioritise missing pedestrian and cycling links to the north of campus, to align with the timing of the proposed northern entry and Mount Ousley interchange.
	Work with authorities to prioritise missing cycleway links on Foley Street, Church Street and Bourke Street to improve connections to the Wollongong campus from UOW accommodation sites.
Active Transport	Work with authorities to prioritise proposed cycleway upgrades on Porter Street and Crawford Avenue, to improve the cycling connection between North Wollongong Station and the Wollongong campus.
ransport	Investigate shared zone within the campus core.
	Develop wayfinding strategy.
	Enhance existing pedestrian refuge at the Western Entrance of Northfields Avenue.
	Install pedestrian refuge at roundabout at Northfields Avenue and Irvine Street (southern leg).
	Investigate bike share scheme expansion.
	Provide new Bike Bases and end of trip facilities in new developments.
	Consider including a bidirectional cycleway as part of the planned upgrade of Northfields Avenue.
	Run cycling skills workshops and Bike Buses.
	Investigate increase to UOW Shuttle services during peak and off peak travel times.
	Analyse Opal data to lobby State Government for additional services during peak times e.g. Gong Shuttle.
Public	Consider target student growth areas for UOW and review existing public transport connections to determine whether these are sufficient.
ransport	Provide bus shelters for all stops on campus.
	Lobby State Government to provide sufficient bus shelters for stops on routes which service the Wollongong campus, including at North Wollongong Station.
	Trial queuing system for UOW shuttle buses at Northfields interchange and North Wollongong Station.
	Investigate options to manage parking capacity including carpooling, reserved parking and options for staff engagement car share.
Private ransport	Increase carpooling numbers by offering reduced parking rates for vehicles with two people.
Lilopoit	Model anticipated northern entry vehicle trips to determine appropriate parking provision.



Code	Actions
	Investigate automated parking management and dynamic price structuring to improve parking management across campus.
	Reallocate Bus Bay to east of bus interchange on Northfields Avenue to alternative location, to increase capacity for a pick up and drop off zone.
	Investigate opportunity to add pick up/drop off zone close to Robsons Road entry.
	Investigate opportunity for smart bus stops with digital signage to improve wayfinding and provide advertising revenue opportunities.
	Investigate opportunities to streamline travel information and improve efficiency for UOW.
All	Review course delivery modes and timings to ease demand on the transport network.
Wiodes	Nominate Sustainable Transport Student Ambassadors and staff liaisons to educate peers about sustainable transport options to campus.
	Investigate lighting improvements on campus to improve safety for all modes, particularly active transport and public transport.



Table 1-2 Relevant UOW Master Plan strategies and directions

Master Plan Strategy	Directions	Actions
Access to the campus strategy: The vision presented in the	Reduce congestion on Northfields Avenue	Northfields Avenue currently provides most of the campus' vehicle arrivals, and given UOWs growing population, this will become highly congested in the future. A new northern access point to the campus is proposed that will reduce vehicular reliance on Northfields Avenue. The following actions are proposed:
Master Plan is to continue an ongoing modal shift away from		 Increasing on-campus accommodation to reduce the number of people using private vehicles and public transport to access the campus;
private vehicle travel to the campus and reduce vehicular		 Congestion on Northfields Avenue can be reduced by introducing a new western entrance on Robsons Road to the P3 multi-deck car park, making arrivals at this entry point more attractive to drivers;
reliance on the roundabout at Northfields Avenue and Irvine Street.		 Supporting carpool programs as well as Park-and-Ride locations to reduce the number of private vehicles parking in and around campus;
ou cou.		 Increasing active transport mode share to the campus, improving footpaths and shared path links, and
		 Student accommodations in the Wollongong area should be equipped with bike share systems to increase active travel mode share.
	Improve road safety along Irvine Street	Work with WCC and RMS to improve road safety at the Northfields Avenue/ Irvine Street Roundabout and the M1 southbound exit at University Avenue. The following actions are proposed:
		 Installation of a bypass left turn lane from Irvine Street into Northfields Avenue to increase road safety; and
		 Replace the parking lane between Irivine Street and the UniCentre Lane on the southern side of Northfields Avenue with a traffic lane.
	Introduce a new pedestrian and cycle link to the north	The M1 Princes Motorway restricts pedestrian and cyclist movement to the north and northeast of the campus. A new link to this area would significantly increase accessibility to the north and north eastern suburbs, and ultimately promote a mode shift towards active transport. UOW will enter into discussions with WCC and RMS to ensure that the proposed link aligns with plans for an M1 Princes Motorway/ Mt Ousley Road interchange.
Student accommodation strategy: The vision presented in the	Consolidate existing housing stock	Existing housing stock that is outdated and in need of repair will be progressively decommissioned, renovated or replaced. Housing will be consolidated into strategic locations with good access to public and active transport facilities.
Master Plan is to provide 500 beds on campus over the next 20 years. Existing student	Introduce additional beds to the campus	Additional beds will be located at existing accommodations on campus, with half replacing ageing stock on Robsons Road and the other half replacing the at-grade car parking at the Northfields Avenue housing.
accommodation will be upgraded and consolidated	Redevelop Weerona housing	The ageing student accommodation at Beaton Park will be renewed in alignment with the upgrades to the area currently planned by WCC.
into key locations well served by public and active transport and facilities.	Increase diversity of housing on offer	Diversifying the offer of student housing will accommodate different types of students on campus. The following actions are proposed:
aria racinaco.		 Introducing housing that transitions undergraduate students to adult life; and
		 Short-stay accommodation for block learning students, conference guests and visiting scholars.
Pedestrian and cycling strategy:	Introduce a hierarchy of key pedestrian paths	Typologies will be introduced to create a hierarchy of pedestrian paths through campus. These will include:



Master Plan Strategy	Directions	Actions
The vision presented in the Master Plan is to improve pedestrian and cycling priority on campus, and improve signage and wayfinding. Intuitive, direct paths will be introduced as well as high		 Primary civic walks leading people directly into the campus and to key locations. Civic walks should be aligned between buildings and be characterised by generous widths, integrated furniture and lighting. These will also function as pedestrian gateways, welcoming visitors to the campus; Primary green walks that work with the existing vegetation on campus, and that are aligned with existing trees; and A secondary network of quality paved laneways that will connect to buildings, open spaces and primary walks.
quality shared zones, increasing overall pedestrian	Improve signage and wayfinding on campus	A wayfinding strategy will be developed for the campus that will build upon the directions of the primary and secondary pedestrian walks.
and cycling amenity.	Improve pedestrian safety on the Ring Road and key service roads	Shared zones within the campus will be introduced to increase pedestrian and cyclist safety. These shared zones will have capacity for low speed vehicles of service, delivery and maintenance. The look and feel of the low speed environment will make drivers more aware of their speed and the presence of pedestrians.
	Limit access for private vehicles in the core campus	The pedestrian and cycling environment within the campus core could be compromised if the existing car priority and unrestricted access is left unchanged.
	Introduce bike hubs in prominent new buildings	Bike hubs should be provided in prominent locations, such as student accommodation sites, and new buildings. Showers and lockers should also be provided in the hubs.
	Increase pedestrian safety on Northfields Avenue	Increasing pedestrian safety on Northfields Avenue is a priority for UOW. A previously suggested skybridge is not recommended due to the additional time required to cross the road compared to crossing at ground level. Construction of an elevated skybridge would also give the impression that the road network is for vehicles only. Actions that can achieve increased safety for pedestrians and cyclists without the construction of the skybridge include: Introducing traffic calming measures such as raised pedestrian crossings that increase visibility for approaching vehicles; Introducing improved signage and flashing lights to increase visibility of the crossing; and
		Maintaining median strips and narrow lane widths to slow traffic.
Public transport and vehicular access strategy: The vision presented in the Campus Master Plan is to	Improve the arrival experience for bus passengers	The arrival experience for bus passengers should be enhanced by including improvements to pedestrian amenities from the terminus to the campus core (via the existing access path between P1 and P2 car parks). The proposed development at the P2 car park presents an opportunity to repurpose the corridor as a welcoming arrival space for bus passengers.
enhance the public transport arrival experience and restrict private vehicle access to the Wollongong campus' inner core.	Extend the capacity of the existing bus terminus	The anticipated increase in UOW population in the future will place strain on the bus terminus. To accommodate this growth, an expansion of the terminus is required. UOW should consider consolidating the UniCentre loading bay to University Hall, to accommodate an additional bus bay at the terminus. For additional capacity requirements, the University should collaborate with Wollongong City Council to add additional bays south of the bus terminus to maintain a consolidated terminus area.
	Limit vehicular access in the campus core	Vehicular access to the campus core will still be provided to those that need it, for example service, delivery and emergency vehicles. However, tighter control will be placed on the vehicles that enter campus through control methods such as rising bollards that minimise unnecessary movements in shared zones. Large vehicle loading zones should be limited and consolidated where possible.



Master Plan Strategy	Directions	Actions
	Maintain taxi pick up area	The taxi drop off zone to the south of UniHall on Northfields Avenue should continue to be used for this purpose, and a general drop-off zone should be investigated.
Car parking strategy: The vision presented in the Master Plan is to maintain the campus' current ratio of car parking spaces to the Effective Full Time Student Load (EFTSL). Parking on site will be consolidated into key locations that free up the core campus for new academic	Maintain current ratio of car spaces to students	The existing local road network currently experiences heavy congestion in peak periods, hence provision for additional car parking will only exacerbate road congestion even further. The current ratio of 5.4 car parking spaces per EFTSL at the Wollongong campus will decrease slightly during the key construction period, but will be restored by 2036. At the same time, a number of actions will be introduced to reduce car parking demand: Improving walking, cycling and public transport infrastructure, facilities and services; Increasing the on-campus residential population, and providing car and bike sharing facilities at all student accommodations; Encouraging the use of carpooling with priority parking; and Introducing new parking pricing methods.
buildings and public spaces. Parking will still be supplied for service and contractor vehicles, disabled users and	Consolidate car parking to outside the Ring Road	The provision of consolidated parking locations outside of the Ring Road will make finding a car parking space more reliable and reduce unnecessary movements from car park hunting. Two potential locations for increased parking are the Sports Precinct and at the P4 Western car park.
regional students.	Continue to provide car parking for those who need it	Car parking access will be given to those who need it, such as vehicles servicing specific facilities, people with disabilities and UOW operations vehicles. The following actions are proposed:
		 Continue to provide drop off spaces and convenient parking access for those accessing the Kids' Uni and Early Start Discovery Space; and
		 Maintain access and contractor and disabled parking next to buildings.
	Collaborate with external stakeholders to reduce the impact of on-street parking	UOW should support Wollongong City Council to reduce the impact of on-street parking on the local community and for the convenience of other road users.

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APPENDIX

UOW CAMPUS MASTER PLAN - SUMMARY OF KEY STRATEGIES AND ACTIONS





Area	Strategies	Direction s/Actions	Status	Transport Strategy (Y/N)	Relevant Objective (# and Title)	nelevant Adson ≇	Comments
		Integrate a udio visual and virtual classroom bechnologies	For completion as part of Master Plan Implementation	٨	Objective 1: Improve existing camp us access constraints to meet cure if and future demands	ALL 3: Review Course delivery modes and finings to ease demand on the transport nation.	6/N
The University Village	Communications and technology strategy	Introduce online courses	For completion as part of Master Plan Implementation	>	Objective 1: Improve existing campus, access constraints to meet cure in and future demands.	ALL 3: Review Course delivery modes and finings to ease demand on the transport network	6/N
		Urgrade digital campus management	For completion as part of Master Plan Implementation	>	Objective 2: Improve active transport as a means of accessing the campus	ACT 5: Develop waymining stalegy	N/A
		Reduce congeston on No tindeds Ave nue	Porcom pedon as: partor Masker Plan Implementation	>	Olyectre 4: May mise the use of UCM parting to meet cure if and rate demands	PRT 1: Investigate options to Increase carpool and other parting capacity PRT 2: Increase carponing numbers by ordering reduced parting reduced parting reduced parting nanespener and opnimic presentation. PRT 5: Realcoste bits Bay to east of this first change on fourtheds, whener to already the bushon to bince are capacity for a pick in grown or a permitten and presentations can be already to be a parting an apparature of a pick in an order prior to be a permitten and a per	M.A.
	Access to the campus strategy	In prove to ad safety along livine Street	For completion as part of Master Plan Implementation	>	Objective 2: Improve active transport as a means of accessing the campus	ACT7: Install pedestran rafuge at roundatout, at Nothfields Avenue and Infine Street. (southern leg)	N.9
		if rouse a new pedestran and cycle	Porcompletion as: part of Master Plan Implementation	>	Objective 2: Improve active transpot as a means of accessing the	ACT 5: Develop wayfinding strategy ACT 5: Develop wayfinding strategy and project man and opposite ment of campus, to stage with the ten for proposed no her entity and known Coulsey mental angle. ACT 5: Loby Countil to profite missing operating her known of the mental and bound a Street to improve connections her known operating camp his from UOW ACT 3: Lobb y Countil to priorities proposed opideway impaction to the profit of the pr	NAV
		Introduce a Herarchy of key pedestran paths	For completion as part of Master Plan Implementation	>	Objective 2: Improve active transport as a means of accessing the campus	ACT 5: Develop waymiding stalegy	N/A
		Improve signage and wayfinding on campus	For completion as part of Master Plan Implementation	>	Objective 2: Improve active transport as a means of accessing the campus	ACT 5: Develop waymuling stalegy	N/9
Access and Wayfinding	Pedestran and cycling scribingly	Improve podestansalety on the Ring Road and bey service basis	Porcompleton as partor Masker Plan Impenentation	-	Objective 2: Improve active transport as a means of accessing the Objective 3: Improve punct and state of oranges.	ACT 6: Emissione existing packestian retrigue, at the Weekern Entraince of Northfields. ACT 7: install probestian artique at nonzhoungue, at the Weekern Entraince of Northfields Avenue and Indine Streat. ACT 7: install probestian artique at nonzhoungue at Northfields Avenue and Indine Streat. PUT 6: Triad qualing system for LOVM statter breas, at Northfields intentange and PRT 5: Realicable bix Boy to east of the Intentingue on Northfields where the PRT 5: Realicable bix Boy to east of the Intentingue on Northfields where the PRT 6: Investigate on porthields where the PRT 6: Investigate opportunity of add plot upon from the Grinkest proporture and sites in Roberts.	ess.
		Unit access for private vehicles in the core campus	For completion as part of Master Plan Implementation	>	Objective 2: Improve active transport as a means of accessing the campus	ACT 4: Investigate shared zone within the camp us core	N79
		introduce blie hubs in prominent new buildings	For completion as part of Master Plan Implementation	>	Objective 2: Improve active transport as a means of accessing the campus	ACT 9: P privide new Bible Bases and end of ttp facilities in new developments	N.P.
		In prove the arrival experience for bus passengers	Porcompletion as part of Masker Plan Implementation	>	Objective 3: ling over punitic and state of tensport as a means for accessing us.	PUT 5: Loby, 33-be. Government to provide suificient bus shallers for slops on putes Who seekes the Wool opp, quante, but had naring at North Wolcopp qi 33bon PUT 5: Trial questing system for LOV's stime buses, at Northblos intercharge and No.th Wolcopp gistation.	N.A
	Public transport and	Extend the capacity of the existing bus berminus	For completion as part of Master Plan Implementation	>	Objective 3: Improve public and shared transport as a means for accessing the campus.	PUT 4: Pronde bus shelters for all stops on campus. PUT 6: That queuing system for UOW shuttle buses at Northfields Interchange and Morth Wolth month Station.	



Aren	Strategies	Directions/Actions	Status	Covered in Transport Strategy (Y/N)	Reevant Objective (# and Tale)	Releyaan Action ≄	Comments
	strakegy	Unit velicular access in the campus core	Porcompleton as part of Master Plan Implementation	>	Objective 2: Improve active transport as a means or accessing the campus	ACT 4: Investigate shared zone within the campus core	N/A
		Mainfain tay prok up ansa	Porcomptetion as park of Master Plan Implementation	٨	Objective 3:1m prive public and stated tente put as a means for accessing the campus.	P FT S Realocate Bus Bay to east of bus interchange on Northfields. Wenter to also marke boddon, to increase capably for a fich up and donor more. P FT 6: Investigate opportunity to add giru upto p of trone close to Robsons. Road entry 6: Investigate opportunity to add giru upto p of trone close to Robsons. Road entry	N.P.
		Consolidate car parting to outside the Ring Road	Porcompletion as part of Master Plan Implementation	>	Objective 2: Improve active transport as a means of accessing the campus	ACT 4: Investigate stated zone within the campus core	NJA.
		Continue to provide car parting for those who need it	For completion as part of Master Plan Implementation	>	Oljective 4: Maximise the use of UOM parting to meet cure if and riture demands	PRT 1: Investigate options to Increase carpool and other parting capacity PRT 3: Notes and operation of provision of property provision. provision.	N/A
Landacape and Public Realm	Landscape and public realm strategy	anticoape and beate a herarchy of Paths	For completion as part of Master Plan Implementation	,>	Offective 2: Improve active transport as a means of accessing the campus	ycales and may obyact 5, Tok	6/N



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APPENDIX

BASE MODEL DEVELOMPENT REPORT



Consultant Report



Base Model Development Report

Keiraville – Gwynneville Access and Movement Study

80018018

Prepared for Wollongong City Council

7 February 2018











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Consultant Report

Base Model Development Report Keiraville – Gwynneville Access and Movement Study

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Base Model Development Report Keiraville – Gwynneville Access and Movement Study

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1 Introduction

1.1 Background

Cardno was commissioned by Wollongong City Council to examine the existing and future operation of the Keiraville-Gwynneville traffic and transport system, and develop strategies to reduce congestion and increase sustainable transport mode share to accommodate growth in the area. The study includes assessing the impact of planned development and infrastructure upgrades on traffic generation, accessibility, parking demand, and the overall transport network operation. The ultimate purpose of this study is to develop strategies to improve the transport system, reduce impacts on surrounding suburbs, promote the use of sustainable travel modes and ensure that the transport network can adequately accommodate future development in the area.

The study includes the development of a purpose built microsimulation model to assess the existing traffic issues and manage future traffic demands in Keiraville and Gwynneville. This report outlines the assumptions and methodology adopted in the development of the base model, together with some key results. The model will be used as part of the subsequent stages of the project, including the creation of future year scenarios and option testing.

1.2 Project Objective

The Keiraville and Gwynneville traffic model is to test a number of transport infrastructure options in different future year scenarios. The outputs of the model will be used to inform design and assist with the economic appraisal of transport investments within the study area.

The main objectives of the access and movement study are as follows:

- > Examine and document existing and future potential operation of the traffic and transport system within Keiraville and Gwynneville
- > Develop strategies to reduce congestion
- > Increase sustainable transport mode share
- > Understand impact of planned development and infrastructure upgrades.

The key objectives of the traffic modelling exercise are to:

- Assess the travel demand during the academic season (in-session) which is a characteristic for the month of August and the non-academic season (out-session) which is a characteristic for the month of September.
- Assess the impacts of potential developments on the study area and changes in road network and surrounding intersections
- > Evaluate existing and future year transport network performance
- Identify and evaluate mitigation measures to accommodate traffic likely to be generated from future developments and growth.

1.3 Scope of Work

The scope of work is as follows:

- Extract the study network from an existing RMS Aimsun Mount Ousley Interchange hybrid model and develop a purpose built microsimulation model;
- > Adjust the 2015 volumes at the interchange and surrounding junctions to balance the discrepancies between the 2015 and 2017 data;
- Determine the traffic demand for "in-session" and "out-session" AM and PM peak periods which consists of the peak academic season and the period outside of the academic season respectively;
- Calibrate and validate a microsimulation model in accordance with Traffic Modelling Guidelines (Roads and Maritime Services, 2013);
- Assess options regarding Mount Ousley Interchange;



- Import intersection turning volumes from the Jacob's Mount Ousley Aimsun Model (2015) for Memorial Drive / Princes Highway Interchange;
- Obtain outputs from the microsimulation model to be used for a SIDRA assessment of key intersections within Keiraville – Gwynneville precinct.

1.4 Study Area

The model is centred around Keiraville and Gwynneville, which is located northwest of the Wollongong city centre, in the Illawarra region of New South Wales. The study area is bounded by the Princes Motorway (M1) north-west of the University of Wollongong to the rail corridor in the east, including the Mount Ousley Road / Princes Highway intersection, to Beaton Park in the south and to Edmund Rice College in the west. The study area land use is predominantly characterised by residential and educational areas, an illustration is shown in **Figure 1-1**.

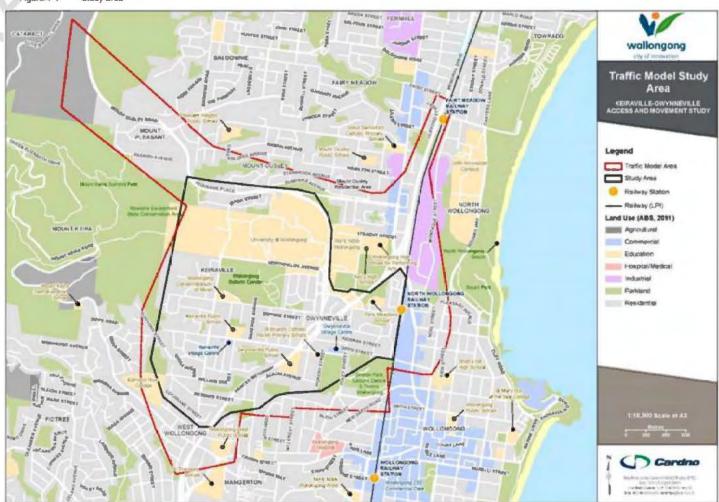
There are a number of important trip generators in and around the Keiraville-Gwynneville area which generate a high number of trips per day, traffic demand and behaviour. These include:

- > Keiraville and Gwynneville village centres
- > The University of Wollongong (UOW) Campus
- > UOW Innovation Campus (iC)
- > Wollongong CBD
- > Wollongong Hospital
- > Wollongong Botanic Garden
- > North Wollongong Station
- > TAFE Illawarra Wollongong Campus.
- > Mount Ousley residential area
- > Local schools
- > Student accommodation centres
- Beaton Park sports and recreation facilities.

Access to these destinations via the road network is supported by major routes such as the Princes Motorway (M1), Princes Highway (A1) and Mount Ousley Road.



Figure 1-1 Study area





Item 6 - Attachment 3 - Keiraville Gwynneville Access and Movement Study Consultant Report



Base Model Development Report Keiraville – Gwynneville Access and Movement Study

Report Outline

The general structure for this report is outlined below:

- Section 1 Introduction: outlines the background, project objectives, scope of work and the study area
- Section 2 Existing Conditions: outlines and assesses the current traffic and transport conditions
- Section 3 Model Assumptions: outlines the assumptions behind the base model development and the methodology
- Section 4 Model Stability: outlines the statistical analysis of the model's stability
- Section 5 Model Calibration and Validation: summarises the results from the base model calibration and validation process
- Section 6 Conclusion: summarises the recommendations, main outcomes and fitness for purpose of the base year model





2 Existing Conditions

2.1 Traffic Surveys

Intersection counts were commissioned between 6:00am to 10:00am and 3:00pm to 7:00pm. For the insession period, the counts were conducted on Thursday 24 August 2017 and for the out-session period, the counts were conducted on Thursday 28 September 2017. The locations of the surveys are shown in **Figure 2-1** and the intersection ID descriptions are summarised in **Table 2-1**.

During the in-session period, the peak AM period is identified between 8:00am to 9:00pm and the peak PM period is identified between 4:00pm to 5:00pm.

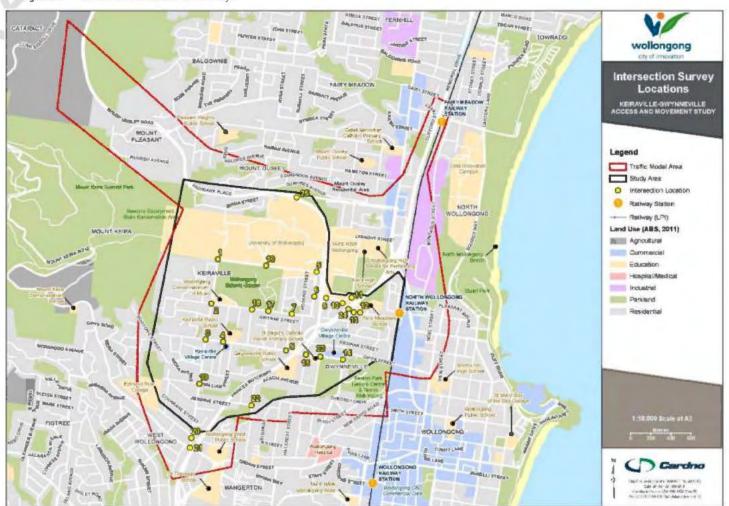
During the out-session period, the peak AM period is identified between 8:15am to 9:15am and the peak PM period is identified between 4:30pm to 5:30pm.

Table 2-1 Intersection ID Description

	Intersectio	n ID Des	cription
1	Robsons Road / Northfield Avenue	14	Foley Street / Gipps Road
2	Robsons Road / Murphys Avenue	15	Frances Street / Gipps Road
3	Robsons Road / Gipps Road	16	Ring Road / Northfields Avenue
4	Grey Street / Gipps Road	17	Murphys Avenue / John Street
5	Ring Road / Northfields Avenue	18	Murphys Avenue / Braeside Avenue
6	Irvine Street / University Avenue	19	Robsons Road / William Street
7	Murphys Avenue / Eastern Street	20	Robsons Road / Princes Highway
8	Eastern Street / Gipps Road	21	Robsons Road / Mount Keira Road
9	Princes Highway / Princes Highway exit	22	Gilmore Street / Reserve Street
10	University Avenue / Graham Avenue	23	Gipps Road / Vickery Street
11	Foleys Lane / University Avenue	24	Memorial Drive On Ramp / University Avenue
12	University Avenue / Porter Street	25	Mount Ousley Road / Princes Motorway
13	Memorial Drive Off Ramp / Porter Street		



Figure 2-1 Location of Intersection Count Surveys





Journey Travel Time Analysis

Speed and travel time data was extracted from TomTom's real-time data for vehicles travelling within the Keiraville and Gwynneville area.

TomTom captures 3.5 million km of floating car data (FCD) every day in Australia. The data is collected from a combination of TomTom devices (fleet and consumer), third party Auto Original Equipment Manufacturers (OEMs) and phone handsets. FCD provides a new method for measuring speeds, travel times and thus road performance. Probe devices in vehicles, which may be cellular phones, or more commonly GPS devices, provide this data.

All the TomTom data in the reports used by Cardno has been conducted through a quality assurance and data cleansing process. TomTom processes the raw GPS information received from customers in a number of ways in order to protect privacy, filter out possible inaccurate measurements and create geographic databases which can be queried. The most important part of this process algorithm is called map-matching.

In the map-matching process, the GPS measurements are matched to a digital map using a map-matching algorithm. This process assigns each GPS speed measurement to a road segment with the highest possible confidence level. The algorithm looks at the path of consecutive GPS points in a journey file to define the path of a vehicle in order to produce the most accurate speed information possible.

For example, the map-matcher filters out traces which could not be matched to a map (due to, for example, changes in the road infrastructure, the use of the GPS device outside a vehicle, etc.), detects U-turns and losing GPS signals in tunnels.

When the map-matching is done, an aggregated geographic database (geobase) of measured road speeds is produced. These geobases are updated regularly for each map of each region or country to take into account the growing historical GPS speed database as well as updates and changes in the road network.

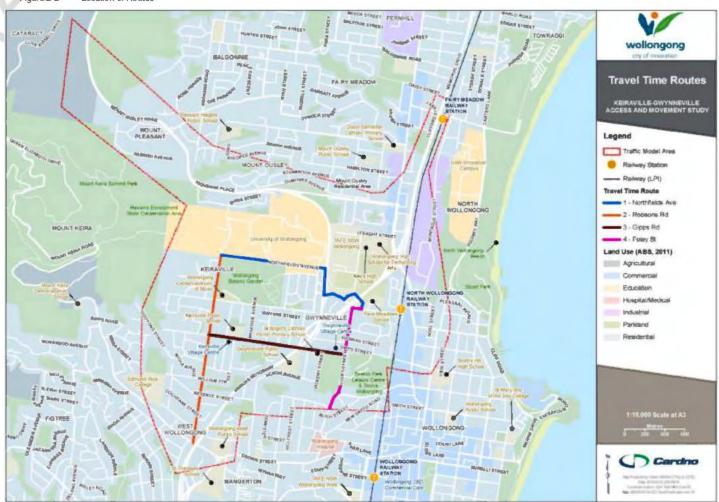
Average travel times were collected for weekdays between 8:00am to 9:00am and 4:00pm to 5:00pm during August 2017 and September 2017. This data was collected for four routes in both directions. The routes and respective lengths are summarised Table 2-2. The location of these routes are illustrated in Figure 2-2.

Table 2-2 Routes of Interest for Journey Travel time Analysis

Route ID	Route	Direction	Length of Route (m)
1	Northfields Avenue via Irvine Street, via University Avenue from Robsons Road to Porter	Eastbound	1,813
	Street	Westbound	1,813
2	Robsons Road from Mount Keira Road to	Northbound	1,881
2	Northfields Avenue	Southbound	1,878
3	Cinna Daod from Dahasaa Daad ta Falay Street	Eastbound	1,362
3	Gipps Road from Robsons Road to Foley Street	Westbound	1,363
4	Foley Street from Greenacre Road to University	Northbound	1,128
4	Avenue	Southbound	1,137



Figure 2-2 Location of Routes







The average travel times for in-session and out-session between 8:00am to 9:00am and 4:00pm to 5:00pm are summarised in **Table 2-3** and **Table 2-4** respectively.

Table 2-3 Average Travel Time: 8:00AM to 9:00AM

Route	Direction	Average Trave	el Time (mm:ss)
Koute		In-Session	Out-Session
Nedberlde Access	Eastbound	04:23	04:25
Northfields Avenue	Westbound	04:25	04:26
Dahaana Daad	Northbound	03:22	03:13
Robsons Road	Southbound	03:34	03:11
Gipps Road	Eastbound	03:09	02:59
	Westbound	02:40	02:50
Folou Street	Northbound	02:33	02:19
Foley Street	Southbound	02:42	02:29

Table 2-4 Average Travel Time: 4:00PM to 5:00PM

Route	Direction	Average Travel Time (mm:ss)	
		In-Session	Out-Session
Northfields Avenue	Eastbound	04:20	03:45
	Westbound	03:25	03:53
Robsons Road	Northbound	03:05	03:06
	Southbound	03:02	03:04
Gipps Road	Eastbound	03:01	02:35
	Westbound	02:35	02:42
Foley Street	Northbound	02:23	02:18
	Southbound	04:20	03:45

2.3 Existing Condition Analysis

2.3.1 Princes Motorway

Princes Motorway (M1) is a major motorway that connects Sydney to Wollongong through to Albion Park Rail. This route provides key access to destinations in the Wollongong, Illawarra and South Coast regions for tourists. It is also a major freight route from Port Kembla.

This corridor is located around the south-west of the model study area, running in a north-south direction to the north-west. The number of lanes vary between two to three lanes in either direction within the study area. The speed limit is 80km/h, however, at the steep downhill grade further north of the motorway, trucks and buses are limited to 40km/h and all other vehicles to 80km/h.



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Base Model Development Report Keiraville – Gwynneville Access and Movement Study

2.3.2 Mount Ousley Road

Mount Ousley Road is an arterial road located in the north of the model study area that connects the Princes Highway and the Princes Motorway. Once the road joins the Princes Motorway through a right turn, the speed limit is 80km/h.

2.3.3 Princes Highway

Princes Highway is a highway that runs in a north-south direction that provides access from Mount Ousley Road, Memorial Drive and Princes Motorway. It runs almost parallel to the Princes Motorway and the coastline in the model study area. There are three lanes in both directions with speed limits that varies from 60km/h to 50km/h.

2.3.4 Memorial Drive

Memorial Drive is a major arterial road that runs in a north-east to south-west direction within the modelled area. Memorial Drive is connected to Princes Highway, Princes Motorway by ramps, which provides access to the Keiraville and Gwynneville area.

2.3.5 Robson Road

Robson Road is a collector road which operates as a north-south corridor connecting to the western entrance of University of Wollongong and West Wollongong residential suburbs.

236 Invine Street

Irvine Street is a collector road which provides access to Princess Motorway ramps and connection to the University of Wollongong Ring Road, Northfields Avenue and Murphys Avenue.

2.3.7 Gipps Road

Gipps Road runs is a collector road which operates as an east-west corridor connecting to the Keiraville and Gwynneville village centres, the Beaton Park precinct and to Robsons Road.

2.3.8 University Avenue

University Avenue provides east-west road access between North Wollongong Station and Irvine Street. This collector road is one of the main connections between North Wollongong, Keiraville and Gwynneville.

2.3.9 Murphys Avenue

Murphys Avenue is a local road and runs east-west along the southern side of the Botanic Garden, and connects to Irvine Street and Robsons Road.

2.3.10 Northfields Avenue

Northfields Avenue is collector road located on the southern boundary of the UOW campus, running eastwest and connecting between Robsons Road and Irvine Street. Two UOW campus access points and the Bus Bay are located on Northfields Avenue.

2.3.11 Road Demand and Congestion Locations

The performance of key roads within the precinct indicate the demand on the road network. The performance of the road network was measured by three variables, as follows:

- Peak period volumes (veh/h);
- Average speed (km/h); and
- Percentage of speed limit (%).

The road network performance can be largely determined by assessing the theoretical capacity of the midblock and the average speed of traffic, as presented in the Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis, acceptable traffic conditions associated with levels of service D. The average speed is a mean of all the vehicle speeds travelling along a road in a particular timeframe. The percentage of speed limit is a measure of how many vehicles are travelling at the designated speed for the road, the higher the percentage of speed limit the better flow along the road.





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The key indicator of the mid-block performance is the Level of Service (LoS). This is the average speed as a percentage of the base Free Flow Speed (FFS), where results are placed on a continuum from 'A' to 'F', as shown in Table 2-5.

Table 2-5 Austroads Mid-Block Criteria for Speed Level of Service Analysis

LoS	Description	Travel speed as a percentage of base FFS (%)
Α	Good operation	> 85
В	Good with acceptable delays and spare capacity	67-85
С	Satisfactory	50-67
D	Operating near capacity	40-50
E	At capacity	30-40
F	Unsatisfactory and requires additional capacity	≤ 30

The data used for this analysis considers weekdays during in-session (August 2017) and out-session (September 2017). The roads which were assessed are Northfields Avenue, University Avenue and Porter Street corridor, Robsons Road, Gipps Road and Foley Street.

A summary of the performance data is shown in Table 2-6

Table 2-6 AM Peak Period Road Network Performance

Route	Direction	Vehicles per hour (veh/hr)		Median speed (km/h)		FFS (%)	
		August	September	August	September	August	September
Northfields	Eastbound	727	557	33	33	0.7	0.7
Avenue	Westbound	796	474	31	32	0.6	0.6
Robsons Road	Northbound	827	530	42	42	0.8	0.8
	Southbound	414	233	42	42	0.8	0.8
Gipps	Eastbound	409	322	30	32	0.6	0.6
Road	Westbound	415	301	36	33	0.7	0.7
Foley	Northbound	408	316	36	37	0.7	0.7
Street	Southbound	840	688	32	34	0.6	0.7



Table 2-7 PM Peak Period Road Network Performance

Route	Direction	Vehicles per hour (veh/hr)		Median speed (km/h)		FFS (%)	
		August	September	August	September	August	September
Northfields	Eastbound	1,087	876	33	35	0.7	0.7
Avenue	Westbound	777	554	34	35	0.7	0.7
Robsons Road	Northbound	552	434	44	44	0.9	0.9
	Southbound	531	414	44	45	0.9	0.9
Gipps	Eastbound	358	296	34	34	0.7	0.7
Road	Westbound	404	407	37	37	0.7	0.7
Foley	Northbound	508	437	38	38	0.8	0.8
Street	Southbound	767	616	36	37	0.7	0.7

This shows that during the in-session period, there are significantly more vehicles utilising these routes in comparison to the out-session period.

Key areas of concern are Northfields Avenue and Robsons Road which provide direct access to the University of Wollongong campus and other schools, however, overall performance at the route level the speed performance is satisfactory with the worst performance being identified as the westbound direction of Northfields Avenue corridor during the AM peak during in-session period.

Other areas of congestion were identified using TomTom travel time data and camera footage during the insession period. The areas of main interest are focused on the major interchanges and ramps of the study area to supplement the overall road network performance analysis.

As already stated, there will be more traffic on the network in comparison to the out-session period and it is important to accurately identify these areas to represent the traffic operation and behaviour in the AM and PM peak to validate the base model.

The observations made at the intersections are summarised in **Table 2-8**. The median speeds and speed level of service for both peak periods are shown in **Figure 2-3** and **Figure 2-4**. The LoS is calculated using the Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis, speed level of service methodology.





Table 2-8 Congestion Locations in the Study Area

Intersection Location	Time of Day	Observation
Mount Ousley Road / Princes Motorway	АМ	The ratio between the speed level of service and the posted speed is less than 30% at a 200 metres approaching distance of the intersection.
		On Mount Ousley Road the maximum queue length is around 15 vehicles between in the AM peak. This is partially captured in the footage below.
		Mt Ousley Rd/ Princes Motorway FACING NORTH
		Queuing is most likely caused by drivers having difficulty to find safe acceptable gaps between vehicles to turn right onto Princes Motorway. Vehicles are often reaching around 80km/hour along Princes Motorway and no queuing was identified on Princes Motorway.
	PM	The ratio between the speed level of service and the posted speed is 50% to 69% at a 200 metres approaching distance of the intersection.
		On Mount Ousley Road, the maximum queue length is roughly around the same length of the AM peak in the PM peak. There is no queuing on Princes Motorway.
Irvine Street / University Avenue	AM	The ratio between the speed level of service and the posted speed is 40% to 49% when approaching roundabout and interchange ramps. Figure below shows queuing On University Avenue in the AM peak.





rvine St / University Ave
ge point on weekday mornings and the traffic moves very
if not at all, with very long waiting times. io between the speed level of service and the posted speed to 69%. northern side of Irvine Street and southern side of Irvine extensive queueing can be observed in the PM peak.
io between the speed level of service and the posted speed to 69%. ing on the off ramp of Princes Highway is mostly likely by the number of vehicles coming from the highway at high and giving way at the roundabout at the intersection. During ming peak period, there will be a large proportion of vehicles his intersection to access the University of Wollongong and s. The figure below illustrates the queuing behaviour in the g.
1





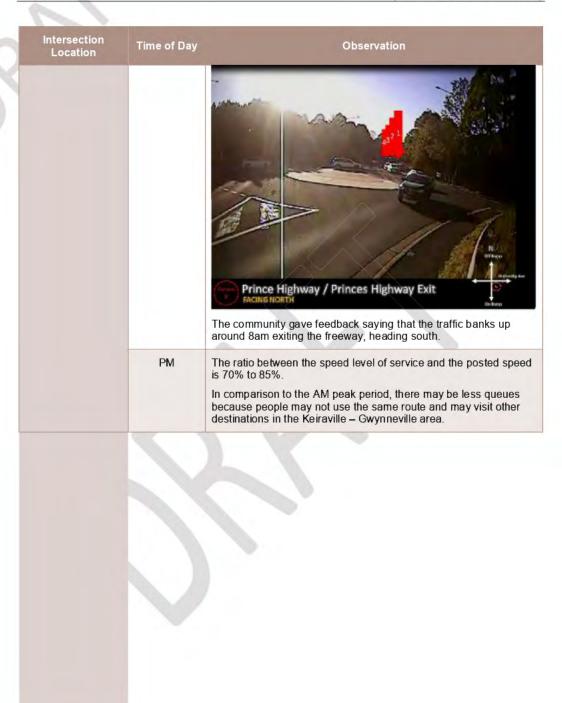




Figure 2-3 Network Performance: AM peak period

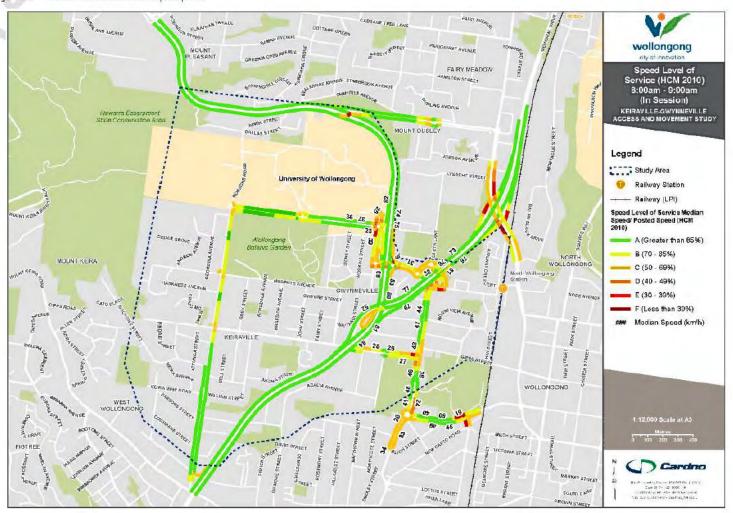
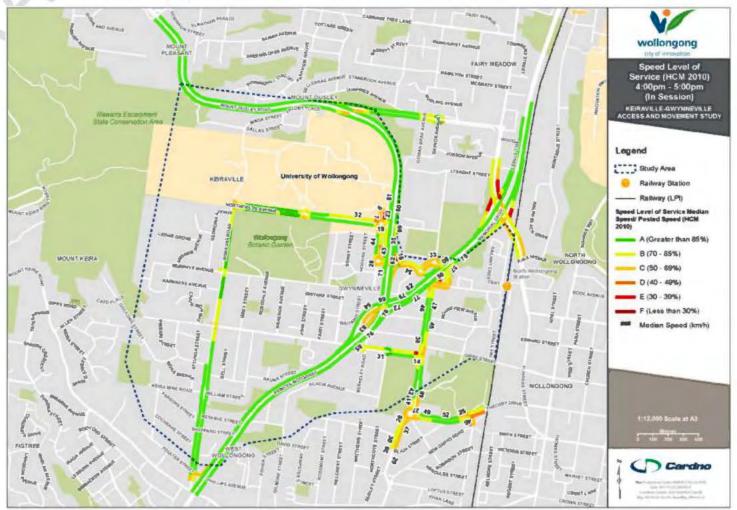




Figure 2-4 Network Performance: PM peak period







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2.4 School Zones

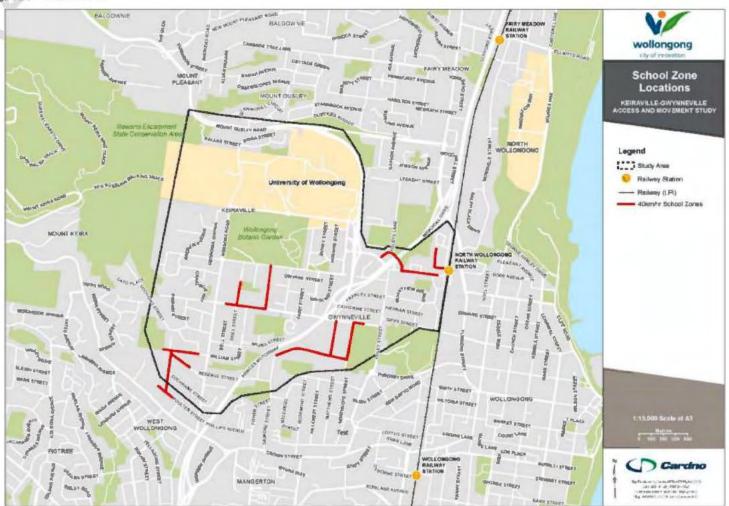
There are five 40km/h school zones located within the study area during 8:00am to 9:30am and 2:30pm to 4:00pm during school days. The roads that are affected are:

- Railway Crescent
- > Porter Street
- > University Avenue
- > Gipps Road
- > Grey Street
- > Braeside Avenue
- > Berkeley Road
- > Acacia Avenue
- > Vickery Street
- > Keira Mine Road
- > Armstrong Street
- > Parsons Street
- > Poulter Street

The location of the school zones are shown in Figure 2-5.



Figure 2-5 School Zones







2.5 Public Transport

In the proximity of the model study area there are train services that can be accessed through the North Wollongong train station at the eastern end of traffic model, Fairy Meadow train station north of the model and Wollongong train station in the south. Since the train lines do not interact with the road network, train services have not been modelled in the study area.

There are also a number of bus routes in the area providing connections to the Wollongong CBD, Wollongong and North Wollongong train stations, Figtree, Dapto and Shellharbour to the south, Fairy Meadow, Corrimal, and Campbelltown to the north, and the Innovation Campus to the east. The majority of these services operate within the Keiraville area, with some also travelling through Gwynneville.

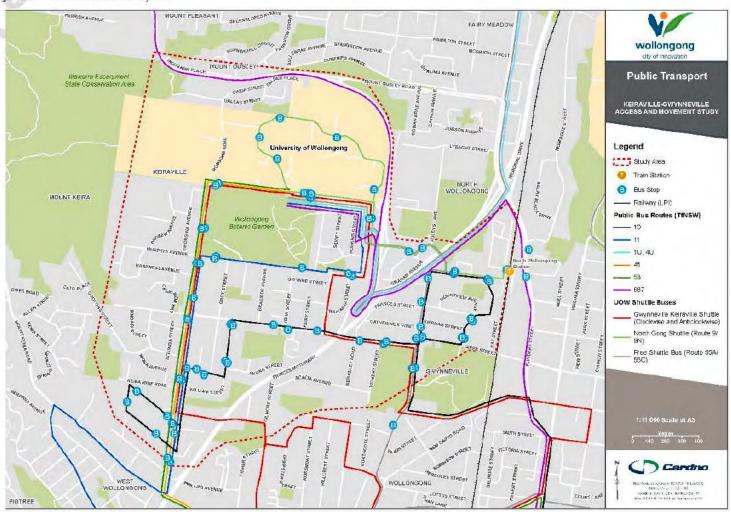
There are seven major bus services for the public and five shuttle bus services that goes to the University of Wollongong. These bus routes coded in the microsimulation model are:

- > 10 Wollongong to West Wollongong Loop
- > 11 Wollongong to University of Wollongong
- > 1U Austinemer to University of Wollongong
- > 4U Bulli to University of Wollongong
- > 41 Dapto to University of Wollongong
- > 53 Shellharbour to Wollongong
- > 887 Wollongong and Appin to Campbelltown
- > 9 (North Gong Shuttle) Ring Road Loop (anti-clockwise)
- > 9N (North Gong Shuttle) North Wollongong Station to University of Wollongong Terminus
- > 55A / 55C (Free Shuttle Bus) University of Wollongong to North Wollongong Station
- > Gwynneville Keiraville Shuttle University of Wollongong to Wollongong Station (loop)

The bus routes are shown in Figure 2-6.



Figure 2-6 Bus Routes in the Study Area







3 Model Assumptions

3.1 Modelling Platform

The Keiraville – Gwynneville Access and Movement Study microsimulation model was developed using Aimsun 8.2.0 (R48406).

3.2 Modelled Time Periods

Four model time periods were assessed in this study - Weekday AM and PM peaks during in-session academic period (August 2017) and Weekday AM and PM peaks during the out-session academic period (September 2017).

The modelled peak hour periods were determined from the obtained traffic survey data, with separate model scenarios developed for each peak period. For each peak period, a 'warm-up' period of 60 minutes was added before the modelled peak hour, with overall modelled periods assumed in Aimsun as follows:

> Weekday AM (in-session and out-session)

Warm-up: 07:00 to 08:00

AM peak period: 08:00 to 09:00

> Weekday PM (in-session and out-session)

Warm-up: 15:00 to 16:00

PM peak period: 16:00 to 17:00

Although the in-session and out-session network morning and afternoon peak periods were identified on different intervals, the one hour peak periods defined in Aimsun were the same to ease analysis and Aimsun file set-up.

3.3 Vehicle Type

Three vehicle types have been modelled in the Aimsun microsimulation model and they are:

- Light vehicles (cars)
- Heavy vehicles (trucks); and
- Buses

Default values of vehicle type parameters (e.g. vehicle dimensions and driving behaviour) from Sydney Aimsun Foundation Network (SAFN) were utilised for this modelling exercise.

3.4 Road Types

The road types used within the study area are consistent with the Sydney Aimsun Foundation Network (SAFN). The model road types and associated typical parameters adopted within the Keiraville-Gwynneville microsimulation model includes the following road types:

	Road Types Used in the Model					
	Local Road	Sub-arterial	Arterial (Divided)	Arterials (Undivided)	Freeway Ramp	Freeway
Maximum Speed (km/h)	40 – 50	60	60	60 – 80	45 – 80	80 – 110
Capacity (per lane) (PCUs/h)	800 – 900	900 – 1,000	1,000 -1,200	1,200 -1,400	1,000 -1,500	1,800 –2,000





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3.5 Model Road Network Extent

The microscopic model covers approximately 8.37 km² within the Keiraville and Gwynneville precinct. The model was developed at microscopic level with finer detail accounting for many of the minor local roads within the study area. The Aimsun microscopic model road network coverage is presented in **Figure 3-1**.

Figure 3-1 Road Network in Model Study Area







3.6 Slope Modelling

The effect of grade on heavy vehicle types can result in speed reduction. Slope modelling and its use is required on gradients in excess of 3% where there are significant volumes of heavy vehicles or for high speed roads. The Queensland Department of Transport and Main Roads, Road Planning and Design Manual, Chapter 12 (2012) highlights the expected behaviour of light and heavy vehicles when slope modelling is considered in traffic studies (see Table 3-1).

For consistency, Cardno used LiDAR grid elevation data and imported slopes into the base model to be used during the dynamic simulations. This allows slope modelling in AIMSUN to reflect the real-world effects of gradients, particularly in relation to heavy vehicles.

Table 3-1 Effect of Grade on Vehicle Speed

	Uphill Downhill				
Grade	Light Vehicle	Heavy Vehicle	Light Vehicle	Heavy Vehicle	Road Type Suitability
0-3	Minimal	Minimal	Minimal	Minimal	For use on all roads.
3-6	Minimal	Some reduction on high speed roads	Minimal	Minimal	For use on low- moderate speed roads (incl. high roads traffic volume roads).
6-9	Largely unaffected	Significantly slower	Minimal	Minimal for straight alignment. Substantial for winding alignment.	Need to provide auxiliary lanes for moderate – high traffic volumes. Need to consider run-away vehicle facilities if the number of commercial vehicles is high.
9-12	Slower	Much slower	Slower	Significantly slower for straight alignment. Much slower for winding alignment.	Satisfactory on low volume roads (very few or no commercial vehicles).
12-15	10 – 15 km/h slower	15% max. negotiable	10 – 15 km/h slower	Extremely slow	Only to be used in extreme cases and be of short lengths (no commercial vehicles).
15-33	Very slow	Not negotiable	Very slow	Not negotiable	

Source: Queensland Department of Transport and Main Roads, Road Planning and Design Manual, Chapter 12 (2012)





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3.7 **Speed Profiles**

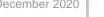
The desired speed of a vehicle is determined by the minimum of the maximum desired speed of a vehicle and the posted speed limit. The posted speed limits are shown in **Figure 3-2**.

Posted Speeds in the Model Study Area Mount Ousley Rd Northfields Ave Memoral Dr Murphys Ave Gipps Ave Bourke St Foley St PARAMETERS: Section Speed (lon/h) 0 Mount Keira Rd eserve St 30 Throsby Dr 40 50 60 70 80 90

30553 , 6120041

100+

805



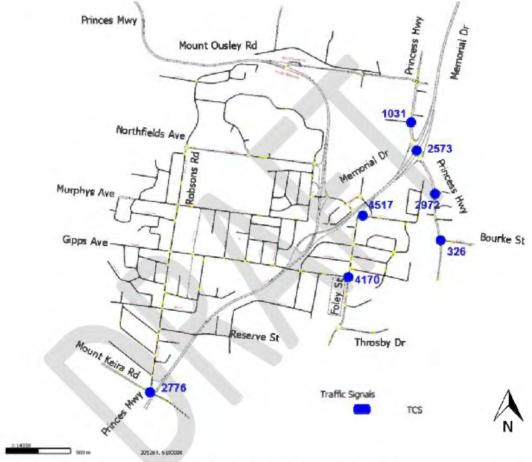


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3.8 **Traffic Signals**

There are 7 signalised intersections within the Keiraville and Gwynneville study area as shown in Figure 3-3. These signalised intersections are implemented in Aimsun using historical Intersection Diagnostic Monitor (IDM) data obtained from the Sydney Coordinated Adaptive Traffic System (SCATS). The SCATS Traffic Control Signal (TCS) plans are used in conjunction with the IDM data to determine the phase times associated with each traffic signal phase.

Figure 3-3 Signalised Intersection Locations in the Model Study Area



The TCS IDs found at the labelled intersections in Figure 3-3 are summarised in 0





Base Model Development Report Keiraville – Gwynneville Access and Movement Study

Table 3-2 TCS IDs

TCSID	Intersection	
1031	Lysaghy Street / Princes Highway	
2573	Princes Highway / Memorial Drive	
2972	Princes Highway / Ajax Avenue	
326	Princes Highway / Bourke Street	
4517	Memorial Drive Off Ramp / Porter Street	
4170	Foley Street / Gipps Road	
2776	Robsons Road / Mount Keira Road	

The signalised intersections within the study area were implemented in the microsimulation model as fixed time. These signalised intersections were based on the Roads and Maritime Mount Ousley REF (2015) Traffic Model which were developed based on the SCATS average signal timing.

3.9 Bus Network

3.9.1 Public Transport Services and General Transit Feed Specification (GTFS) Data

The purpose of the GTFS bus timetable feed is to publish, in advance, the schedules and route information of Bus services that operate under the Sydney Metropolitan, Outer Sydney Olympic Park Major Events Bus Contracts, Sydney NightRide and Sydney Olympic Park Major Events Bus Contracts.

GTFS data is typically used for TfNSW Transport Info, Realtime transport app developers and online map services (e.g. Google Maps and Apple Maps). GTFS data is provided in nine (9) data files:

- > Agency.txt Defines one or more transit agencies (Operators) that provide the data in this feed
- > Calendar_dates.txt Defines exceptions for the service IDs defined in the calendar.txt file
- Calendar.txt Defines dates for service IDs using a weekly schedule. It also provides the start and end dates as well as the days of the week the service is available
- > Routes.txt Defines transit routes
- > Shapes.txt Defines rules for drawings lines on a map to represent a transit organisation's routes
- > Stop_times.bd Provides the times that a vehicle arrives at and departs from individual stops for each trin
- Stops.txt Provides individual locations where vehicles pick up or drop off passengers
- > Trips.txt Provides the trips for each route. A trip is a sequence of two or more stops that occurs at a specific time
- Notes.txt This file is an extension on the GTFS Fileset standard. It contains a list of notes referenced from trips.txt and stop_times.txt.

To utilise this data, Aimsun has incorporated a GTFS importing function in their latest version of Aimsun (v8.2). To incorporate the data into the base model, GTFS data from September and August 2017 was sourced from TfNSW and imported into the base model to match the model area extents. **Figure 3-4** highlights in blue the bus routes coded in Keiraville-Gwynneville microscopic which is overlayed with the modelled road network.





Princes Mwy

Mount Ousley Rd

Bus Routes

Murphys Ave

Gipps Ave

Reserve St

Throsby Dr

Mount Reserve St

Throsby Dr







3.10 Model Zoning System

The Roads and Maritime Services' TRACKS model referred on Traffic Modelling for the Proposed Interchange at Mt Ousley Road on the M1 Princes Motorway, Roads and Maritime Services, 2015, was reviewed to understand the strategic level zoning structure within this area. The Roads and Maritime Services Mount Ousley REF (2015) Traffic Model Aimsun file was also used as reference, to preserve the Mount Ousley Aimsun model existing centroid configuration.

Further zone disaggregation process was carried out to ensure traffic was accurately allocated to specific locations in the Keiraville and Gwynneville study precinct model but still respecting Aimsun and TRACKS naming conventions according to Roads and Maritime guidelines. The Keiraville and Gwynneville microsimulation model was completed with a total 77 child travel zones after further disaggregation of the 41 parent travel zones identified in the Roads and Maritime Mount Ousley REF (2015) Traffic Model.

Table 3-3 summarises the zoning system in the models, their disaggregation in the Keirvaville-Gwyneville traffic models and their description.

Model Zoning System Description Table 3-3

BDI6 2-3	Wodel Zoffil	ng System Description					
Parent Zone	Child Zones	Description	Parent Zone	Child Zones	Description		
1	1	Princes Motorway north of Mt Pleasant Road	22	3	Ring Road north of Northfields Avenue		
2	1	Princes Highway north of Mt Ousley Road	23	1	Car park north of Northfields Avenue		
3	1	Memorial Drive north of Princes Highway	24	2	Ring Road east north of Northfields Avenue		
4	1	Princes Highway south of Bourke Street	25	2	Madoline Street west of Princes Highway		
5	1	Princes Motorway south of Gipps Road	26	2	Paulsgrove Street nort of Murphys Avenue		
6	11	Murphys Avenue west of Paulsgrove Street	27	2	Spearing Parade west of Princes Highway		
7	3	Northfields Avenue east of Ring Road	28	1	Gwynne Street west of Eastern Street		
8	1	New Mt Pleasant Road north of Princes Motorway	29	1	Waitangi Street south of Murphys Avenue		
9	1	Dobinson Street east of New Mt Pleasant Road	30	1	Moore Street west of Eastern Street		
10	1	New Mt Pleasant Road south of Princes Motorway	31	1	Fairy Street north of Gipps Road		
11	1	Dumfries Avenue west of Foothills Road	32	5	Gipps Road west of Fairy Street		
12	1	Foothills Road north of Dumfries Avenue	33	6	Gipps Road east of Eastern Street		
13	1	McMahon Street north of Dumfries Avenue	34	7	Foley Street south of Porter Street		





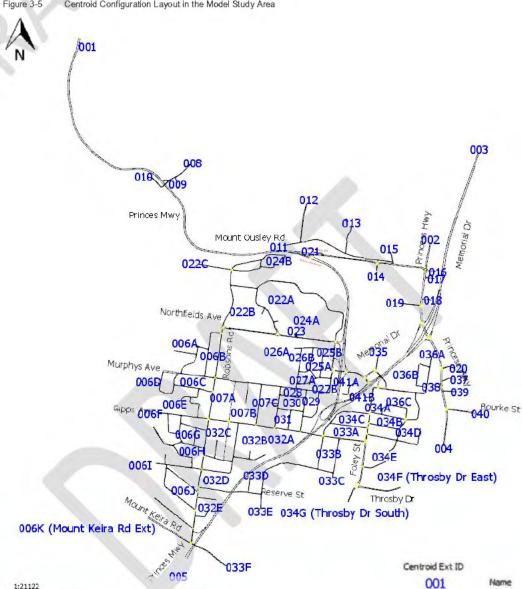
Parent Zone	Child Zones	Description	Parent Zone	Child Zones	Description
14	1	Gaynor Avenue south of Mt Ousley Road	35	1	Foley Lane north of University Avenue
15	1	Strone Avenue north of Mt Ousley Road	36	3	Porter Street east of University Avenue
16	1	Mt Ousley Road east of Princes Highway	37	1	Exeter Avenue east of Princes Highway
17	1	Woodhill Street east of Princes Highway	38	1	Station Street west of Princes Highway
18	1	Woodhill Street south east of Princes Highway	39	1	Achilles Avenue east of Princes Highway
19	1	Lysaght Street west if Princes Highway	40	1	Bourke Street east of Princes Highway
20	1	Ajax Avenue east of Princes Highway	41	2	Graham Avenue west of University Avenue
21	1	Car park north of Mount Ousley Road	1		

The key external zones remain as the ones from the Princes Motorway, the Princes Highway, Memorial Drive, Mount Keira Road, Bourke Street and Throsby Street. All the minor streets (including the car parks) within the defined study area were included as the connection between the major roads and the local traffic demand zones such as the University of Wollongong, TAFE, commercial and the residential precincts in Keiraville and Gwynneville areas. The Keiraville and Gwynneville Aimsun microsimulation model centroid configuration layout is illustrated in **Figure 3-5**.





Figure 3-5 Centroid Configuration Layout in the Model Study Area



3.11 **Behaviour Parameters**

Vehicle behaviour parameters were adopted from the calibrated Roads and Maritime Services Mount Ousley REF (2015) Traffic Model and SAFN default settings.

3.12 Traffic Demand Development

305823, 6190818

The demand estimation for the study area relied on Roads and Maritime Services Mount Ousley REF (2015) Traffic Model for Keiraville - Gwynneville Microsimulation Study. More information on the base demand and modelling approach can be found in Traffic Modelling for the Proposed Interchange at Mt Ousley Road on the M1 Princes Motorway, Roads and Maritime Serivces, Appendix B - Model development, calibration and validation, 2015





Four (4) base models were developed (in-session / out-session & AM / PM) with respective demand estimation and calibration process undertaken separately. This used the 2015 AM and PM peak one hour matrices for cars, trucks and heavy trucks derived from the Roads and Maritime Services Mount Ousley REF (2015) Traffic Model. This formed the base pattern matrix for demand adjustment undertaken in Aimsun.

The methodology for the development of the trip demand matrices for each of the modelled periods and its adjustments are detailed below.

- > Static assignment of strategic model demand to the Keiraville Gwynneville network.
- Static Assignment Adjustment: Further development and demand estimation was undertaken using static equilibrium assignment. This was used to calibrate the initial traffic demand (derived hourly matrices demands to peak AM and PM peak periods and initially constant over time) across the entire network and provide a starting point for more detailed microscopic simulation.
- Manual Adjustment: Matrices were then restructured to fit the microscopic model zone system. This consists of analysis of turning movement counts on a network wide basis and link total comparisons between surveyed intersections. Where necessary, minor adjustments were made to balance trip totals between intersections for the base year. This also consisted of vehicle type demand aggregation (i.e. heavy trucks and trucks combined) and splits review according to observed traffic composition (e.g. heavy vehicles and light vehicles only) of the study area using 2017 traffic surveys information dated of August (in-session) and September (out-session)
- Departure Time Adjustment: Traffic demand release profiles were applied to dispense traffic demands in defined time intervals over the model periods. These profiles were developed based on the traffic survey data which was collated in 15 minute intervals (refer to Traffic Profile section for traffic demand release percentages of the two-hour trip demand matrices).
- Dynamic Traffic Assignment Adjustment: The resulting sliced trip demand matrices from the departure adjustment process were applied to the model and an iterative loop of testing and matrix refinement undertaken to achieve an appropriate level of model calibration.

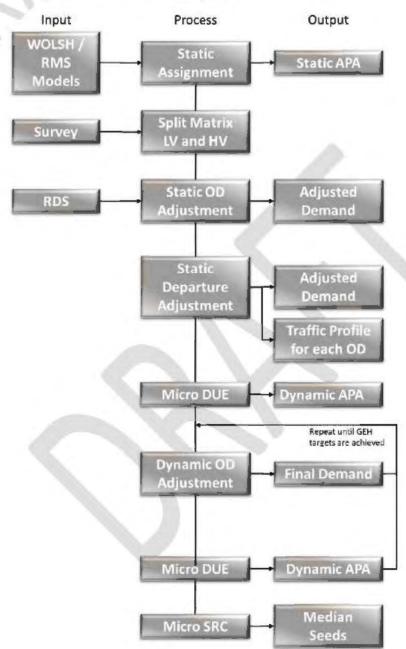






Figure 3-6 summarizes the demand estimation process and all steps used within the Aimsun platform.

Demand Estimation and Adjustment Process Figure 3-6







As stated in the previous section, the model covers the weekday AM and PM peak periods including a warmup period of one hour to generate sufficient demand on the network at the start of each analysis period.

Figure 3-7 to Figure 3-10 presents the AM and PM network traffic demand profiles respectively.

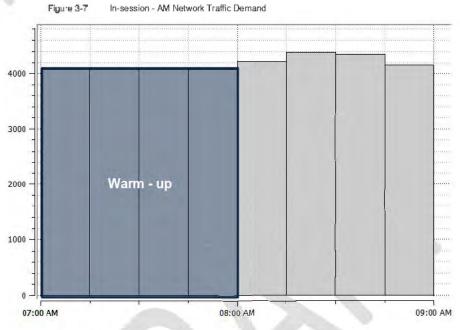
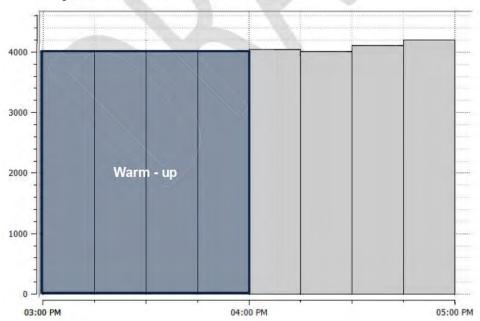


Figure 3-8-In-session - PM Network Traffic Demand





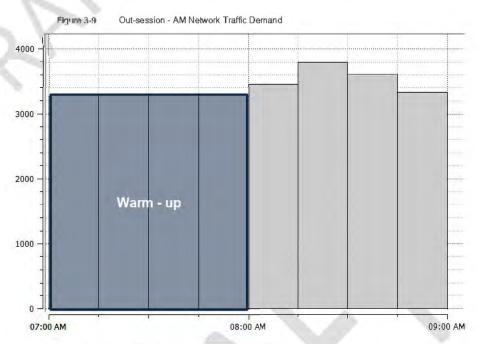


Figure 3-10 Out-session - PM Network Traffic Demand



A quick assessment of the in-session and out-session traffic demands shows that during the morning peak (08:00AM to 09:00AM), there are more trips (17,000 trips) during academic season than non-academic season (14,000), which consist of around 20% difference.

The traffic demand also shows an increase of roughly 10% more trips when comparing academic season (16,300 trips) to non-academic season (15,000 trips) during the affermoon peak (04:00PM to 05:00PM).

It was also identified through the travel demand patterns that during academic season there are more trips within the model area being completed during the morning peak than afternoon peak. In contrast, there are more trips completed during the affernoon peak than morning peak for the non-academic season.







3.13 Assignment Type

After static assignment and adjustments two assignment methods were mainly used in the microsimulation model and are summarised in Section 3.13.1 and Section 3.13.2.

Dynamic User Equilibrium Assignment

The dynamic user equilibrium (DUE) assignment is a form of traffic assignment that uses an iterative process to determine the traffic flows across the network based on the costs of travel routes between origin and destination (OD) pairs derived in previous iterations until it converges to an equilibrium state.

The underlying principle for this assignment is that travellers will try to minimise their individual travel times and travel on the route which they perceive to be the shortest path in their traffic conditions. In order for a dynamic user equilibrium to be achieved, the travel times of each OD pair for vehicles departing at the same time on all used routes are equal and less than any unused route experienced by a single person (Ran and Boyce's dynamic version of Wardrop's user equilibrium).

3.13.2 Stochastic Route Choice Assignment

The stochastic route choice (SRC) assignment is based on discrete route choice models or on a userdefined assignment. The discrete route choice models are based on discrete choice theory and emulates a driver's decision of selecting a path from those that are available.

This model utilises probability for choosing alternative paths from those available as a function of disutility, which is often travel time or travel cost.

In the Keiraville-Gwynneville base model, paths are provided from the DUE assignment and route choice is set to follow 80% of the DUE paths and the remaining 20% to follow the SRC assignment.





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4 Model Stability

The stochasticity of a micro-simulation model can cause instability in the model, which can undermine the reliability of the model to forecast future traffic conditions. Thus, it is important to develop a base model that is stable and has an appropriate degree of accuracy for future options assessment. To determine the stability of a model, a total of 5 seed values and the default time-step value in Aimsun are initially used, as recommended by the *Traffic Modelling Guidelines* to iteratively determine the required number of runs.

The statistic chosen as a summary measure to determine the model's stability is the vehicle hours travelled (VHT). The VHT results are a single figure summary used as an indication of the whole network performance by identifying whether or not the model has unrealistic gridlocks and excessive delays. VHT consists of the sum of travel time for every single vehicle across the whole network and therefore can identify congestion within a network.

In Aimsun, VHT is calculated only for the vehicles which were able to complete the respective trips from origin to destination. Any vehicles remaining in the system during the simulation period are excluded from the total system travel-time as they are unable to generate a complete travel time.

The number of seed runs required to determine the stability of the model is calculated iteratively by:

$$N = \left(\frac{t\sigma}{\Delta}\right)^2$$

Where:

N = number of runs

t = two-tailed inverse of Student's t-distribution

σ = standard deviation

 Δ = acceptable error (precision multiplied by sample mean)

The number of simulation runs required is below the initial 5 seeds used, therefore it is sufficient to retain the initial 5 seeds for a confidence interval of 95%.

The results of the VHT stability for the AM and PM peak are summarised in Table 4-1.

Table 4-1 Number of Simulation Runs Required

Parameter	In-Session M	lodels	Out-Session I	Models
	AM	PM	AM	PM
t	2.776	2.776	2.776	2.776
σ	25.003	50.718	13.428	24.557
Δ	67.090	63.629	54.118	59.663
N	1.070	4.896	0.474	1.305

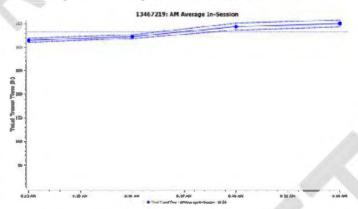
The VHT during the AM and PM models are consistent and independent across different 5 seed values, which confirms that one seed value for the model runs can be representative of a general model run. On this basis, the peak hour models are considered stable and show the model remains robust under varying conditions and can be used to reliably forecast future scenarios.





The average total travel time is illustrated in Figure 4-2 and Figure 4-3 for the in-session period, and Figure 4-4 and Figure 4-5 for the out-session period.

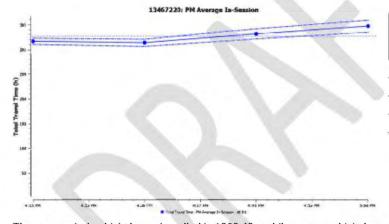
Figure 4-2 Average AM In-session Vehicle Hours Travelled



Time	Vehicle Hours Travelled (VHT)	5 Seeds Standard Deviation
8:15	315.04	4.50
8:30	322.90	4.02
8:45	343.52	7.21
9:00	350.08	7.32

The aggregated vehicle hours travelled is 1331.34 and the mean vehicle hours travelled is 332.89.

Figure 4-3 Average PM In-session Vehicle Hours Travelled



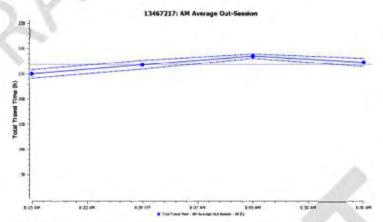
Time	Vehicle Hours Travelled (VHT)	5 Seeds Standard Deviation		
4:15	316.61	6.11		
4:30	313.70	7.04		
4:45	331.34	10.12		
5:00	346.84	11.79		

The aggregated vehicle hours travelled is 1308.48 and the mean vehicle hours travelled is 327.12.





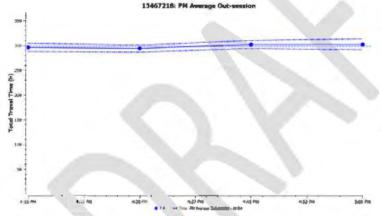
Average AM Out-session Vehicle Hours Travelled Figure 4-4



Time	Vehicle Hours Travelled (VHT)	5 Seeds Standard Deviation
8:15	250.09	8.07
8:30	267.88	8.51
8:45	284.91	4.03
9:00	272.94	7.91

The aggregated vehicle hours travelled is 1075.83 and the mean vehicle hours travelled is 268.96.

Figure 4-5 Average PM Out-session Vehicle Hours Travelled



Time	Vehicle Hours Travelled (VHT)	5 Seeds Standard Deviation	
4:15	295.95	8.63	
4:30	293.35	7.17	
4:45	301.98	8.10	
5:00	301.99	11.22	

The aggregated vehicle hours travelled is 1193.26 and the mean vehicle hours travelled is 298.31.

The resulting model performance is summarised by the total vehicle hours travelled comparisons above. The general network statistics for both periods show a substantial low level of variability in the peak hours of both the AM and PM peaks. Overall, the statistical analysis of the model runs demonstrates the modelled network and output results are stable.

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Model Calibration and Validation 5

This section sets out the key calibration statistics from the preparation of the base (existing conditions) model. The calibration of a base model is important to ensure a robust base from which to test options and provide statistical comparisons of existing layouts against options.

Calibration for this model has been based on the following:

- Model Convergence: Assessing the relative gap between iterations is a measure of how close the assignment is to the "optimal" equilibrium assignment
- Turn Counts: Comparing observed and modelled turning movements for general traffic over the modelled peak hour periods.

The Keiraville - Gwynneville microsimulation base model turn counts calibration has been undertaken in two stages:

- Calibration of the static assignment parameters iteratively alongside demand adjustment to ensure that the adjustment is undertaken using valid static assignment routing
- Calibration of the traffic signals, microsimulation and DUE assignment parameters.

The calibration and validation statistics are outputted from a single seed run determined as the median seed from the VHT assessment of model stability (Table 5-1).

Median Seeds used for Calibration and Validation Results

Median Seed	In-Session M	odels	Out-Session Models	
	AM	PM	AM	PM
	2849	560	28	560

5.2 Calibration Criteria

A turning count calibration was used to compare observed on-site traffic volumes with equivalent outputs from the model. Turning count calibration was undertaken for each of the major intersections and the purpose of this calibration was to ensure that simulated traffic volumes in the models were representative of traffic volumes observed on site for each traffic movement at each intersection.

The calibration process was done on both a network-wide level and in the core area, each with its own criteria. The core area of the microscopic model not the entire Keiraville-Gwynneville study area and key locations will be treated as core area as per Wollongong City Council and Roads and Maritime Services advice after microscopic network wide calibration.

Network-Wide Calibration Criteria 5.2.1

The model was calibrated using the criteria provided in the modelling guidelines to ensure the model reflects the observed traffic conditions to a statistically high level of accuracy. The method of calibration recommended by the modelling guidelines is the modified Chi-Square empirical formula that Geoffrey E. Harves invented it in the 1970s, commonly known as the GEH statistic, for individual flows. The R-Square (R²) statistical measure is used for the correlation of the entire data set.

The GEH formula is:

$$GEH = \sqrt{\frac{(V_o - V_m)^2}{0.5(V_o + V_m)}}$$

Where:

Vo is the observed traffic flow; and

V_m is the modelled traffic flow.





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A GEH of 5.0 or less is considered to provide a good match between the modelled and observed traffic flows. According to the *UK Highways Agency Design Manual for Roads and Bridges (DMRB)* a model should be calibrated with at least 85% of links or turns to have a GEH no greater than 5.0.

The following criteria were used during the turning count calibration process for the whole network:

- 95% of turn and link flow comparisons with GEH less than 10
- 85% of turn and link flow comparisons with GEH less than 5
- R² statistics should be between 0.95 and 1.05 for a flow plot of observed vs modelled turn volumes (where R² = 1.0 is a perfect correlation).

5.2.2 Core Area Calibration Criteria

The following criteria is to be used during the turning count calibration process for the core area:

- Turn or link flows to be within 10 vehicles for flows <99
- Turn of link flows to be within 10% of observed values for flows between 100 and 999
- · Turn or link flows to be within 100 vehicles for flows between 1000 and 1999
- Turn of link flows to be within 5% of observed values for flows >2000
- 100% of observations to be within tolerance limits
- Regression of modelled and observed counts to show R2>0.95.

5.3 Calibration Results

5.3.1 Network Wide

The network wide calibration was undertaken by comparing the modelled turn flows with observed counts at 110 locations within the study area. As described in **Section 5.2.1**, a GEH statistic of less than 5.0 is considered to be a good match when comparing the observed turning counts with modelled turning volumes. The GEH calibration statistics for the whole network is shown in **Table 5-2**.

Table 5-2 Network Wide Calibration Summary

In-session						Out-session			
Time Period	8:00 - 9:00		4:00 – 5:00 PM		8:00 – 9:00 AM		4:00 – 5:00 PM		
Vehicle LV Type	LV	HV	LV	HV	LV	HV	LV	HV	
GEH < 5	91%	98%	87%	97%	94%	98%	92%	95%	
GEH < 10	100%	100%	100%	100%	100%	100%	100%	100%	
R ²	0.98	0.98	0.98	0.98	0.99	0.99	0.99	0.99	

The network wide calibration results show that the model is sufficiently calibrated according to the Roads and Maritime Services *Traffic Modelling Guidelines*.

Figure 5-1 and **Figure 5-2** highlights the GEH statistics by location of the modelled peak period for the AM peak and PM peak during in-session and out-session periods respectively.



Figure 5-1 In-session AM Peak and PM Peak GEH Statistic by Location

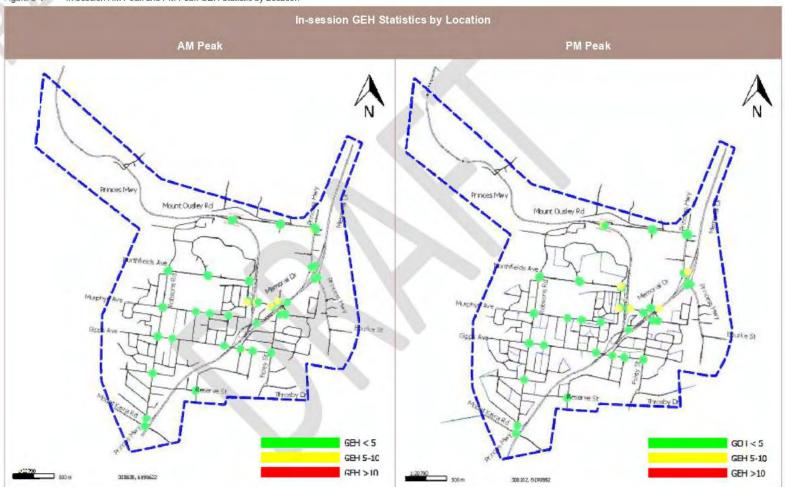
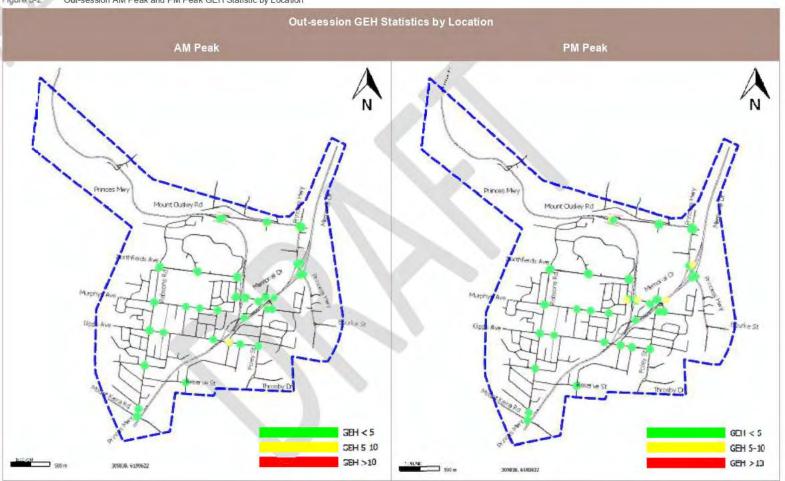
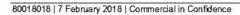






Figure 5-2 Out-session AM Peak and PM Peak GEH Statistic by Location









The turning count comparison between the observed and modelled flows are shown in **Figure 5-3** to **Figure 5-6**. The regression plots were generated with a trend line intercept of zero for the AM peak and PM peak in both in-session and out-session periods.

Figure 5-3 In-session 08:00 - 09:00 AM Regression Analysis

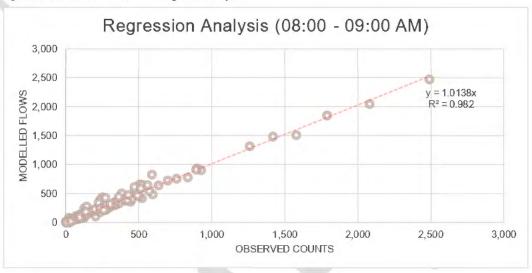


Figure 5-4 In-session 04:00 - 05:00 PM Regression Analysis

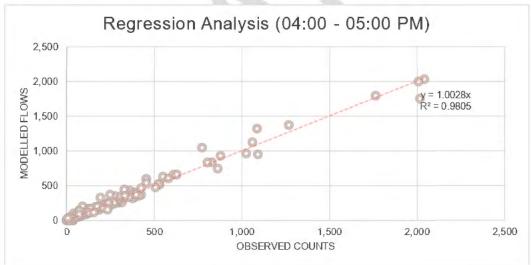






Figure 5-5 Out-session 08:00 - 09:00 AM Regression Analysis

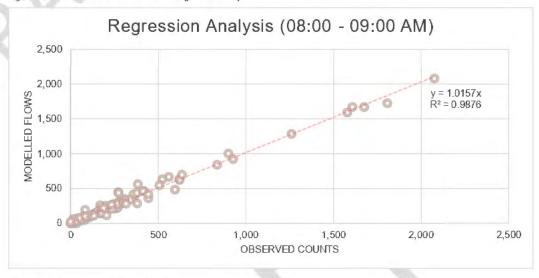
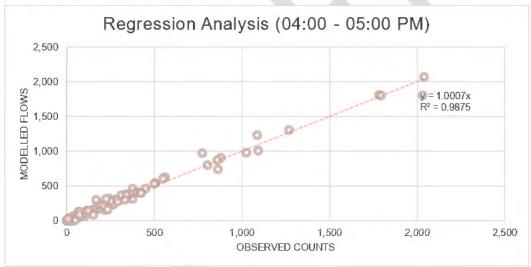


Figure 5-6 Out-session 04:00 - 05:00 PM Regression Analysis



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Item 6 - Attachment 3 - Keiraville Gwynneville Access and Movement Study Consultant Report



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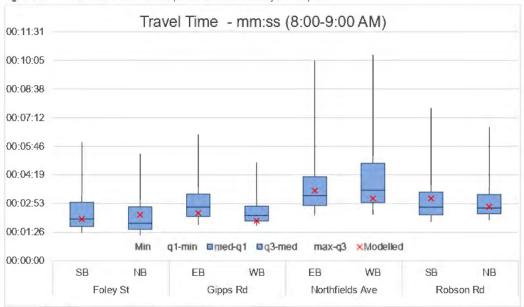
Validation Criteria 5.4

The Roads and Maritime Services Traffic Modelling Guidelines set the travel time validation criteria for traffic models as the average modelled travel time to be within 15% or one minute (whichever is greater) of average observed travel time for full length of route for 95% of observed travel time routes.

5.5 Validation Results

Table 5-3 to Table 5-6 and Figure 5-7 to Figure 5-10 summarize travel time data extracted from Keiraville-Gwynneville microscopic model for both in-session and out-session scenarios. After identifying the median seed, the average travel times for the routes within the study area were used for the validation comparison of median travel times from TomTom journey travel time's data set and the microscopic model outputs.

In-session Travel Time box-plot for routes within study are AM peak Figure 5-7



In-session Travel Time Validation Results for AM peak Table 5-3

	08:00-9:00 AM								
	Foley	St	Gipps	Rd	Northfields Ave		Robson Rd		
	SB	NB	EB	WB	EB	WB	SB	NB	
Min	01:25	01:18	01:49	01:47	02:16	02:19	01:58	02:04	
1st Quartile	01:44	01:36	02:14	02:01	02:48	02:56	02:19	02:23	
Median	02:06	01:54	02:42	02:17	03:17	03:33	02:42	02:40	
3rd Quartile	02:56	02:42	03:21	02:45	04:13	04:53	03:27	03:20	
Max	05:59	05:23	06:21	04:57	10:04	10:22	07:41	06:44	
Modelled	02:06	02:19	02:24	02:02	03:32	03:08	03:08	02:44	
Difference	00:00	00:25	00:18	00:15	00:15	00:25	00:26	00:04	
Pass	1	1	1	1	1	1	1	1	





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Figure 5-8 In-session Travel Time box-plot for routes within study are PM peak

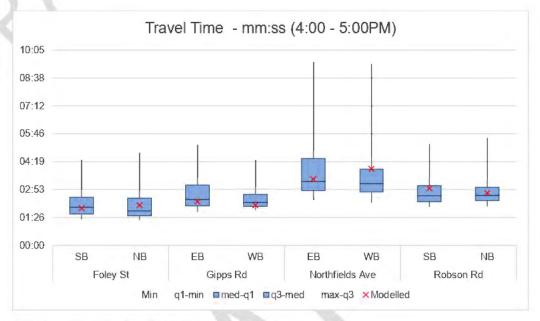


Table 5-4 In-session Travel Time Validation Results for PM peak

			1	04:00 - 5	5:00PM			400	
	Foley	St	Gipps	Rd	Northfield	ds Ave	Robson Rd		
	SB	NB	NB	SB	EB	WB	SB	NB	
Min	01:21	01:19	01:45	01:49	02:20	02:12	02:00	02:01	
1st Quartile	01:37	01:32	02:03	02:01	02:50	02:46	02:16	02:19	
Median	01:58	01:47	02:23	02:13	03:18	03:12	02:34	02:35	
3rd Quartile	02:29	02:26	03:07	02:37	04:28	03:56	03:05	03:00	
Max	04:25	04:46	05:11	04:24	09:28	09:21	05:13	05:33	
Modelled	01:55	02:04	02:16	02:04	03:25	03:57	02:57	02:42	
Difference	00:03	00:17	00:07	00:09	00:07	00:45	00:23	00:07	
Pass	1	1	1	1	1	1	1	1	





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Figure 5-9 Out-session Travel Time box-plot for routes within study are AM peak

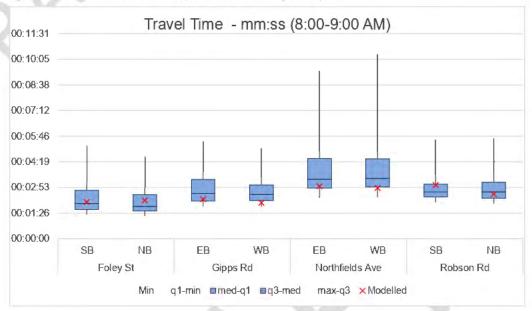


Table 5-5 Out-session Travel Time Validation Results for AM peak

	100			08:00-9	:00 AM	0.00		100	
	Fole	y St	Gipps	Gipps Rd Northf			Robson Rd		
	SB	NB	EB	WB	EB	WB	SB	NB	
Min	00:01:22	00:01:18	00:01:50	00:01:48	00:02:18	00:02:21	00:02:03	00:02:00	
1st Quartile	00:01:39	00:01:34	00:02:08	00:02:09	00:02:51	00:02:55	00:02:21	00:02:18	
Median	00:01:59	00:01:49	00:02:33	00:02:29	00:03:21	00:03:24	00:02:38	00:02:39	
3rd Quartile	00:02:43	00:02:28	00:03:19	00:03:01	00:04:30	00:04:29	00:03:04	00:03:11	
Max	00:05:14	00:04:37	00:05:28	00:05:04	00:09:25	00:10:22	00:05:34	00:05:38	
Modelled	00:02:04	00:02:09	00:02:14	00:02:01	00:02:57	00:02:52	00:03:01	00:02:31	
Difference	00:00:05	00:00:20	00:00:19	00:00:28	00:00:24	00:00:32	00:00:23	00:00:08	
Pass	1	1	1	1	1	1	1	1	

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Out-session Travel Time box-plot for routes within study are PM peak Figure 5-10

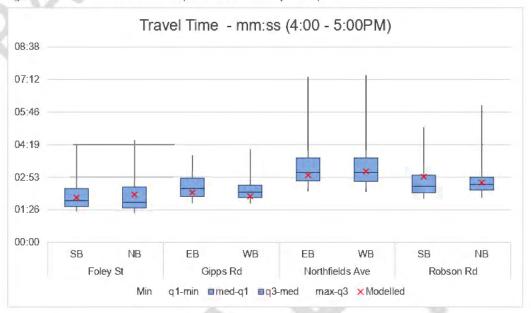


Table 5-6 Out-session Travel Time Validation Results for PM peak

				04:00 - 5	:00PM			100	
	Foley	St	Gipps	Rd	Northfield	Is Ave	Robson Rd		
	SB	NB	NB	SB	EB	WB	SB	NB	
Min	01:22	01:19	01:44	01:44	02:15	02:13	01:56	01:58	
1st Quartile	01:35	01:32	02:02	02:00	02:44	02:43	02:12	02:19	
Median	01:51	01:47	02:23	02:14	03:06	03:06	02:29	02:34	
3rd Quartile	02:22	02:27	02:50	02:32	03:44	03:44	02:58	02:53	
Max	04:17	04:32	03:51	04:07	07:19	07:24	05:06	06:03	
Modelled	01:58	02:07	02:12	02:03	02:59	03:09	02:54	02:39	
Difference	00:07	00:20	00:11	00:11	00:07	00:03	00:25	00:05	
Pass	1	1	1	1	1	1	1	V	

The travel times modelled in Aimsun closely reflected the travel times recoded indicated by the TomTom data.





Base Model Development Report Keiraville – Gwynneville Access and Movement Study

6 Conclusion

The Base Weekday AM and PM models, both for in-session and out-session periods, conform to Roads and Maritime Services Traffic Modelling Guidelines for microsimulation traffic modelling. The modelling results show that the models have:

- > 100% of the turning counts had a GEH of less than 10
- > High regression value with R2 > 0.99
- > Travel time results within one minute of median observed travel times
- > Stable performance amongst five seeds run
- Replicated traffic operation and behaviour at identified hotspots in the study area.

It is concluded that the four (4) peak base models appropriately reflect existing year conditions and provide a suitable basis for the development of present and long term infrastructure upgrades and subsequent performance assessment for the respective future year horizon.



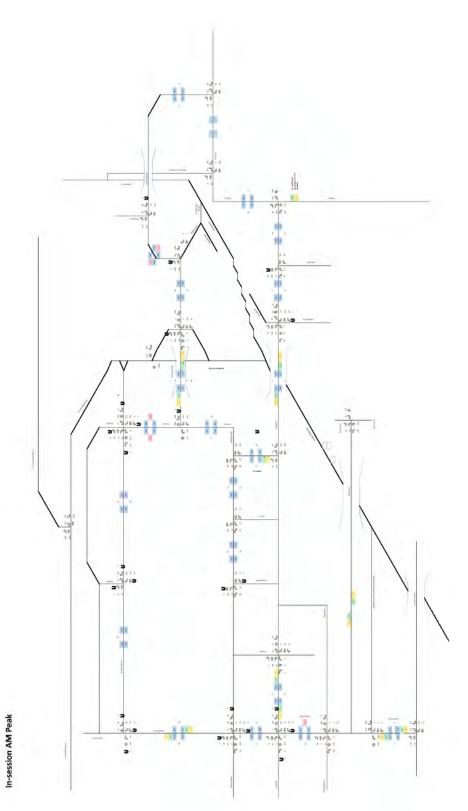
Keiraville – Gwynneville Access and Movement Study

APPENDIX

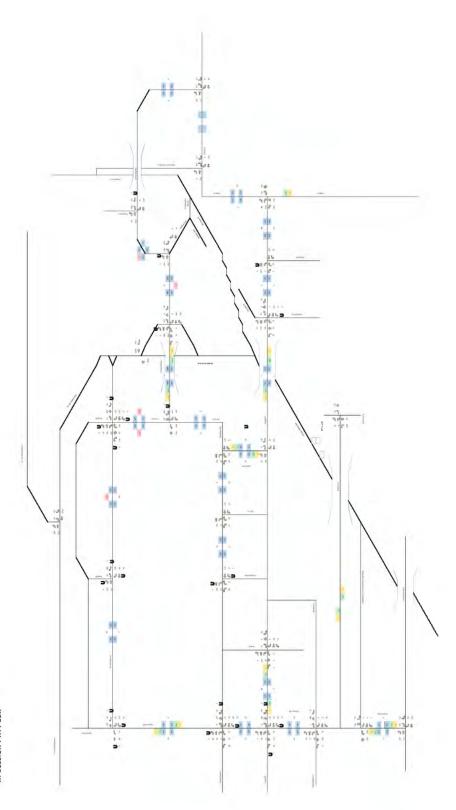
A

TRAFFIC FLOW DIAGRAMS



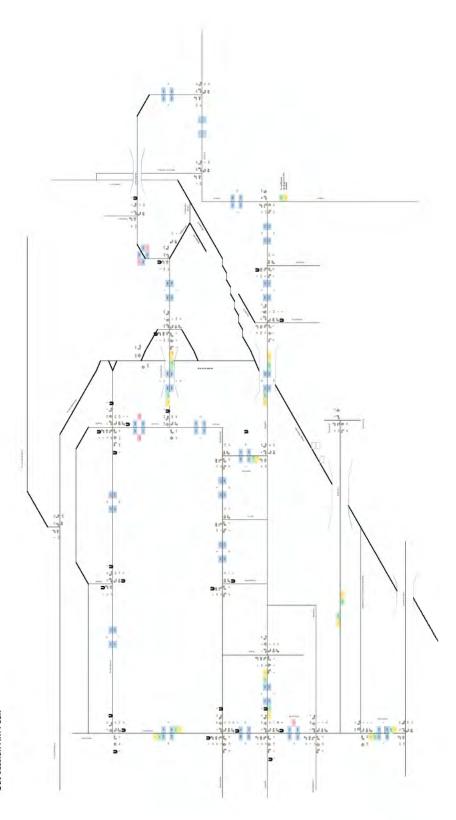




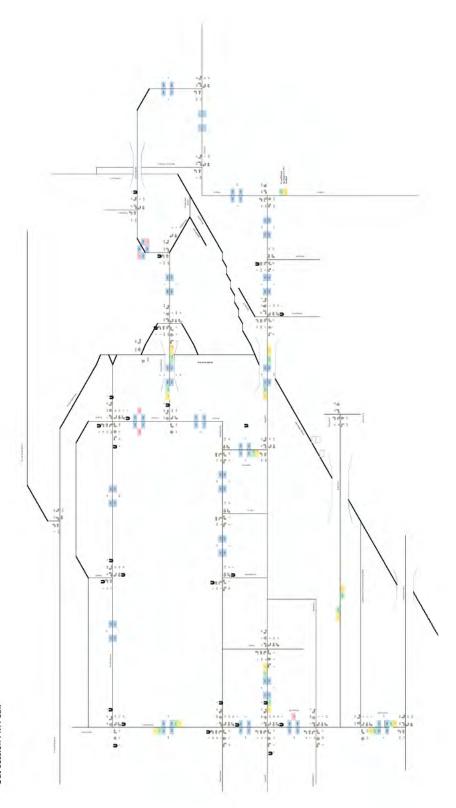


In-session PM Peak





Out-session AM Peak



Out-session PM Peak

Consultant Report



Keiraville – Gwynneville Access and Movement Study

APPENDIX

В

TRAFFIC SIGNAL DATA



Ordinary Meeting of Council Item 6 - Attachment 3 - Keiraville Gwynneville Access and Movement Study Consultant Report

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A Peak	4/03/2015								
From	to	Phase A %	Phase 8 %	Phase C %	Phase A	Phase B	Phase C	Cycle time	
6:00	6:15	76%	3%	21%	65	3	18	85	
6:15	6:30	80%	4%	15%	68	3	13	85	
6:30	6:45	77%	7%	16%	69	6	14	90	
6:45	7:0D	77%	3%	20%	93	4	24	121	
6:00	7:00	78%	4%	18%	74	-4	17	95	
7:00	7:15	70%	2%	28%	82	2	33	117	
7:15	7:30	67%	7%	26%	71	7	28	106	
7:30	7:45	66%	12%	22%	83	15	28	126	
7:45	8:00	64%	14%	22%	95	21	33	148	
7:00	5:00	67%	9%	25%	83	11	30	124	
8:00	8:15	62%	16%	23%	93	24	35	150	
8:15	8:30	64%	14%	22%	97	21	33	152	
8:30	8:45	65%	15%	21%	96	22	31	147	
B:45	9:00	60%	19%	22%	88	28	32	146	
8:00	9:00	63%	16%	22%	93	24	33	149	
9:00	9:15	63%	17%	20%	94	25	30	149	
9:15	9:30	64%	18%	19%	85	24	25	133	
9:30	9:45	62%	15%	23%	74	18	27	119	
9:45	10:00	61%	17%	22%	71	20	26	117	
9:00	10:00	63%	17%	21%	81	22	27	130	
M Peak									
From	to	Phase A %	Phase B %	Phase C %	Phase A	Phase B	Phase C	Cycle time	
15:00	15:15	58%	17%	25%	62	18	27	107	
15:15	15:30	55%	19%	25%	69	24	32	126	
15:30	15:45	53%	19%	29%	68	24	37	128	
15:45	15:00	62%	17%	21%	82	23	28	133	
15:00	16:00	57%	18%	25%	70	22	31	124	
16:00	16:15	60%	17%	23%	86	24	33	143	
16:15	16:30	63%	14%	23%	85	19	31	135	
16:30	16:45	51%	20%	29%	68	27	39	133	
16:45	17:00	53%	22%	26%	67	28	33	127	
16:00	17:00	57%	18%	25%	76	24	34	135	
17:0D	17:15	45%	25%	30%	54	30	36	120	
17:15	17:30	53%	21%	26%	73	29	36	138	
17:30	17:45	59%	16%	25%	73	20	31	124	
17:45	18:00	60%	18%	22%	74	2.2	27	124	
17:00	18:00	54%	20%	26%	69	25	33	127	
18:00	18:15	68%	12%	20%	87	15	26	128	
18:15	18:30	72%	13%	16%	86	16	19	120	
18:30	18:45	68%	10%	22%	79	12	26	116	
18:45	19:00	69%	14%	17%	79	16	19	114	
	19:00	69%	12%	19%	63	15	22	120	





Ordinary Meeting of Council Item 6 - Attachment 3 - Keiraville Gwynneville Access and Movement Study Consultant Report

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From	to	Phase A %	Phase B %	Phase C %	Phase A	Phase B	Phase C	Cycle time
6:00	6:15	72%	0%	28%	60	0	24	84
6:15	6:30	68%	0%	32%	58	0	27	85
6:30	6:45	68%	196	31%	61	1	28	90
6:45	7:00	71%	3%	26%	86	4	31	121
6:00	7:00	70%	1%	29%	66	1	28	95
7:00	7:15	64%	3%	34%	60	3	32	94
7:15	7:30	64%	4%	32%	68	4	34	106
7:30	7:45	56%	10%	34%	76	14	46	135
7:45	8:00	56%	10%	34%	76	14	46	135
7:00	8:00	60%	7%	34%	70	9	39	118
8:00	8:15	54%	12%	34%	80	18	50	148
8:15	8:30	61%	12%	27%	92	18	41	151
8:30	8:45	58%	10%	32%	86	15	48	149
B:45	9:00	59%	11%	30%	89	17	45	150
8:00	9:00	58%	11%	31%	87	17	46	150
9:00	9:15	57%	13%	30%	84	19	44	148
9:15	9:30	52%	11%	37%	70	15	50	135
9:30	9:45	54%	13%	33%	63.	15	38	116
9:45	10:00	58%	12%	30%	68	14	35	118
9:00	10:00	55%	12%	33%	71	16	42	129
From	to	Phase A %	Phase B %	Phase C %	Phase A	Phase B	Phase C	Cycle time
15:00	15:15	50%	16%	34%	60	19	41	120
15:15	15:30	53%	13%	34%	69	17	45	131
15:30	45 45							
	15:45	48%	15%	37%	60	19	46	125
15:45	15:45	48% 47%	15%	37% 38%	60	19 20	46 51	
								125
15:45	15:00	47%	15%	38%	63	20	51	125 134
15:45 15:00	15:00 16:00	47% 50%	15% 15%	38% 36%	63 63	20 19	51 46	125 134 128
15:45 15:00 16:00	15:00 16:00 16:15	47% 50% 55%	15% 15% 13%	38% 36% 32%	63 63 79	20 19	51 46 46	125 134 128 143
15:45 15:00 16:00 16:15	15:00 16:00 16:15 16:30	47% 50% 55% 49%	15% 15% 13% 16%	38% 36% 32% 35%	63 63 79 67	20 19 19 22	51 46 46 48	125 134 128 143 136
15:45 15:00 16:00 16:15 16:30	15:00 16:00 16:15 16:30 16:45	47% 50% 55% 49% 52%	15% 15% 13% 16% 16%	38% 36% 32% 35% 32%	63 79 67 70	20 19 19 22 22	51 46 46 48 43	125 134 128 143 136 135
15:45 15:00 16:00 16:15 16:30 16:45	15:00 16:00 16:15 16:30 16:45 17:00	47% 50% 55% 49% 52% 50%	15% 15% 13% 16% 16% 16%	38% 36% 32% 35% 32% 34%	63 79 67 70 63	20 19 19 22 22 22	51 46 46 48 43 43	125 134 128 143 136 135 126
15:45 15:00 16:00 16:15 16:30 16:45 16:00	15:00 16:00 16:15 16:30 16:45 17:00	47% 50% 55% 49% 52% 50% 52%	15% 15% 13% 16% 16% 16% 15%	38% 36% 32% 35% 32% 34% 34%	63 79 67 70 63 70	20 19 19 22 22 20 21	51 46 46 48 43 43 43	125 134 128 143 136 135 126
15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00	15:00 16:00 16:15 16:30 16:45 17:00 17:00	47% 50% 55% 49% 52% 50% 52% 44%	15% 15% 13% 16% 16% 16% 15%	38% 36% 32% 35% 32% 34% 33% 39%	63 79 67 70 63 70 52	20 19 19 22 22 22 20 21	51 46 46 48 43 43 43 45	125 134 128 143 136 135 126 135
15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30 17:45	15:00 16:00 16:15 16:30 16:45 17:00 17:00 17:15 17:30 17:45 18:00	47% 50% 55% 49% 52% 50% 52% 44% 44% 42%	15% 15% 13% 16% 16% 16% 15% 17% 16% 17% 16%	38% 36% 32% 35% 32% 34% 33% 39% 41% 41% 39%	63 79 67 70 63 70 52 57 53 57	20 19 19 22 22 20 21 20 22 21 20	51 46 46 48 43 43 45 46 56 51 48	125 134 128 143 136 135 126 135 119 136 125 125
15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30	15:00 16:00 16:15 16:30 16:45 17:00 17:00 17:15 17:30 17:45	47% 50% 55% 49% 52% 50% 52% 44% 42% 42%	15% 15% 13% 16% 16% 16% 15% 17% 16% 17%	38% 36% 32% 35% 32% 34% 33% 39% 41% 41%	63 79 67 70 63 70 52 57 53	20 19 19 22 22 20 21 20 22 21 19	51 46 46 48 43 43 45 46 56	125 134 128 143 136 135 126 135 119 136 125
15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30 17:45	15:00 16:00 16:15 16:30 16:45 17:00 17:00 17:15 17:30 17:45 18:00	47% 50% 55% 49% 52% 50% 52% 44% 44% 42% 42% 46%	15% 15% 13% 16% 16% 16% 15% 17% 16% 17% 16%	38% 36% 32% 35% 32% 34% 33% 39% 41% 41% 39%	63 79 67 70 63 70 52 57 53 57	20 19 19 22 22 20 21 20 22 21 20	51 46 46 48 43 43 45 46 56 51 48	125 134 128 143 136 135 126 135 119 136 125 125
15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30 17:45 17:00 18:00 18:15	15:00 16:00 16:15 16:30 16:45 17:00 17:00 17:15 17:30 17:45 18:00 18:15 18:30	47% 50% 55% 49% 52% 50% 52% 44% 42% 42% 44% 42% 37%	15% 15% 13% 16% 16% 16% 16% 17% 16% 17% 16% 17% 16%	38% 36% 32% 35% 32% 34% 33% 41% 41% 41% 40% 47%	63 63 79 67 70 63 70 52 57 53 57 55 54 44	20 19 19 22 22 20 21 20 22 21 19 20 22 21 19	51 46 48 43 43 45 46 56 51 48 50 52 56	125 134 122 143 136 135 126 135 119 136 125 124 125 124 128
15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30 17:45 17:00 18:00 18:15 18:30	15:00 16:00 16:15 16:30 16:45 17:30 17:15 17:30 17:45 18:00 18:15 18:30 18:45	47% 50% 55% 49% 52% 50% 52% 44% 42% 42% 42% 46% 44% 42% 49%	15% 13% 16% 16% 16% 16% 16% 15% 17% 16% 17% 16% 17% 16%	38% 36% 32% 35% 34% 33% 39% 41% 41% 40% 40%	63 63 79 67 70 63 70 52 57 53 57 55 54 44 56	20 19 19 22 22 20 21 20 22 21 19 20 22 21 19	51 46 46 48 43 43 45 46 56 51 48 50 52 56 39	125 134 128 143 136 135 126 135 119 136 125 124 126 128
15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30 17:45 17:00 18:00 18:15	15:00 16:00 16:15 16:30 16:45 17:00 17:00 17:15 17:30 17:45 18:00 18:15 18:30	47% 50% 55% 49% 52% 50% 52% 44% 42% 42% 44% 42% 37%	15% 15% 13% 16% 16% 16% 16% 17% 16% 17% 16% 17% 16%	38% 36% 32% 35% 32% 34% 33% 41% 41% 41% 40% 47%	63 63 79 67 70 63 70 52 57 53 57 55 54 44	20 19 19 22 22 20 21 20 22 21 19 20 22 21 19	51 46 48 43 43 45 46 56 51 48 50 52 56	125 134 122 143 136 135 126 135 119 136 125 124 125 124 128



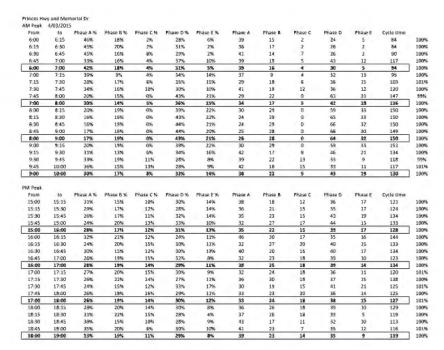
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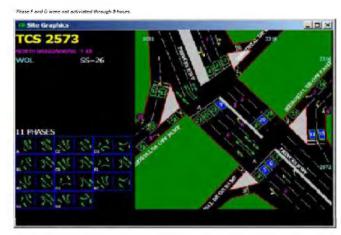
Peak rom	4/03/2019 to	Phase A %	Phase B %	Phase C%	Phase A	Phase B	Phase C	Cycle time	
6:00	6:15	93%	1%	6%	82	1	5	88	
6:15	6:30	96%	0%	4%	82	o	3	85	
6:30	6:45	94%	0%	6%	97	0	6	103	
6:45	7:00	93%	0%	7%	115	0	9	124	
6:00	7:00	94%	0%	6%	94	0	6	100	
7:00	7:15	78%	4%	18%	69	4	16	89	
7:15	7:30	77%	2%	21%	81	2	22	105	
7:30	7:45	77%	0%	23%	97	0	29	126	
7:45	8:00	69%	4%	27%	103	6	40	149	
7:00	8:00	75%	3%	22%	88	3	27	117	
8:00	8:15	65%	5%	30%	99	8	46	152	
8:15	8:30	51%	8%	40%	75	12	59	147	
8:30	8:45	48%	14%	37%	72	21	55	149	
8:45	9:00	55%	13%	32%	84	20	49	152	
8:00	9:00	55%	10%	35%	82	15	52	150	
9:00	9:15	78%	1%	20%	118	2	30	151	
9:15	9:30	73%	1%	26%	96	1	34	131	
9:30	9:45	79%	0%	21%	93	0	25	118	
9:45	10:00	70%	0%	30%	83	0	35	118	
9:00	10:00	75%	1%	24%	97	1	31	130	
VI Peak From	to	Phase A %	Phase B %	Phase C %	Phase A	Phase B	Phase C	Cycle time	
15:00	15:15	67%	2%	31%	80	2	37	119	
15:15	15:30	59%	6%	35%	74	8	44	125	
15:30	15:45	66%	5%	29%	88	7	39	133	
15:45	15:00	71%	2%	26%	96	3	35	135	
15:00	16:00	66%	4%	30%	84	5	39	128	
16:00	16:15	67%	4%	30%	95	6	43	142	
16:15	16:30	66%	4%	30%	88	5	40	134	
16:30	16:45	69%	2%	29%	92	3	39	133	
16:45	17:00	74%	1%	25%	95	1	32	128	
46.00	17:00	69%	3%	29%	93	4	38	134	
16:00			3%	24%	88	4	29	120	
17:00	17:15	73%	370	2.470					
	17:15 17:30	73% 75%	7%	18%	105	10	25	140	
17:00 17:15 17:30	17:30 17:45	75% 76%	7% 2%	18% 21%	94	2	26	124	
17:00 17:15 17:30 17:45	17:30	75% 76% 81%	7% 2% 1%	18% 21% 18%	94 101	2	26 23	124 125	
17:00 17:15 17:30	17:30 17:45	75% 76%	7% 2%	18% 21%	94	2	26	124	
17:00 17:15 17:30 17:45	17:30 17:45 18:00	75% 76% 81%	7% 2% 1%	18% 21% 18%	94 101	2 1 4	26 23	124 125 127 127	
17:00 17:15 17:30 17:45 17:00	17:30 17:45 18:00 18:00	75% 76% 81% 76%	7% 2% 1% 3%	18% 21% 18% 20%	94 101 97	1 4	26 23 26	124 125 127	
17:00 17:15 17:30 17:45 17:00 18:00	17:30 17:45 18:00 18:00 18:15	75% 76% 81% 76% 81%	7% 2% 1% 3% 1%	18% 21% 18% 20% 18%	94 101 97 103	2 1 4 1 1	26 23 26 23	124 125 127 127	
17:00 17:15 17:30 17:45 17:00 18:00 18:15	17:30 17:45 18:00 18:00 18:15 18:30	75% 76% 81% 76% 81% 86%	7% 2% 1% 3% 1%	18% 21% 18% 20% 18% 13%	94 101 97 103 104	2 1 4 1 1	26 23 26 23 16	124 125 127 127 121	

Phase D was not activiated through 8 hours.









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	4/03/2015		-1			1200		
From	to	Phase A %	Phase B %	Phase C %	Phase A	Phase B	Phase C	Cycle time
6:00	6:15	95%	1%	4%	28	0	1	29
6:15	6:30	96%	0%	4%	31	0	1	32
6:30	6:45	93%	0%	7%	38	0	3	41
6:45	7:00	95%	0%	5%	50	0	3	53
6:00	7:00	95%	0%	5%	37	0	2	39
7:00	7:15	85%	2%	13%	36	1	5	42
7:15	7:30	87%	1%	12%	58	1	8	67
7:30	7:45	89%	0%	11%	70	0	9	79
7:45	8:00	86%	0%	14%	75	0	12	87
7:00	8:00	87%	1%	13%	60	0	9	69
8:00	8:15	76%	0%	24%	72	0	23	95
8:15	8:30	70%	2%	27%	61	2	23	87
8:30	8:45	72%	1%	27%	64	1	24	89
8:45	9:00	72%	1%	26%	74	1	27	103
B:00	9:00	73%	1%	26%	68	1	24	94
9:00	9:15	70%	3%	28%	71	3	28	101
9:15	9:30	83%	3%	14%	85	3	14	103
9:30	9:45	83%	1%	16%	78	1	15	94
9:45	10:00	83%	2%	15%	77	2	14	93
9:00	10:00	80%	2%	18%	78	2	18	98
A Peak From	to	Phase A %	Phase B %	Phase C %	Phase A	Phase B	Phase C	Cycle time
15:00	15:15	73%						
			3%	24%	77	3	25	105
15:15	15:30	74%	3%	23%	78	3	24	106
15:30	15:30 15:45	74% 82%	3% 5%	23% 13%	78 88	3 5	24 14	106 107
15:30 15:45	15:30 15:45 15:00	74% 82% 82%	3% 5% 3%	23% 13% 15%	78 88 82	3 5 3	24 14 15	106 107 100
15:30 15:45 15:00	15:30 15:45 15:00 16:00	74% 82% 82% 78%	3% 5% 3% 4%	23% 13% 15% 19%	78 88 82 81	3 5 3	24 14 15 20	106 107 100 105
15:30 15:45 15:00 16:00	15:30 15:45 15:00 16:00	74% 82% 82% 78% 81%	3% 5% 3% 4% 1%	23% 13% 15% 19% 18%	78 88 82 81 83	3 5 3 4	24 14 15 20	106 107 100 105 102
15:30 15:45 15:00 16:00 16:15	15:30 15:45 15:00 16:00 16:15 16:30	74% 82% 82% 78% 81% 78%	3% 5% 3% 4% 1% 4%	23% 13% 15% 19% 18% 18%	78 88 82 81 83 81	3 5 3 4 1 4	24 14 15 20 18 19	106 107 100 105 102 104
15:30 15:45 15:00 16:00 16:15 16:30	15:30 15:45 15:00 16:00 16:15 16:30 16:45	74% 82% 82% 78% 81% 78% 82%	3% 5% 3% 4% 1% 4% 1%	23% 13% 15% 19% 18% 18% 18%	78 88 82 81 83 81 84	3 5 3 4 1 4	24 14 15 20 18 19 18	106 107 100 105 102 104 103
15:30 15:45 15:00 16:00 16:15	15:30 15:45 15:00 16:00 16:15 16:30	74% 82% 82% 78% 81% 78%	3% 5% 3% 4% 1% 4% 1% 2%	23% 13% 15% 19% 18% 18% 17% 18%	78 88 82 81 83 81	3 5 3 4 1 4 1 2	24 14 15 20 18 19 18 18	106 107 100 105 102 104
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00	74% 82% 82% 78% 81% 78% 82% 80%	3% 5% 3% 4% 1% 4% 1% 2%	23% 13% 15% 19% 18% 18% 18% 17% 18%	78 88 82 81 83 81 84 81	3 5 3 4 1 4 1 2	24 14 15 20 18 19 18 18	106 107 100 105 102 104 103 101
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00 17:15	74% 82% 82% 78% 81% 78% 82% 80% 80% 83%	3% 5% 3% 4% 1% 4% 1% 2% 2%	23% 13% 15% 19% 18% 18% 18% 17% 18%	78 88 82 81 83 81 84 81 82	3 5 3 4 1 4 1 2 2	24 14 15 20 18 19 18 18 18	106 107 100 105 102 104 103 101 103
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00	74% 82% 82% 78% 81% 78% 82% 80%	3% 5% 3% 4% 1% 4% 1% 2%	23% 13% 15% 19% 18% 18% 18% 17% 18%	78 88 82 81 83 81 84 81	3 5 3 4 1 4 1 2 2 2	24 14 15 20 18 19 18 18	106 107 100 105 102 104 103 101
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00 17:15	74% 82% 82% 78% 81% 78% 82% 80% 80% 83%	3% 5% 3% 4% 1% 4% 1% 2% 2%	23% 13% 15% 19% 18% 18% 18% 17% 18%	78 88 82 81 83 81 84 81 82	3 5 3 4 1 4 1 2 2	24 14 15 20 18 19 18 18 18	106 107 100 105 102 104 103 101 103
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00 17:15 17:30	74% 82% 82% 78% 81% 78% 81% 78% 80% 80% 83% 85%	3% 5% 3% 4% 1% 4% 1% 2% 2% 2%	23% 13% 15% 19% 18% 18% 17% 18% 15% 15%	78 88 82 81 83 81 84 81 82 90	3 5 3 4 1 4 1 2 2 2 2 2 3 1	24 14 15 20 18 19 18 18 18 18	106 107 100 105 102 104 103 101 103 108
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00 17:15 17:30 17:45	74% 82% 82% 78% 81% 78% 82% 82% 82% 82% 82% 82% 80% 80% 80% 85% 80%	3% 5% 3% 4% 4% 1% 2% 2% 2% 3% 3%	23% 13% 15% 19% 18% 18% 18% 15% 15% 13%	78 88 82 91 83 81 84 81 82 90 90	3 5 3 4 1 4 1 2 2 2 2 2 2 2 3 1	24 14 15 20 18 19 18 18 18 18 16 14	106 107 100 105 102 104 103 101 103 108 106
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30 17:45	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00 17:15 17:30 17:45 18:00	74% 82% 82% 78% 81% 78% 81% 78% 82% 80% 80% 83% 85% 80% 82%	3% 5% 3% 4% 1% 2% 2% 2% 3% 1% 1%	23% 13% 15% 19% 18% 18% 17% 18% 15% 13% 17%	78 88 82 81 83 81 84 81 82 90 90 83 83	3 5 3 4 1 4 1 2 2 2 2 2 3 1	24 14 15 20 18 19 18 18 18 18 14 14	106 107 100 105 102 104 103 101 103 108 106 104 101
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30 17:45 17:00	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00 17:15 17:30 17:15 17:30 17:45 18:00	74% 82% 82% 81% 78% 82% 80% 83% 85% 80% 85% 85% 85% 85% 85% 85% 85% 85% 85% 85	3% 5% 3% 4% 4% 1% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2%	23% 13% 15% 19% 18% 18% 18% 18% 17% 18% 15% 15% 15% 17% 17%	78 88 82 81 83 81 84 81 82 90 90 83 83 86	3 5 3 4 1 4 1 2 2 2 2 2 2 2 3 1	24 14 15 20 18 19 18 18 18 18 16 14 18 17	106 107 100 105 102 104 103 101 103 108 106 104 101
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30 17:45 17:00 18:00	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00 17:15 17:30 17:45 18:00 18:00	74% 82% 82% 82% 78% 81% 78% 82% 80% 80% 85% 80% 85% 80% 83% 85% 80%	3% 5% 3% 4% 4% 1% 2% 2% 2% 2% 2% 3% 1,1%	23% 13% 15% 15% 18% 18% 18% 17% 18% 15% 16% 16%	78 88 82 81 83 81 84 81 82 90 90 83 83 86 85	3 5 3 4 1 4 1 2 2 2 2 2 2 2 3 1 1 2	24 14 15 20 18 19 18 18 18 16 14 18 17 16	106 107 100 105 102 104 103 101 103 108 106 104 101 105 103
15:30 15:45 15:00 16:00 16:15 16:30 16:45 16:00 17:00 17:15 17:30 17:45 17:00 18:00 18:15	15:30 15:45 15:00 16:00 16:15 16:30 16:45 17:00 17:15 17:30 17:45 18:00 18:00 18:15	74% 82% 82% 82% 81% 78% 82% 80% 82% 80% 85% 85% 85% 82% 80% 82% 82% 82% 82% 82% 83% 83% 83% 82% 83% 82%	3% 5% 3% 4% 4% 1% 2% 2% 2% 3% 1% 1% 2% 3% 1% 5% 3% 1% 3% 3% 3% 3% 3% 3% 3% 3% 3% 3% 3% 3% 3%	23% 13% 15% 19% 18% 18% 17% 18% 15% 13% 17% 17% 16% 16%	78 88 82 81 83 81 84 81 82 90 90 83 83 86 85	3 5 3 4 1 4 1 2 2 2 2 2 3 1 1 2	24 14 15 20 18 19 18 18 18 16 14 18 17 16 16	106 107 100 105 102 104 103 101 103 106 106 104 101







Keiraville – Gwynneville Access and Movement Study

APPENDIX

C

Consultant Report

CALIBRATION - GEH TABLES





In-session AM peak: Light Vehicles

Intersection	Direction	Movement	Aimsun TID	Survey Count	Modelled Flow	Difference	GEH	Relative Difference
	East	Through	13452423	23	9	-14	3.50	-(
	East	Left	13452422	18	8	-10	2.77	1
	East	Right	13452424	285	282	-3	0.18	3
	North	Through	13452421	21	0	-21	6.48	-1
	North	Right	13452429	36	67	31	4.32	2
Gipps Road and Berkeley Road	North.	Left	13452430	25	.23	-2	0.41	
apparent and activity from	South	Right	13452426	49	72	23	2.96	
	South	Through	13452428	9	12	3	0.93	
	South	Left	13452427	29	48	19	3.06	
	West	Left	13452419	19	13	-6	1.50	
	West	Right	13452425	37	43	6	0.95	
	West	Through	13452420	296	250	-46	2.78	3
	East	Through	173239	139	181	42	3.37	
	East	Right	173237	234	241	7	0.45	
Cine Bood and Fostore Street	North	Left	173241	96	90	-6	0.67	
Gipps Road and Eastern Street	North	Right	173236	10	4	-6	2.27	1
	West	Through	173238	37	26	-11	1.96	5
	West	Left	173240	260	216	-44	2.85	
	North	Through	13452242	126	80	-46	4.53	
	North.	Right	13452241	695	722	27	1.01	
en a l'institute au l'institute à	South	Through	13452243	284	292	8	0.47	
Gipps Road and Foley Street	South	Left	13452244	320	309	-11	0.67	
	West	Left	13452239	75	56	-19	2.35	
	West	Right	13452240	341	305	-36	2.00	
	East	Through	13451443	21	0	-21	6.48	-1
	East	Left	13451444	133	122	-11	0.97	
	North	Right	13452492	42	25	-17	2.94	
Gipps Road and Grey Street	North	Left	13452493	24	1	-23	6.51	
- the contract and assert	North	Through	13451445	5	4	-1	0.47	
	West	Through	13451441	28	-0	-28	7.48	-1
	West	Right	13451442	197	192	-28	0.36	
	East	Through	13452654	85	84	-1	0.11	
	East	Left	13452653	273	285	12	0.72	
Gipps Road and Vickery Street	South:	Left	13452649	28	15	-13	2.80	
dipps host and vickery street	South	Right	13452650	112	105	-15	0.67	
	West		13452644	288	264	-24	1.44	-
		Through		330		7	0.38	
Memorial Drive and Porter Street	East	Through	13449030		337			
	North	Right	13449029	144	266	122	8.52	
	North	Left	13449031	497	448	-49	2.25	
	West	Through	13449025	450	402	-48	2.33	
	North	Left	13448802	55	67	12	1.54	
	North	Through	13449737	1234	1277	43	1.23	
emorial Drive North Bound and M1 Princes Hwy	South	Right	13449738	128	114	-14	5.09	
	South	Through	13449735	513	635	122	3.0.	
	West	Left	13449736	879	905	26	0.87	
	West	Right	13449734	618	608	-10	0.40	
	East	Left	13448816	430	349	-81	4.10	
	East	Right	168314	98	128	30	2.82	
emorial Drive South Bound and M1 Princes Hwy	North	Through	16B311	354	412	58	2.96	
emoral prive pound bound and mil trimes may	North	Right	16B316	1543	1469	-74	1.91	
	South	Left	13448825	568	457	-111	4.90	
	South	Through	168315	544	623	79	3,27	-
	East	Through	13451237	391	386	-5	0.25	
	East	Right	13451238	127	154	27	2.28	1
Mount Keira Road and Robsons Road	North	Right	13451235	283	281	-2	0.12	
modific neitre notes end nobsons notes	North	Left	13451236	119	.92	-27	2.63	
	West	Through	13451233	415	394	-21	1.04	
	West	Left	13451234	414	420	6	0.29	
	East	Left	13449230	55	54	-1	0.14	
	East	Through + Right	13449231	370	457	87	4.28	
	North	Through + Right	13449226	68	87	19	2.16	
14.6.1.8.1.1.1.	North	Left	13449227	267	239	-28	1.76	
Mt Ousley Road and Gaynor Avenue	South	Left	13449232	26	22	-4	0.82	
	South	Through + Right	13449233	51	46	-5	0.72	
	West	Through + Right	13448727	2	14	12	4.24	
	West	Left	13448709	426	415	-11	0.54	
	East	Left	13451989	30	16	-14	2.92	
	East	Through	13451990	222	244	22	1.44	
	South	Left	13451991	26	9	-17	4.06	
Murphys Ave and Braeside Ave	South	Right	13451991	26	18	-8	1.71	
	West		13451992	12	2	-10	3.78	
		Right				-10	0.59	
	West	Through	13451988	138	145			
	East	Left	168003	107	86	-21	2.14	
	East	Through	167998	273	210	-63	4.05	
	South	Right	167999	53	75	22	2.75	
Murphys Ave and Eastern Street				114	148	34	2.97	4
Murphys Ave and Eastern Street	South	Left	168001					
Murphys Ave and Eastern Street	West	Right	168002	39	55	16	2.33	
Murphys Ave and Eastern Street								



Muse have down and labor from a	South	Right	13452003	26	28	2	0.38	
Murphys Ave and John Street	South	Left	13452004	23	82	.59	8.14	-
	West	Right	13452000	12	20	8	2.00	
	West	Through	13451999	137	128	-9	0.78	
	East	Left	13452577	72	67	-5	0.60	
	East	Through + Right	13452574	92	132	40	3.78	
	North.	Through + Right	13452570	.53	55	2	0.27	
	North	Left	13452570	79	57	-22	2.67	
Murphys Ave and Robsons Road							1.05	
	South	Through + Right	13452579	25	20	-5	1000	
	South	Left	13452578	335	332	-4	0.22	
	West	Through + Right	13452585	6	3	-3	1.41	
	West	Left	13452584	73	66	-7	0.84	
	East	Through + Right	13452617	11	21	10	2.50	
	East	Left	13452616	889	904	15	0,50	
	North	Left	13452610	16	28	12	2.56	
New Abdields Assessed Release Research	North	Through + Right	13452613	132	191	59	4.64	
Northfields Ave and Princes Ramps	South	Left	13452621	323	289	-34	1.94	
	South	Through + Right	13452620	282	309	27	1.57	
	West	Through + Right	13452624	25	17	-8	1.75	
	West	Left	13452625	175	205	30	2.18	
	East	Through + Right	13449191	754	752	-2	0.07	
	North	Left	13449199	102	142	40	3.62	
Northfields Ave and Uni Entrance			13449200	35	47	12	1.87	
Nottrineids Ave and on Entrance	North	Right						
	West	Left	13449196	90	95	5	0.52	
	West	Through	13449197	68	77	9	1.06	
	East	Through + Right	13448774	85	104	19	1.95	
	East	Left	13448773	103	64	-39	4.27	
	North	Through + Right	13449243	48	40	-8	1.21	
Princes Hwy and Mt Ousley Road	North	Left	13449240	900	884	-16	0.54	
	South	Through + Right	168304	269	409	140	7.60	
	South	Left	168309	811	754	-57	2.04	
	West	Left	13449238	119	107	-12	1.13	
	West	Through + Right	13449239	493	645	152	6.37	
Deline Company of the	North	Through	168171	1979	1946	-33	0.74	
Princes Hwy-Princes Hwy Exit	South	Through	173227	2402	2377	-25	0.51	
	East	Through	173116	1194	1247	:53	1.52	
	North	Left	13448693	390	391	1	0.05	
Princes Motorway and Mount Ousley Road	North	Right	13448695	165	135	-30	2.45	
	West	Through	173118	1610	1649	39	0.97	
			13451327	34		-2	0.97	
	North	Through			32			
Reserve Street and Gilmores Street	North	Right	13451328	57	63	6	0.77	
	South	Left	13451324	159	174	15	1.16	
	South	Through	13451325	111	113	2	0.19	
	West	Right	13451326	41	38	-3	0.48	
	West	Left	13451329	137	138	1	0.09	
	East	Left	13452558	74	69	-5	0.59	
	East	Through + Right	13452553	61	54	-7	0.92	
	North	Through + Right	13452552	134	114	-20	1.80	
Dahara Bandan 10: - P 1	North	Left	13452557	47	48	1	0.15	
Robsons Road and Gipps Road	South	Through + Right	13452559	4	1	-3	1.90	
	South	Left	13452554	421	387	-34	1.69	
	West	Through + Right	13452555	13	14	1	0.27	
	West	Left .	13452556	53	70	17	2.17	
	_		13452598	93	64	-29		
	East	Left					3.27	
Buddens Band and Provide State and	East	Right	13452597	84	109	25	2.54	
Robsons Road and Northfields Ave	North	Left	13452605	45	32	-13	2.10	
	North	Through	13452607	-58	.55	-3	0.40	
	South	Through + Right	1345260D	268	329	61	3.53	
	North	Through	13451189	99	127	28	2.63	
obsons Road and Princes Motorway On Ramp	North	Left	13451190	402	371	-31	1.58	
ousons rood and rinices motorway On Hamp	South	Through	13451186	316	311	-5	0.28	
	South	Right	13451185	490	469	-21	0.96	
	East	Left	13451281	61	61	0	0.00	
	East	Through	13451282	4	2	-2	1.15	
	East	Right	13451289	3	0	-3	2.45	
	North	Right	13451286	6	0	-6	3.46	
	North		13451286	41	36	-5	0.81	
		Left						
Robsons Road and William Street	North	Through	13451285	272	276	4	0.24	
	South	Through	13451277	28	.25	-3	0.58	
	South	Right	13451288	31	36	5	0.86	
	South	Left	13451278	362	325	-37	2.00	
	West	Through	13451279	43	41	-2	0.31	
	West	Left	13451280	55	57	2	0.27	
<u> </u>	West	Right	13451290	7	13	6	1.90	
	North	Right	13449252	45	45	0	0.00	-
	North	Left	13449015	59	64	5	0.64	
	South	Right	1344900B	470	554	84	3.71	
University Ave and Foleys Lane	South	Left	13449009	125	103	-22	2.06	
			13449009	342	365	23	1.22	
	West	Right					8.53	
	West	Through	13449012	127	243	116	-	
	East	Right	13452674	307	288	-19	1.10	-
Habitania des and Chaban Assa	East	Left	13452673	224	326	102	6.15	
		Through	13452665	467	610	143	6.16	
Oniversity Ave and Granam Ave	North North	Left	13452666	231	385	154	8.77	



Me	an			239.82	247.43	7.60		3.17
	West	Through + Right	13448977	584	819	235	8.87	40.2
Offiversity Ave and Princes Names	North	Through + Right	13448973	518	410	-108	5.01	-20.8
University Ave and Princes Ramps	North	Left	13448972	225	302	77	4.74	34.2
	East	Left + Through	13448974	335	351	16	0.86	4.7
	West	Left	168185	81	.88	7	0.76	8.6
	West	Through	168187	513	577	64	2.74	12.4
University Ave and Forter Street	North	Left	16B1B4	304	317	13	0.74	4.2
University Ave and Porter Street	North	Right	168186	84	94	10	1.06	11.9
	East	Through	168183	26	24	-2	0.40	-7.6
·	East	Right	168188	83	77	-6	0.67	-7.2
	South	Through + Right	13452638	251	434	183	9.89	72.9
	North	Left	13452632	232	234	2	0.13	0.8
University Ave and Irvine St	North	Through	13452634	422	468	46	2.18	10.9
	East	Left	13452637	569	539	-30	1.27	-5.2
	East	Right	13452636	199	226	27	1.85	13.5



In-session AM peak: Heavy Vehicles

Intersection	Directio				delied Flow Differen	_	Relative Difference
	East	Through	13452424	2	0	-2 2.00	-10
	East	Left Right	13452423	0	0	0 0.00	
	North	Through	13452422	1	0	-1 1.41	-10
	North	Right	13452429	0	0	0 0.00	-71
	North	Left	13452421	0	0	0 0.00	
Gipps Road and Berkeley Road	South	Right	13452428	0	0	0 0.00	
	South	Through	13452427	0	0	0 0.00	
	South	Left	13452426	0	0	0 0.00	
	West	Left.	13452419	1	0	-1 1.41	-1
	West	Right	13452425	0	0	0 0.00	
	West	Through	13452420	0	1	1 1,41	
	East	Through	173237	2	0	-2 2.00	-1
	East	Right	173239	0	0	0.00	
Gipps Road and Eastern Street	North	Left	173241	0	1	1 1.41	
Gipps Road and castern street	North	Right	173236	0	0	0.00	
	West	Through	173240	1	0	-1 1.41	-1
	West	Left	173238	0	0	0.00	
	North	Through	13452241	4	1	-3 1.90	-
	North	Right	13452242	0	0	0 0.00	
Gipps Road and Foley Street	South	Through	13452244	1	D	-1 1.41	-1
arppa rious and raint arrest	South	Left	13452243	1	D	-1 1,41	-1
	West	Left	13452239	0	D	0 0.00	
	West	Right	13452240	0	1	1 1.41	
	East	Through	13451444	3	0	-3 2.45	-1
	East	Left	13451443	0	0	0 0.00	
Glone Bond and Complete	North	Right	13452493	0	0	0 0.00	
Gipps Road and Grey Street	North	Through	13452492	0	0	0 0.00	
	West	Through	13451445	0	0	0 0.00	
	West	Right	13451441	0	0	0 0.00	
	East	Through	13452653	4	0	-4 2.83	-1
	East	Left	13452654	0	0	0 0.00	
Gipps Road and Vickery Street	South	Left	13452649	1	0	-1 1.41	-1
Sippo itada ana victory street	South	Right	13452650	0	0	0 0.00	-
	West	Through	13452644	1	1	0 0.00	
	East	Through	13449030	3	1	-2 1.41	
Memorial Drive and Porter Street	North	Right	13449031	4	0	-4 2.83	-1
	North	Left	13449029	0	11	11 4.69	
	West	Through	13449025	2	0	-2 2.00	- 1
	North	Left	13448802	1	0	-1 1.41	-1
	North	Through	13449737	26	38	12 2.12	
Nemorial Drive North Bound and M1 Princes Hwy	South	Right	13449738	6	8	2 0.76	
nemonal prive north pools and wit rinkes rivy	South	Through	13449735	11	16	5 1.36	
	West	Left	13449736	21	27	6 1.22	
	West	Right	13449734	18	32	14 2.80	
	East	Left	13448816	14	9	-5 1.47	
	East	Right	168314	0	2	2 2.00	-
demorial Drive South Bound and M1 Princes Hwy	North	Through	168316	35	39	4 0.66	
Activities of the second	North	Right	168311	10	31	21 4.64	
	South	Left	13448825	28 17	27	-1 0.19 5 1.13	
		Through	168315		22		
	East	Through	13451238 13451237	6	0	-3 2,45 -2 0.89	-1
	Fast North	Right	13451237	2	0	-2 2,00	
Mount Keira Road and Robsons Road	North	Left	13451235	5	3	-2 1.00	-
	West	Through	13451234	2	0	-2 2.00	-1
	West	Left	13451233	4	9	5 1.96	
	East	Left	13449230	0	0	0 0.00	
	East	Through + Right	13449231	14	45	31 5.71	
	North	Through + Right	13449227	0	0	0 0.00	
	North	Left	13449226	3	25	22 5.88	
Mt Ousley Road and Gaynor Avenue	South	Left	13449232	0	0	0 0.00	
	South	Through + Right	13449233	0	11	11 4.69	
	West	Through + Right	13448709	18	35	17 3.30	
	West	Left	13448727	0	6	6 3.46	
	East	Left	13451989	1	D	-1 1.41	- 1
	East	Through	13451990	0	3	3 2.45	
Murphys Ave and Braeside Ave	South	Left	13451991	1	D	-1 1.41	
wing hills are aim practice was	South	Right	13451992	0	D	0 0.00	
	West	Right	13451987	1	D	-1 1.41	91
	West	Through	13451988	1	1	0 0.00	
	East	Left	168003	0	0	0 0.00	
	East	Through	167998	2	3	1 0.63	
	South	Right	168001	0	0	0 0.00	
Murphys Ave and Eastern Street					0	0 0.00	-
Murphys Ave and Eastern Street	South	Left	167999	0			
Murphys Ave and Eastern Street	South West West	Right Through	168002 168000	0	0	0 0.00	

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	East	Through	13452002	2	3	- 1	0.6	2
	South		13452002	0	0	0	0.0	0
Murphys Ave and John Street	South	Right	13452004	0	0	0	0.0	<u></u>
				1				1
	West	Right	13452000		0	-1	1.4	
	West	Through	13451999	0	1	1	1.4	
	East	Left	13452577	4	3	-1	0.5	
	East	Through + Right	13452574	0	0	0	0.0	
	North	Through + Right	13452571	1	0	-1	1.4	
Murphys Ave and Robsons Road	North	Left	13452570	0	1	1	1.4	
Midi priya Ave alla Rabaolia Rosa	South	Through + Right	13452578	1	0	-1	1.4	1
	South	Left	13452579	0	D	0	0.0	0
	West	Through + Right	13452584	1	0	-1	1.4	1
	West	Left	13452585	0	0	0	0.0	0
	East	Through + Right	13452616	- 4	В	- 4	1.6	3
	East	Left	13452617	0	7	7	3.7	
	North	Left	13452610	0	D	0	0.0	0
	North	Through + Right	13452613	0	3	3	2.4	-
Northfields Ave and Princes Ramps							2.0	o .
	South	Left	13452621	2	0	-2		
	South	Through + Right	13452620	1	3	2	1.4	1
	West	Through + Right	13452625	10	2	-8	3.2	7
	West	Left	13452624	0	0	0	0.0	0
	East	Through + Right	13449191	6	3	-3	1.4	1
	North	Left	13449199	2	1	-1	0.8	2
Northfields Ave and Uni Entrance	North	Right	13449200	ō	0	0	0.0	0
	West	Left.	13449196	0	0	0	0.0	0
	West	Through	13449197	4	1	-3	1.9	
	_		_					
	East	Through + Right	13448773	103	42	-61	7.1	
	East	Left	13448774	0	12	12	4.9	
	North	Through + Right	13449240	-27	19	-8	1.6	
Princes Huse and Mr. Cuclas Pond	North	Left	13449243	0	0	0	0.0	0
Princes Hwy and Mt Ousley Road	South	Through + Right	168309	-25	24	-1	0.2	0
	South	Left	168304	4	17	13	4.0	1
	West	Left	13449238	119	72	-47	4.8	
	West	Through + Right	13449239	14	11	-3	0.8	
Princes Hwy Princes Hwy Exit	North	Through	168171	101	98	-3	0.3	0
	South	Through	173227	87	91	4	0.4	
	East	Through	173116	225	235	10	0.6	6
Drivers Metanous and Mount Oveley Road	North	Left	13448693	7	13	6	1.9	0
Princes Motorway and Mount Ousley Road	North	Right	13448695	4	23	19	5.1	7
	West	Through	173118	179	197	18	1.3	1
	North	Through	13451328	1	0	-1	1.4	
	North	Right	13451327	0	0	0	0.0	
					0			
Reserve Street and Gilmores Street	South	Left	13451324	1		-1	1.4	
	South	Through	13451325	1	0	-1	1.4	1
	West	Right	13451329	0	0	0	0.0	0
	West	Left	13451326	0	0	0	0,0	0
	East	Left	13452558	2	0	-2	2.0	0
	East	Through + Right	13452553	1	0	-1	1.4	1
	North	Through + Right	13452552	3	3	0	0.0	o o
The state of the s	North	Left	13452557	0	0	.0	0.0	0
Robsons Road and Gipps Road	South	Through + Right	13452554	2	0	-2	2.0	0
	South	Left	13452559	0	0	0	0.0	
	West	Through + Right	13452556	0	0	.0	0.0	
	West	Left	13452555	0	0	0	0.0	0
	East	Left	13452598	1	0	-1	1.4	1
	East	Right	13452597	0	1	1	1.4	1
Robsons Road and Northfields Ave	North	Left	13452605	1	D	-1	1.4	1
	North	Through	13452607	0	1	1	1.4	
	South	Through + Right	13452600	1	0	-1	1.4	
						-4		
	North	Through	13451190	.7	3		1.7	
Robsons Road and Princes Motorway On Ramp	North	Left	13451189	1	5	4	2.3	
The state of the s	South	Through	13451185	2	D	-2	2.0	0
	South	Right	13451186	8	13	5	1.5	
	East	Left	13451281	1	0	-1	1.4	1
		Through	13451289	.0	0	0	0.0	0
	East		13451282				0.0	0
	East East		13451282	0	0	0		0
	East	Right					0.0	
	East North	Right Right	13451287	.0	0	0	0.0	0
V. 5.44	East North North	Right Right Left	13451287 13451286	0	0	0	0.0	0
Robsons Road and William Street	East North North North	Right Right Left Through	13451287 13451286 13451285	0 0 6	0 0 7	0 0	0.0	9
Robsons Road and William Street	East North North North South	Right Right Left Through Through	13451287 13451286 13451285 13451278	0 0 6 2	0 0 7 0	0 0 1 -2	0.0 0,3 2.0	0 9 0
Robsons Road and William Street	East North North North South South	Right Right Left Through Through Right	13451287 13451286 13451285 13451278 13451288	0 0 6 2	0 0 7 0	0 0 1 -2 0	0.0 0.3 2.0 0.0	0 9 0
Robsons Road and William Street	East North North North South	Right Right Left Through Through	13451287 13451286 13451285 13451278	0 0 6 2	0 0 7 0	0 0 1 -2	0.0 0,3 2.0	0 9 0 0
Robsons Road and William Street	East North North North South South	Right Right Left Through Through Right	13451287 13451286 13451285 13451278 13451288	0 0 6 2	0 0 7 0	0 0 1 -2 0	0.0 0.3 2.0 0.0	0
Robsons Road and William Street	East North North North South South West	Right Right Left Through Right Left Through Right Left Through	13451287 13451286 13451285 13451278 13451278 13451277 13451277	0 0 6 2 0 0	0 0 7 0 0 0	0 0 1 -2 0 0	0.0 0.3 2.0 0.0 0.0	0
Robsons Road and William Street	East North North North South South South West West	Right Right Left Through Through Right Left Through Left Left Through	13451287 13451286 13451285 13451278 13451278 13451277 13451290 13451279	0 6 2 0 0	0 0 7 0 0 0	0 0 1 -2 0 0	0.0 0,3 2.0 0.0 0.0 0.0	0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Robsons Road and William Street	East North North North South South West West West	Right Right Left Through Through Right Left Through Right Left Right	13451287 13451286 13451285 13451278 13451278 13451277 13451290 13451279 13451280	0 0 6 2 0 0 0	0 0 7 0 0 0 0	0 0 1 -2 0 0 0	0.0 0.3 2.0 0.0 0.0 0.0 0.0	
Robsons Road and William Street	East North North North South South South West West West North	Right Right Left Through Right Left Through Left Through Left Right Right Right	13451287 13451286 13451285 13451278 13451288 13451277 13451290 13451279 13451280 13449015	0 0 6 2 0 0 0 0	0 0 7 0 0 0 0 0	0 0 1 -2 0 0 0 0 0	0.0 0.3 2.0 0.0 0.0 0.0 0.0 1.4 1.4	
Robsons Road and William Street	East North North North South South South West West West North North	Right Right Left Through Through Right Left Through Right Left Right Left Right Left	13451287 13451286 13451285 13451278 13451278 13451277 13451290 13451279 13451279 13451280 13449015 13449252	0 0 6 2 0 0 0 0	0 0 7 0 0 0 0 0 0	0 0 1 -2 0 0 0 0 0 1 -1	0.0 0.3 2.0 0.0 0.0 0.0 0.0 1.4 1.4	0
	East North North North South South South West West West North North South	Right Right Left Through Through Right Left Through Right Left Right Right Right Right Right Right Right Right	13451287 13451286 13451285 13451285 13451278 13451288 13451277 13451290 13451279 13451279 13451280 13449015 13449015 13449009	0 0 6 2 0 0 0 0 0	0 0 7 0 0 0 0 0 0	0 0 1 1 -2 0 0 0 0 0 1 1 -1	0.0 0.3 2.0 0.0 0.0 0.0 0.0 1.4 1.4 0.0	0 0 0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0
Robsons Road and William Street University Ave and Foleys Lane	East North North North South South South West West West North North	Right Right Left Through Through Right Left Through Right Left Right Left Right Left	13451287 13451286 13451285 13451278 13451278 13451277 13451290 13451279 13451279 13451280 13449015 13449252	0 0 6 2 0 0 0 0	0 0 7 0 0 0 0 0 0	0 0 1 -2 0 0 0 0 0 1 -1	0.0 0.3 2.0 0.0 0.0 0.0 0.0 1.4 1.4	0 0 0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0
	East North North North South South South West West West North North South	Right Right Left Through Through Through Through Left Through Left Right Left Right Left Right Left Right Left Left Right Left Left Left Right Left Left Left Right Left	13451287 13451286 13451285 13451285 13451278 13451288 13451277 13451290 13451279 13451279 13451280 13449015 13449015 13449009	0 0 6 2 0 0 0 0 0	0 0 7 0 0 0 0 0 0	0 0 1 1 -2 0 0 0 0 0 1 1 -1	0.0 0.3 2.0 0.0 0.0 0.0 0.0 1.4 1.4 0.0	0 0 0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0
	East North North North South South West West West North North South Vest West West North South South West	Right Right Left Through Through Through Left Through Left Right Right Right Left Right	13451287 13451286 13451285 13451278 13451278 13451277 13451279 13451279 13451279 13451279 13451280 13449015 13449015 13449008 13449008 13449253	0 0 6 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 7 0 0 0 0 0 0 0 1 1 0 0 0	0 0 1 1 -2 0 0 0 0 0 0 1 1 -1 0 0 0 0	0.0 0.3 2.0 0.0 0.0 0.0 0.0 1.4 1.4 0.0 0.0 0.0	0 0 0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0
	East North North North South South South West West West North North South South	Right Right Left Through Through Through Through Left Through Left Right Left Right Left Right Left Right Left Left Right Left Left Left Right Left Left Left Right Left	13451287 13451286 13451285 13451285 13451278 13451278 13451277 13451290 13451279 13451280 13449015 13449015 13449099 13449008	0 0 6 2 0 0 0 0 0 0 0	0 0 7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 1 -2 0 0 0 0 0 0 1 1 -1 0 0	0.0 0.3 2.0 0.0 0.0 0.0 0.0 1.4 1.4 0.0 0.0 0.0	1 0 0 0 3 0



Mea	in			7.32	7.92	0.59		8.09
	West	Through + Right	13448977	7	6	-1	0.39	-14.25
Comparately was seen Letinical Matthiba	North	Through + Right	13448973	4	9	5	1.96	125.00
University Ave and Princes Ramps	North	Left	13448972	5	1	-4	2,31	-80.00
	East	Left + Through	13448974	1	D	-1	1,41	-100.00
	West	Left	168187	2	-11	9	3.53	450.00
	West	Through	168185	0	D	0	0.00	0.00
University Ave and Porter Street	North	Left	168186	1	3	2	1.41	200.00
University Ave and Porter Street	North	Right	168184	3	1	-2	1.41	-66,67
	East	Through	168183	0	. 0	0	0.00	0.00
	East	Right	168188	0	0	0	0.00	0.00
	South	Through + Right	13452638	1	1	.0	0.00	0.00
	North	Left	13452634	7	5	-2	0.82	-28.57
University Ave and Irvine St	North	Through	13452632	2	. 0	-2	2.00	-100.00
	East	Left	13452636	1	4	3	1.90	300.00
	East	Right	13452637	3	5	2	1.00	66.67
	North	Left	13452665	4	4	0	0.00	0.00
Onitedaty Are and Station Are	North	Through	13452666	5	3	-2	1.00	-40.00



In-session PM peak: Light Vehicles

Intersection	Directio	n Movement	Aimsun TID	Survey Count	Modelled Flow	Difference	GEH	Relative Difference
	East	Left	13452423	17	0	-17	5.83	-1
	East	Right	13452422	4	1	-3	1.90	
	East	Through	13452424	317	341	24	1.32	
	North	Left	13452421	15	0	-15	5.48	-1
	North	Right	13452429	40	67	27	3.69	t-
Gipps Road and Berkeley Road	North	Through	13452430	11	14	3	0,85	
	South	Left	13452426	25	35	10	1.83	
	South	Right	13452428	15	15	0	0.00	
	South	Through	13452427	13	15	2	0.53	
	West	Left	13452419	12	28	16	3.58	1
	West	Right	13452425	28	37	9	1.58	
	West	Through	13452420	269	239	-30	1.88	
	East	Right	173239	92	145	53	4.87	
	East	Through	173237	295	302	.7	0.41	
Gipps Road and Eastern Street	North	Left	173241	112	114	2	0.19	
dipps road and castern street	North	Right	173236	9	6	-3	1.10	9.5
	West	Left	173238	27	20	-7	1.44	
	West	Through	173240	203	190	-13	0.93	
	North	Right	13452242	115	112	-3	.0.28	
	North	Through	13452241	628	607	-21	0.85	
d	South	Left	13452243	324	319	-5	0.28	
Gipps Road and Foley Street	South	Through	13452244	413	315	-98	5.14	1 -
	West	Left	13452239	87	65	-22	2.52	
	West	Right	13452240	316	258	-58	3.42	
	East	Left	13451443	18	3	-15	4.63	
	East	Through	13451444	183	162	-21	1.60	
	North	Left	13452492	20	12	-8	2.00	
Gipps Road and Grey Street	North	Right	13452493	14	1	-13	4.75	
Sippa rouge and Gief Street	North	Through	13451445	5	1	-13	2.31	
	West	Right	13451441	15	11	-4	1.11	
	West	Through	13451441	147	150	3	0.25	
	_	Left			93	17		
	East		13452654	76			1.85	
man and a super-	East	Through	13452653	323	340	17	0.93	
Gipps Road and Vickery Street	South	Left	13452649	9	3	-6	2.45	
	South	Right	13452650	56	75	19	.2.35	
	West	Through	13452644	299	250	-49	2.96	
	East	Through	13449030	394	374	-20	1.02	
Memorial Drive and Porter Street	North	Left	13449029	62	132	70	7.11	
	North	Right	13449031	355	315	-40	2.19	
	West	Through	13449025	505	464	-41	1.86	
	North	Left	13448802	72	136	64	6.28	1
	North	Through	13449737	1082	978	-104	3.24	
lemonal Drive North Bound and M1 Princes Hwy	South	Right	13449738	374	299	-75	4.09	
icino ini bitte ino tili bodina dilo ini i i inicesi i inj	South	Through	13449735	762	952	190	6.49	
	West	Left	13449736	867	880	13	0.44	
	West	Right	13449734	350	349	-1	0.05	
	East	Left	13448816	207	203	-4	0.28	
	East	Right	168314	51	55	4	0.55	1
lemorial Drive South Bound and M1 Princes Hwy	North	Right	168311	422	409	-13	0.64	
lemonal prive South Bonno and MT Frinces Hwy	North	Through	168316	1007	922	-85	2.74	
	South	Left	13448825	845	716	-129	4.62	
	South	Through	168315	1075	1227	152	4.48	1
	East	Right	13451237	361	339	-22	1.18	
	East	Through	13451238	268	283	15	0.90	
	North	Left	13451235	302	298	-4	0.23	
Mount Keira Road and Robsons Road	North	Right	13451236	212	199	-13	0.91	
	West	Left	13451233	181	196	15	1.09	
	West	Through	13451234	187	196	9	0.65	
	East	Left	13449230	35	37	2	0.33	
	East	Through + Right	13449231	539	567	28	1.19	
	North	Left	13449231	37	43	6	0.95	
			13449225			2	0.95	
Mt Ousley Road and Gaynor Avenue	North	Through + Right	13449227	138	140 47			
	South	Left	200000	19	34	28	4.87	
	South	Through + Right	13449233	31 9			0.53	
	West	Left Theresh i Bieha	13448727		26	17	4.06	
	West	Through + Right	13448709	323	263	-60	3.51	-
	East	Left	13451989	17	19	2	0.47	-
	East	Through	13451990	147	120	-27	2.34	
Murphys Ave and Braeside Ave	South	Left	13451991	38	5	-33	7.12	
- Contraction and an action of the	South	Right	13451992	19	1	-18	5.69	
	West	Right	13451987	23	0	-23	6,78	
	West	Through	13451988	147	173	26	2.06	
	East	Left	168003	69	62	-7	0.86	
	East	Through	167998	158	123	-35	2.95	
Murphys Ave and Eastern Street	South	Left	167999	34	25	-9	1.66	
HOU PHYS MVC AND LASTERN STREET	South	Right	168001	113	90	-23	2.28	
	West	Right	168002	38	47	9	1.38	
	West	Through	168000	160	174	14	1.08	
			13452001	23	20	-3	0.65	



	East	Through	13452002	151	132	-19	1.60	
Murphys Ave and John Street	South	Left	13452003	9	2	-7	2.98	-
bolove	South	Right	13452004	28	22	-6	1.20	
	West	Right	13452000	12	15	3	0.82	
	West	Through	13451999	161	190	29	2.19	
	East	Left	13452577	82	72	-10	1.14	
	East	Through + Right	13452574	65	49	-16	2.12	
	North	Left	13452570 13452571	62	60 174	-2	0.26	
Murphys Ave and Robsons Road	North South	Through + Right Left	13452579	178 28	26	-4	0.30	
	South		13452578	133	122	-2 -11	0.38	
	West	Through + Right Left	13452585	9	9	-11	0.00	
	West	Through + Right	13452584	56	79	23	2.80	
	East	Left	13452617	11	20	9	2.29	
	East	Through + Right	13452616	223	194	-29	2.01	
	North	Left	13452610	44	38	-6	0.94	
Proceedings of the control of the co	North	Through + Right	13452613	390	358	-32	1.65	
Northfields Ave and Princes Ramps	South	Left	13452621	122	103	-19	1.79	
	South	Through + Right	13452620	278	322	44	2.54	
	West	Left	13452624	18	.0	-18	6.00	-2
	West	Through + Right	13452625	611	637	. 26	1.04	
	East	Through + Right	13449191	239	208	-31	2.07	
	North	Left	13449199	455	500	45	2.06	
Northfields Ave and Uni Entrance	North	Right	13449200	80	72	-8	0.92	
	West	Left	13449196	42	35	-7	1.13	
	West	Through	13449197	130	140	10	0.86	
	East	Left	13448774	72	82	10	1.14	
	East	Through + Right	13448773	117	129	12	1.08	
	North	Left	13449243	50	57	7	0.96	
Princes Hury and Mt Ouglou Board	North	Through + Right	13449240	793	825	32	1.13	
Princes Hwy and Mt Ousley Road	South	Left	168304	336	364	28	1.50	
	South	Through + Right	168309	1251	1254	3	0.08	
	West	l,eft	13449238	109	107	-2	0.19	
	West	Through + Right	13449239	309	345	36	1.99	
Princes Hwy-Princes Hwy Exit	North	Through	168171	1970	1792	-178	4.10	
TOTAL STREET STREET STREET	South	Through	173227	2001	1994	-7	0.16	
	East	Through	173116	1645	1639	-6	0.15	
Princes Motorway and Mount Ousley Road	North	Left	13448693	425	386	-39	1.94	
	North	Right	13448695	153	92	-61	5.51	
	West	Through	173118	1857	1851	-6	0.14	
	North	Right	13451327	41	52	11	1.61	
	North	Through	13451328	53	50	-3	0.42	
Reserve Street and Gilmores Street	South	Left	13451324	165	157	-8	0.63	
	South	Through	13451325	75	66	-9	1.07	
	West	Left	13451326	15	13 74	-2	0.53	
	West	Right Left	13451329	73 107	92	-15		
	East	Through + Right	13452558 13452553	86	70	-15	1.50	
	North	Through + Right	13452552	237	233	-16	0.26	
	North	Left	13452557	58	54	-4	0.53	
Robsons Road and Gipps Road	South	Left	13452559	24	0	-24	6.93	
	South	Through + Right	13452554	170	165	-5	0.39	-
	West	Left	13452555	3	3	-5	0.00	
	West	Through + Right	13452556	30	29	-1	0.00	
	East	Left	13452598	105	95	-10	1.00	
	East	Right	13452597	36	0	-36	8.49	1.0
Robsons Road and Northfields Ave	North	Left	13452605	65	78	13	1.54	-
	North	Through	13452607	127	145	18	1.54	
	South	Through + Right	13452600	119	107	-12	1.13	
	North	Left	13451189	58	63	-12	0.64	
	North	Through	13451189	514	501	-13	0.58	
lobsons Road and Princes Motorway On Ramp	South	Right	13451186	242	231	-13	0.72	
	South	Through	13451185	300	308	-11	0.72	
	East	Left	13451281	64	59	-5	0.64	
	East	Right	13451282	0	6	-5	3.46	
	East	Through	13451289	8	13	5	1.54	
	North	Left	13451286	1	1	0	0.00	
	North	Right	13451287	18	19	1	0.23	
	North	Through	13451285	375	391	16	0.82	
Robsons Road and William Street	South	Left	13451277	16	0	-16	5.66	
	South	Right	13451288	18	4	-14	4.22	
	South	Through	13451278	241	240	-1	0.06	
	West	Left	13451279	13	11	-2	0.58	
	West	Right	13451280	37	1	-36	8.26	
	West	Through	13451290	5	24	19	4.99	- 1
	North	Left	13449252	29	30	1	0.18	
	North	Right	13449015	180	159	-21	1.61	
W	South	Left	13449008	579	581	2	0.08	
University Ave and Foleys Lane	South	Right	13449009	21	57	36	5.76	
	West	Right	13449253	370	365	-5	0.26	
	West	Through	13449012	24	29	5	0.97	



		1						
University Ave and Graham Ave	East	Left	13452673	359	383	24	1.25	6.69
Oniversity Are and dramam Ave	North	Left	13452665	388	395	7	0.35	1.80
	North	Through	13452666	453	579	126	5.55	27.81
	East	Left	13452636	125	136	11	0.96	8.80
	East	Right	13452637	300	264	-36	2.14	-12.00
University Ave and Irvine St	North	Left	13452634	827	828	1	0.03	0.12
	North	Through	13452632	114	122	8	0.74	7.02
	South	Through + Right	13452638	330	420	90	4.65	27.27
	East	Right	168188	72	113	41	4.26	56.94
	East	Through	168183	38	32	-6	1.01	-15,79
University Ave and Porter Street	North	Left	168186	43	55	.12	1.71	27.91
Offiverally ave and Porter Street	North	Right	168184	356	344	-12	0.64	-3.37
	West	Left	168187	528	536	8	0.35	1.52
	West	Through	168185	39	62	23	3,24	58.97
	East	Left + Through	13448974	248	311	63	3.77	25.40
Helicaniba Kris and Milana Banahi	North	Left	13448972	194	286	92	5.94	47.42
University Ave and Princes Ramps	North	Through + Right	13448973	176	189	13	0.96	7.39
	West	Through + Right	13448977	1058	1130	72	2.18	6.81
Mea	an			235.01	234.00	-1.01		-0.43

East Left 13452423 -100.00 0.00 50.00 Right Through 1345242 13452424 North Left 13452429 13452430 13452426 0.00 North North Through Gipps Road and Berkeley Road South South Right Through 13452428 13452427 0.00 West Left: 1345241 Right Through 0.00 1345242 1345242 East Right -66.67 0.00 0.00 173237 173241 Gipps Road and Eastern Street North Right 17323 17323 17324 1345224 North Right 0.00 North Through 13452241 13452243 200.00 Gipps Road and Foley Street Through South 1345224 -100.00 0.00 West 1345223 1345224 1345144 Right 0.00 East Through 13451444 66.67 13452492 13452493 0.00 Gipps Road and Grey Street North Right 0.00 North Through 13451445 13451441 13451442 13452654 West West Right Through 0.00 East East South Through Left 1345265 1345264 Gipps Road and Vickery Street 0.00 South Right 13452650 Through Through 1345264 1344903 0.00 East 13449029 North Left Memorial Drive and Porter Street 0.00 -50.00 -100.00 North West Right Through 1344903 1344902 Left 1344880 1344973 1344973 Through Right Memorial Drive North Bound and M1 Princes Hwy Through 1344973 -27.27 1344973 1344973 Right -25.00 East 1344881 Right Right 16831 16831 Memorial Drive South Bound and M1 Princes Hwy North Through 16831 -41.18 1344882 16831 -18.18 1345123 East Right -66.67 Through Left 1345123 -100.00 North 13451235 Mount Keira Road and Robsons Road North Right 1345123 -71.43 13451233 13451234 13449230 West -100.00 Through -100.00 East Left East Through + Right 1344923 11 49 345.46 1344922 26 inf -100.00 Through + Right North Mt Ousley Road and Gaynor Avenue Left 1344923 0.00 1344923 1344872 Through + Right West Left West Through + Right 13448709 10 160.00 1345198 0.00 0.00 Left Through East South Left 13451991 0.00 Murphys Ave and Braeside Ave Right Right West Through 13451988 0.00 168003 167998 Left Through 0.00 East South Left 167999 0.00 Murphys Ave and Eastern Street 0.00 West 168000 Left 13452001 0.00



	East	Through	13452002	1	1	0	0.00	
Murphys Ave and John Street	South	Left.	13452003	1	0	-1	1,41	-1
real prigative and some select	South	Right	13452004	0	0	0	0.00	
	West	Right	13452000	1	.0	-1	1.41	-1
	West	Through	13451999	3	.0	-3	2.45	-1
	East	Left	13452577	1	1	0	0.00	
	East	Through + Right	13452574	0	0	0	0.00	
	North	Left	13452570	0	0	0	0.00	
Murphys Ave and Robsons Road	North	Through + Right	13452571	0	0	0	0.00	
Mai priys Ave and Robsons Road	South	Left	13452579	0	D	0	0.00	
	South	Through + Right	13452578	0	D	0	0.00	
	West	Left	13452585	0	D	0	0.00	
	West	Through + Right	13452584	0	D	0	0.00	
	East	Left	13452617	0	. 0	0	0.00	
	East	Through + Right	13452616	0	4	4	2.83	
	North	Left	13452610	0	D	0	0.00	
The second secon	North	Through + Right	13452613	0	0	0	0.00	
Northfields Ave and Princes Ramps	South	Left	13452621	0	7	7	3.74	
	South	Through + Right	13452620	0	1	1	1.41	
	West	Left	13452624	0	0	0	0.00	
	West	Through + Right	13452625	.0	0	0	0.00	
	East	Through + Right	13449191	0	6	6	3.46	
	North	Left	13449199	0	0	0	0,00	
Northfields Ave and Uni Entrance			13449200		0	0	0.00	
AND DESIGNATION OF THE PROPERTY OF THE PROPERT	North	Right	13449200	0	0	0	0.00	
	West	Left						
	West	Through	13449197	0	0	0	0.00	
	East	Left	13448774	1	12	11	4,31	11
	East	Through + Right	13448773	117	47	-70	7.73	
	North	Left	13449243	0	0	0	0.00	
Princes Hwy and Mt Dusley Road	North	Through + Right	13449240	10	1	-9	3.84	
and the same of th	South	Left	168304	4	3	-1	0.53	
	South	Through + Right	168309	16	10	-6	1,66	
	West	Left	13449238	109	50	-59	6.62	
	West	Through + Right	13449239	2	4	2	1.15	
Reinana Harri Bainana Hura Freit	North	Through	168171	45	44	-1	0.15	
Princes Hwy Princes Hwy Exit	South	Through	173227	38	19	-19	3.56	
	East	Through	173116	117	138	21	1.86	
	North	Left	13448693	1	20	19	5.86	19
inces Motorway and Mount Ousley Road	North	Right	13448695	3	24	21	5.72	
	West	Through	173118	149	177	28	2.19	
	North	Right	13451327	0	0	0	0.00	
	North	Through	13451328	0	0	0	0.00	
	South	Left	13451324	1	0	-1	1.41	-
Reserve Street and Gilmores Street	South	Through	13451325	0	0	0	0.00	
	West	Left	13451326	0	0	0	0.00	
	West	Right	13451329	0	0	0	0.00	
	East	Left	13452558	3	5	2	1.00	
	East	Through + Right	13452553	0	0	0	0.00	
	North	Through + Right	13452552	0	1	1	1.41	
	North	Left	13452557	0	0	0	0.00	
Robsons Road and Gipps Road	South	Left	13452559	0	0	0	0.00	
				0	0	0	0.00	
	South	Through + Right	13452554					
	West	Left	13452555	0	0	0	0.00	
	West	Through + Right	13452556	0	0	0	0.00	
	East	Left	13452598	0	0	0	0.00	
	East	Right	13452597	0	0	0	0.00	
Robsons Road and Northfields Ave	North	Left	13452605	0	D	0	0.00	
	North	Through	13452607	0	D	0	0.00	
	South	Through + Right	13452600	0	0	0	0.00	
	North	Left	13451189	1	1	0	0.00	
	North	Through	13451190	12	14	2	0.55	
obsons Road and Princes Motorway On Ramp	South	Right	13451186	2	1	-1	0.82	
	South	Through	13451185	3	0	-3	2,45	
	East	Left.	13451281	0	1	1	1.41	
	East	Right	13451282	0	ō	0	0.00	
	East	Through	13451289	0	0	0	0.00	
	North	Left	13451286	0	0	0	0.00	
	North	Right	13451287	0	0	0	0.00	
	North	Through	13451285	2	6	4	2.00	
Robsons Road and William Street	South	Left	13451277	1	0	-1	1.41	-
	South	Right	13451288	2	0	-2	2.00	
	South	Through	13451278	0	0	0	0.00	-
				0	0	0	_	
	West	Left	13451279				0.00	-
	West	Right	13451280	1	0	-1	1.41	-
	West	Through	13451290	0	0	0	0.00	
	North	Left	13449252	0	0	0	0.00	
	North	Right	13449015	1	0	-1	1,41	-0
University Ave and Foleys Lane	South	Left	13449008	2	4	2	1.15	
The state of the s	South	Right	13449009	0	D	0	0.00	
	West	Right	13449253	4	3	-1	0.53	
	West	Through	13449012	0	D	0	0.00	
	East	Right	13452674	0	0	0	0.00	
	East	Left	13452673	2	4	2	1.15	. 1



Mea	n			4.73	5.25	0.52		10.99
	West	Through + Right	13448977	2	0	-2	2.00	-100.00
Oninersity Ave and Princes Ramps	North	Through + Right	13448973	.0	22	22	6.63	inf
University Ave and Princes Ramps	North	Left	13448972	0	14	14	5.29	inf
	East	Left + Through	13448974	1	3	2	1,41	200.00
	West	Through	168185	0	1	1	1.41	inf
	West	Left	168187	2	4	2	1.15	100.00
University Ave and Porter Street	North	Right	168184	3	3	0	0.00	0.00
University Ave and Porter Street	North	Left	168186	1	D	-1	1.41	-100.00
	East	Through	168183	0	.0	0	0.00	0.00
	East	Right	168188	0	0	0	0.00	0.00
	South	Through + Right	13452638	0	0	0	0.00	0.00
	North	Through	13452632	0	3	3	2.45	inf
University Ave and Irvine St	North	Left	13452634	2	.0	-2	2.00	-100.00
	East	Right	13452637	0	8	8	4.00	inf
	East	Left	13452636	2	6	4	2.00	200.00
	North	Through	13452666	2	11	9	3,53	450,00
Onitedaty Are and Station Are	North	Left	13452665	4	3	-1	0.53	-25.00



Out-session AM peak: Light Vehicles

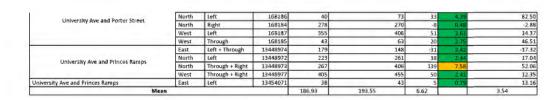
unciscoun	East.	1-D	Airnsun TID	Survey Count	Modelled Flow	Difference	GEH	Relative Different
	East	Left	13452423	0	3	3	2.45	
	East	Right	13452422	2	3		0.63	
	East	Through	13452424	202	193	-9	0.64	
	North	Left	13452421	12	0		4,90	-1
	North	Right	13452429	24	40		2,83	
Chan Band and Butter and	North	Through	13452430	4	- 11	7	2.56	
Gipps Road and Berkeley Road	South	Left	13452426	15	33	18	3.67	
	South	Right	13452428	. 5	6		0.43	
				5			3.16	
	South	Through	13452427		15	10		
	West	Left	13452419	15	58	43	7.12	2
	West	Right	13452425	10	20	10	2.58	
	West	Through	13452420	254	208	-46	3.03	
	East	Right.	173239	87	122	35	3.42	
	East	Through	173237	156	144	-12	0.98	
			173241					
Gipps Road and Eastern Street	North	Left		103	110	7	0,68	
	North	Right	173236	-4	0		2,83	-
	West.	Left	173238	26	28	2	0.38	
	West	Through	173240	183	174	-9	0.67	
	North	Right	13452242	81	46	-35	4.39	
	North	Through	13452241	616	618	2	0.08	
Gipps Road and Foley Street	South	Left	13452243	214	201	-13	0,90	
and the state of t	South	Through	13452244	244	246	2	0.13	
	West	Left	13452239	57	38	-19	2.76	
	West	Right	13452240	266	220	-46	2.95	
	East	Left	13451443	15	0		5.48	
	East	Through	13451444	97	90	-7	0.72	
	North	Left	13452492	15	11	-4	1.11	
Gipps Road and Grey Street	North	Right	13452493	7	2	-5	2.36	
	North	Through	13451445	4	0	-4	2.83	-
	West	Right	13451441	13	0		5.10	
	West	Through	13451442	125	115	-10	0.91	
	East	Left	13452654	25	48	23	3.81	
				186		9	0.65	
The second secon	East	Through	13452653		195			
Gipps Road and Vickery Street	South	Left	13452649	2	5	3	1.60	/.
	South	Right	13452650	51	49	-2	0.28	
	West	Through	13452644	234	213	-21	1,40	
	East	Through	13449030	299	291	-8	0,47	
	North	Left	13449029	83	187	104	8.95	
Memorial Drive and Porter Street			13449031	376	279	-97	5.36	
	North	Right					0.00	
	West	Through	13449025	315	281	-34	1.97	
	North	Left.	13448802	55	72	17	2.13	
	North	Through	13449737	1234	1242	8	0.23	
perfectly to the control of the cont	South	Right	13449738	128	107	-21	1.94	
emorial Drive North Bound and M1 Princes Hwy	South	Through	13449735	513	620	107	4.50	
	West	Left	13449736	879	980	101	3.31	
	West	Right	13449734	618	672	.54	2.13	
	East	Left	13448816	430	356	-74	3,73	
	East	Right	168314	98	87	-11	1.14	
	North.	Right	168311	354	357	3	0.16	
emonal Drive South Bound and M1 Princes Hwy	North	Through	168316	1543	1557	14	0.36	
	South	Left	13448825	568	457	-111	4.90	
	South	Through	168315	544	653	109	4,46	
	East	Right	13451237	266	296	30	1,79	
	East.	Through	13451238	105	109	4	0.39	2
123.44. E31.74.7 T T.	North	Left	13451235	164	150	-14	1.12	
Mount Keira Road and Robsons Road	North	Right	13451236	68	65	-3	0.37	
							0.37	
	West	Left	13451233	257	263	6	0,37	
	West	Through	13451234	275	304	29	1,70	
	East	Left	13449230	- 55	47	-8	1.12	
	East	Through + Right	13449231	370	530	160	7.54	
	North	Left	13449226	68	58	-10	1.26	
	North	Through + Right	13449227	.267	277	10	0.61	
M1 Ousley Road and Gaynor Avenue		Left	13449232	26	25		-	
	South					-1	0,20	
	South	Through + Right	13449233	51	49		0,28	
	West	Left	13448727	2	16		4.67	1
<u> </u>	West	Through + Right	13448709	426	377	-49	2.45	
	East	Left	13451989	6	4	-2	0.89	
	East	Through	13451990	91	98	7	0.72	
	South	Left	13451991	24	7	-17	4.32	
Murphys Ave and Braeside Ave								
	South	Right	13451992	10	11	1	0.31	
	West	Right.	13451987	15	4	-11	3.57	
	West	Through	13451988	94	108	14	1.39	
	East	Left	168003	52	40	-12	1.72	
	East	Through	167998	108	90		1.81	
Murphys Ave and Eastern Street	South	Left	167999	33	53	20	3,05	
, ,	South	Right	168001	85	89		0.43	
	West	Right	168002	36	39		0.49	1
	West	Through	168000	87	81	-6	0,65	
	East	Left	13452001	11	5		2.12	
	East	Through	13452002	102	116			
					4	-1		4
Murphys Ave and John Street	South	Left	13452003	.5			0.47	
Murphys Ave and John Street		Left Right	13452003 13452004	12	27		3.40	
Murphys Ave and John Street	South						3.40	



	East	Left	13452577	33	24	-9	1,69	
	East	Through + Right	13452574	51	80	29	3.58	
	North	Left	13452570	23	27	4	0.80	9
Murphys Ave and Robsons Road	North	Through + Right	13452571	53	53	0	0.00	
Midipilys Ave and Robsolis Road	South	Left	13452579	14	.33	19	3,92	2
	South	Through + Right	13452578	170	141	-29	2.33	3
	West	Left	13452585	3	1	-2	1.41	
	West	Through + Right	13452584	55	53	-2	0.27	
	East	Left	13452617	4	5	1	0.47	
	East	Through + Right	13452616	616	628	12	0.48	
	North	Left	13452610	5	11	6	2.12	2
	North	Through + Right	13452613	140	146	6	0.50	
Northfields Ave and Princes Ramps	South	Left	13452621	173	188	15	1.17	
	South	Through + Right	13452620	278	312	34	1.98	
	West	Left	13452624	17	9		2.22	
	West		13452625	126	134	-8	0.70	
		Through + Right	13449191	413	458	8		
	East	Through + Right				45	2.16	
Washington and Control of Control	North	Left	13449199	78	110	32	-	
Northfields Ave and Uni Entrance	North	Right	13449200	29	27	-2	0.38	
	West	Left	13449196	63	47	-16	2.16	5
	West	Through	13449197	40	31	-9	1,51	
	East	Left	13448774	85	88	3	0,32	
	East	Through + Right	13448773	103	76	-27	2.85	
	North	Left	13449243	48	48	- 0	0.00	
Princes Hwy and Mt Qusley Road	North	Through + Right	13449240	900	900	0	0.00	
. Three towy and the Copies month	South.	Left	168304	269	440	171	9.08	3
	South	Through + Right	168309	811	814	3	0.11	
	West	Left	13449238	119	134	15	1,33	
	West	Through + Right	13449239	493	536	43	1.90	
	North	Through	168171	1714	1629	-85	2.08	-
Princes Hwy-Princes Hwy Exit	South	Through	173227	1986	1992	6	0.13	
	East	Through	173116	1437	1425	-12	0.32	
	North	Left	13448693	220	291	71	4,44	
Princes Motorway and Mount Ousley Road	North	Right	13448695	182	203	21	1.51	
							_	
	West	Through	173118	1391	1432	41	1.09	
	North	Right	13451327	- 19	16	-3	0.72	2
	North	Through	13451328	27	32	5	0,92	
Reserve Street and Gilmores Street	South	Left	13451324	80	78	-2	0,23	
	South	Through	13451325	36	38	2	0.33	
	West	Left	13451326	19	20	1	0.23	2
	West	Right	13451329	104	90	-14	1.42	
	East	Left	13452558	30	45	15	2.45	
	East	Through + Right	13452553	68	50	-18	2,34	1
	North	Through + Right	13452552	85	69	-16	1.82	2
Rehama Road and Story Board	North	Left	13452557	31	29	-2	0.37	
Robsons Road and Gipps Road	South	Left	13452559	5	0	-5	3.16	
	South	Through + Right	13452554	215	200	-15	1.04	
	West	Left	13452555	5	1	-4	2.31	
	West	Through + Right	13452556	32	32	0	0.00	
	East	Left	13452598	49	30	-19	3.02	2
	East	Right	13452597	36	0	-36	8.49	-:
Robsons Road and Northfields Ave	North	Left	13452605	28	15	-13	2.80	
ADDRESS FORM AND MORNINGROS AVE	North	Through	13452605	35	52	17	2.58	
	South	Through + Right	13452600	152	166	14	1,11	
	North	Left	13451189	56	68	12		
obsons Road and Princes Motorway On Ramp	North	Through	13451190	229	215	-14	0.94	
	South	Right	13451186	275	285	10	0.60	
	South	Through	13451185	239	272	33	2,06	
	East	Left	13451281	33	31	-2	0,35	
	East	Right	13451282	1	3	2	1.41	
	East	Through	13451289	4	0	-4	2.83	-:
	North	Left	13451286	2	0	-2	2.00	3
	North	Right	13451287	6	. 6	0	0.00	
The second secon	North	Through	13451285	182	181	-1	0,07	
Robsons Road and William Street	South	Left	13451277	13	g	-5	1,54	
	South	Right	13451288	15	12	-3	0.82	
	South	Through	13451278	216	216	-0	0.00	
	West	Left	13451279	15	12	-3	0.82	
			13451279	14	11	-3	0.85	
	West	Right. Through	13451280	7		-3		
	West				10	2	0.71	
	North	Left	13449252	7	9	-	0.71	
	North	Right	13449015	12	4	-8	2.83	
University Ave and Foleys Lane	South	Left	13449008	376	431	55	2.74	
	South	Right	13449009	32	31	-1	0.18	
	West	Right	13449253	30B	332	24	1,34	
	West	Through	13449012	35	17	-18	3.53	
	East	Right	13452674	188	180	-8	0.59	
Heitmetite Aug and Continue tour	East	Left	13452673	168	253	85	5.86	
University Ave and Graham Ave	North	Left	13452665	307	348	41	2.27	
	North	Through	13452666	186	243	:57	3,89	
	East	Left	13452636	76	108	32	3.34	
	East	Right	13452637	336	340	4	0.22	
University Ave and Irvine St	North	Left	13452634	264	290	26	1.56	
Othersity are and tryine or								
	North	Through	13452632	100	103	3	0.30	
	South	Through + Right	13452638	168	204	36	2,64	
	East	Right	168188	56	55 20	-1 -1	0.23	
	East	Through	168183	21				

Consultant Report







Out-session AM peak: Heavy Vehicles

Intersection	Directio			THE PERSON NAMED IN COLUMN		erence	GEH	Relative Difference
	East	Left	13452423	0	D	0	0.00	
	East	Right	13452422	0	D	0	0.00	
	East	Through	13452424	1	0	-1	1.41	-10
	North	Left	13452421	0	0	0	0.00	
Gipps Road and Berkeley Road	North	Right	13452429	.0	3	3	2.45	
	North	Through	13452430	0	1	1	1,41	
	South	Left	13452426	0	0	0	0.00	
	South	Right	13452428	0	0	0	0.00	
	South	Through	13452427	0	0	0	0.00	
	West	Left	13452419	0	3	3	2.45	
	West	Right	13452425	0	0	0	0.00	
	West	Through	13452420	2	5	3	1.60	1
	East	Right	173239	0	0	0	0.00	
	East	Through	173237	1	3	2	1.41	2
Gipps Road and Eastern Street	North	Left	173241	0	5	5	3.16	
Gipps Road and Eastern Street	North	Right	173236	1	2	1	0.82	1
	West	Left	173238	0	0	0	0.00	
	West	Through	173240	2	3	1	0.63	
	North	Right	13452242	2	2	0	0.00	
	North	Through	13452241	6	6	. 0	0.00	
	South	Left	13452243	3	D	-3	2.45	-1
Gipps Road and Foley Street	South	Through	13452244	3	D	-3	2.45	-1
	West	Left	13452239	2	D	-2	2.00	-1
	West	Right	13452240	4	5	1	0.47	
	East	Left	13451443	0	0	0	0.00	
	East	Through	13451444	2	2	0	0.00	
	North	Left	13452492	0	0	0	0.00	
Glpps Road and Grey Street	North		13452492	0	0	0	0.00	_
Gipps road and GIP4 Street	North	Right	13452493	.0	0	0	0.00	
							0.00	
	West	Right	13451441 13451442	0	0	0	0.00	
	West	Through		2	3	_	200	
	East	Left	13452654	0	- 2	2	2.00	
	East	Through	13452653	3	0	-3	2.45	-1
Gipps Road and Vickery Street	South	Left	13452649	0	0	0	0.00	
	South	Right	13452650	0	0	0	0.00	
	West	Through	13452644	3	5	2	1.00	
	East	Through	13449030	2	3	1	0.63	
Memorial Drive and Porter Street	North	Left	13449029	1	6	- 5	2.67	5
Membrial Drive and Porter Street	North	Right	13449031	4	6	2	0.89	
	West	Through	13449025	2	0	-2	2.00	-1
	North	Left	13448802	1	1	.0	0,00	
	North	Through	13449737	26	42	16	2.74	
Memorial Drive North Gound and M1 Princes Hwy	South	Right	13449738	6	3	-3	1.41	
nemorial prive North Goung and NIT Princes Hwy	South	Through	13449735	11	12	1	0.29	
	West	Left	13449736	21	22	1	0.22	
	West	Right	13449734	18	26	8	1.71	
	East	Left	13448816	14	4	-10	3.33	
	East	Right	168314	0	1	1	1.41	
	North	Right	168311	10	35	25	5.27	
demorial Drive South Bound and M1 Princes Hwy	North	Through	168316	35	33	-2	0,34	
	South	Left	13448825	28	26	-2	0.38	
	South	Through	168315	17	14	-3	0.76	
	East	Right	13451237	8	. 5	-3	1.18	
	East	Through	13451237	6	0	-6	3.46	1
	North	Left	13451235	6	.2	-4	2.00	
Mount Keira Road and Robsons Road	North	+	13451236	0	0	0	0.00	
	West	Right	13451236	2	3	1	0.63	
	West			2	0	-2	2.00	-1
	_	Through	13451234			-2	0.00	
	East	Left Through a Right	13449230	0	0			
	East	Through + Right	13449231	14	30	16	3,41	1
	North	Left	13449226	3	18	15	4.63	
Mt Ousley Road and Gaynor Avenue	North	Through + Right	13449227	0	0	0	0.00	
	South	Left	13449232	0	0	0	0.00	
	South	Through + Right	13449233	0	16	16	5.66	
	West	Left	13448727	0	6	6	3.46	
	West	Through + Right	13448709	18	43	25	4.53	1
	East	Left	13451989	0	D	0	0.00	
	East	Through	13451990	2	1	-1	0.82	
Murphys Ave and Braeside Ave	South	Left	13451991	0	D	0	0.00	
and the same of the same in the	South	Right	13451992	0	D	0	0.00	
	West	Right	13451987	0	0	0	0.00	1
	West	Through	13451988	0	4	4	2.83	-
	East	Left	168003	4	4	0	0.00	
	East	Through	167998	3	1	-2	1.41	
Marshan American Francisco	South	Left	167999	0	0	0	0.00	
Murphys Ave and Eastern Street	South	Right	168001	0	0	0	0.00	
	West	Right	168002	0	1	1	1.41	T
	West	Through	168000	1	1	0	0.00	



Murphys Ave and John Street	East	Through	13452002	2	1	-1	0.82	
	South	Left	13452003	0	0	0	0.00	
	South	Right	13452004	1	1	0	0.00	
	West	Right	13452000	0	2	2	2.00	
	West	Through	13451999	0	2	2	2.00	
	East	Left	13452577	2	0	-2	2,00	-
	East	Through + Right	13452574	0	0	0	0.00	
	North	Left	13452570	0	4	4	2.83	
Murphys Ave and Robsons Road	North	Through + Right	13452571	3	1	-2	1.41	
	South	Left	13452579	0	D	0	0.00	
	South	Through + Right	13452578	2	2	0	0.00	
	West	Left	13452585	0	0	0	0.00	
	West	Through + Right	13452584	0	0	0	0.00	
	East	Left	13452617	0	D	0	0.00	
	East	Through + Right	13452616	4	5	1	1000000	
	North North	Left	13452610 13452613	0	D	0	2.00	
Northfields Ave and Princes Ramps	South	Through + Right Left	13452621	3	2	-2	1.41	
	South	Through + Right	13452620	2	0	-2	2.00	
	West	Left.	13452624	0	0	0	0.00	
	West	Through + Right	13452625	7	3	-4	1.79	
	East	Through + Right	13449191	6	5	-1	0.43	
	North	Left	13449199	3	2	-1	0.63	
Northfields Ave and Uni Entrance	North	Right	13449200	0	0	0	0.00	
	West	Left	13449196	.0	1	1	1.41	
	West	Through	13449197	2	1	-1	0.82	
	East	Left	13448774	0	12	12	4,90	
	East	Through + Right	13448773	103	39	-64	7.60	
	North	Left	13449243	0	0	0	0.00	
de d'arment a servicion de la companya de la compan	North	Through + Right	13449240	27	22	-5	1.01	_
Princes Hwy and Mt Ousley Road	South	Left	168304	4	7	3	1.28	
	South	Through + Right	168309	25	26	1	0.20	
	West	Left	13449238	119	75	-44	4.47	
	West	Through + Right	13449239	14	10	-4	1.15	
Delivery Mary Date - 111 5 7	North	Through	168171	92	96	4	0.41	
Princes Hwy-Princes Hwy Exit	South	Through	173227	88	87	-1	0.11	
	East	Through	173116	237	244	7	0.45	
N:	North	Left	13448693	6	9	3	1.10	
Princes Motorway and Mount Ousley Road	North	Right	13448695	8	12	4	1.26	
	West	Through	173118	216	239	23	1,52	
	North	Right	13451327	0	0	0	0.00	
	North	Through	13451328	0	0	0	0.00	
Reserve Street and Gilmores Street	South	Left	13451324	0	0	0	0.00	
madelye direct and dillingles briefs	South	Through	13451325	0	0	0	0.00	
	West	Left	13451326	0	0	0	0.00	
	West	Right	13451329	1	0	-1	1,41	
	East	Left	13452558	0	2	2	2.00	
	East	Through + Right	13452553	2	0	-2	2.00	
	North	Through + Right	13452552	2	0	-2	2.00	-
Robsons Road and Gipps Road	North	Left	13452557	1	1	0	0.00	
	South	Left	13452559	1	0	-1	1.41	
	South	Through + Right	13452554	3	4	1	0,53	
	West	Left	13452555	0	0	0	0.00	
	West	Through + Right	13452556	0	0	0	0.00	
	East	Left	13452598	0	0	0	0.00	
action and the second	East	Right	13452597	0	0	0	0.00	
Robsons Road and Northfields Ave	North	Left	13452605	0	1	1	1.41	
	North	Through	13452607	1	3	2	1.41	
	South	Through + Right	13452600	3	2	-1	0.63	
	North	Left	13451189	5	2	-3	0.82	
obsons Road and Princes Motorway On Ramp	North	Through	13451190	1	2	1	0.82	
	South	Right	13451186	5	4	-1	0.47	
	South	Through	13451185 13451281	6	0	-2	0190	-
	East	Left.	13451281	0	0	-1 0	0.00	-
		Right		0	0	0	0.00	
	East North	Through Left	13451289 13451286	0	0	0	0.00	
	North		13451286	2	0	-2	2.00	
	North	Right	13451285	5	4	-1	0.47	
Robsons Road and William Street	South	Through Left	13451285	1	0	-1	1.41	
	South	Right	13451288	0	0	-1	0.00	
	South	Through	13451278	5	4	-1	0.47	
	West	Left.	13451279	0	0	0	0.00	
	West	Right	13451280	1	0	-1	1.41	
	West	Through	13451290	0	1	1	1.41	
	North	Left	13449252	0	0	0	0.00	
	North	Right	13449015	2	0	-2	2.00	
the second second second second	South	Left	13449008	3	6	3	1.41	
University Ave and Foleys Lane	South	Right	13449009	0	0	0	0.00	
	West	Right	13449253	2	3	1	0.63	
					D	0	0.00	
	West	Through	13449012	01				
	West	Through Right	13449012 13452674	0	0	-1	1.41	



Mea	n			7.80	8.11	0.31		3.99
University Ave and Princes Ramps	East	Left	13454071	1	0	-1	1.41	-100.00
	West	Through + Right	13448977	9	7	-2	0.71	-22.22
Contractly Ave and Fallices Mailles	North	Through + Right	13448973	7	32	25	5.66	357.14
University Ave and Princes Ramps	North	Left	13448972	11	5	-6	2.12	-54.55
	East	Left + Through	13448974	1	D	-1	1.41	-100.00
	West	Through	168185	0	0	0	0.00	0.00
	West	Left	168187	3	6	3	1.41	100.00
University Ave and Porter Street	North	Right	168184	2	3	1	0.63	50.00
University Ave and Porter Street	North	Left	168186	0	D	0	0.00	0.00
	East	Through	168183	0	- 0	0	0.00	0.00
	East	Right	168188	0	0	0	0.00	0.00
	South	Through + Right	13452638	1	2	1	0.82	100.00
	North	Through	13452632	2	1	-1	0.82	-50.00
University Ave and Irvine St	North	Left	13452634	8	5	-3	1.18	-37.50
	East	Right	13452637	5	1	-4	2.31	-80.00
	East	Left	13452636	3	7	4	1.79	133.33
	North	Through	13452666	15	9	-6	1.73	-40.00
Onineisity Are and Oronom Are	North	Left	13452665	2	3	1	0.63	50.00



Out-session PM peak: Light Vehicles

Intersection	Directio			STATE OF THE PERSON NAMED IN		Herence	GEH	Relative Difference
	East	Left	13452423	13	0	-13 2	5.10 2.00	-1
	East	Right	13452422	0	2		-	
	East	Through	13452424	328	315	-13	0.73 4.24	-1
	North	Left	13452421	30	48	-9	2.88	
	North	Right	13452429			18		
Gipps Road and Berkeley Road	North	Through	13452430	14	21	7	3.02	
	South	Left	13452426	20	36	16	2.13	
	South	Right	13452428 13452427	8	.3	-5		
	South	Through		7	13	6	1.90	
	West	Left	13452419	17	42	25	4.60	1
	West	Right	13452425	11	13	2	0.58	
	West	Through	13452420	265	232	-33	2.09	
	East	Right	173239	99	115	16	1.55	
	East	Through	173237	285	286	1	0.06	
Gipps Road and Eastern Street	North	Left	173241	125	127	2	0.18	
	North	Right	173236	15	15	0	0,00	
	West	Left	173238	14	19	5	1.23	
	West	Through	173240	170	159	-11	0.86	
	North	Right	13452242	101	65	-36	3.95	
	North	Through	13452241	505	540	35	1,53	
Gipps Road and Foley Street	South	Left	13452243	304	296	-8	0.46	
Sippo ridus and raicy street	South	Through	13452244	362	329	-33	1.78	
	West	Left	13452239	66	43	-23	3.12	
	West	Right	13452240	263	239	-24	1.51	
	East	Left	13451443	21	0	-21	6.48	-1
	East	Through	13451444	174	171	-3	0.23	
	North	Left	13452492	15	13	-2	0,53	
Gipps Road and Grey Street	North	Right	13452493	12	0	-12	4.90	4
	North	Through	13451445	.6	.5	-1	0.43	
	West	Right	13451441	7	0	-7	3.74	4
	West	Through	13451442	124	141	17	1.48	
	East	Left	13452654	43	59	16	2.24	
	East	Through	13452653	275	304	29	1.70	
Gipps Road and Vickery Street	South	Left	13452649	3	13	10	3.54	- 3
	South	Right	13452650	37	45	8	1.25	
	West	Through	13452644	243	236	-7	0.45	
	East	Through	13449030	340	362	22	1.17	
	North	Left	13449029	67	126	59	6.01	
Memorial Drive and Porter Street	North	Right	13449031	290	277	-13	0.77	
	West	Through	13449025	423	400	-23	1.13	_
	North	Left	13448802	72	130	58	5.77	
			13449737	1082	994	-88	2.73	_
	North	Through					3.23	_
Memorial Drive North Bound and M1 Princes Hwy	South	Right	13449738	374 762	314 962	-60 200	6.81	
	South	Through	13449735					
	West	Left	13449736	867	896	29	0.98	
	West	Right	13449734	350	368	18	0.95	
	East	Left	13448816	207	209	2	0.14	
	East	Right	168314	51	61	10	1.34	
femorial Drive South Bound and M1 Princes Hwy	North	Right	168311	422	392	-30	1.49	
,	North	Through	168316	1007	968	-39	1,24	
	South	Left	13448825	845	723	-122	4.36	
	South	Through	168315	1075	1221	146	4.31	
	East	Right	13451237	340	343	3	0.16	
	East	Through	13451238	286	290	4	0,24	
Mount Keira Road and Robsons Road	North	Left	13451235	198	212	14	0.98	
CARLOTTE INCHES BITCH NODSONS NODG	North	Right	13451236	199	193	-6	0.43	
	West	Left	13451233	150	151	1	0.08	
	West	Through	13451234	188	174	-14	1.04	
	East	Left	13449230	35	38	3	0.50	
	East	Through + Right	13449231	539	551	12	0.51	
	North	Left	13449226	37	50	13	1.97	
	North	Through + Right	13449227	138	122	-16	1.40	
Mt Ousley Road and Gaynor Avenue	South	Left	13449232	19	30	11	2.22	
	South	Through + Right	13449233	31	26	-5	0.94	
	West	Left	13448727	9	21	12	3.10	
	West	Through + Right	13448709	323	276	-47	2,72	
	East	Left	13451989	16	14	-2	0.52	
	East	Through	13451990	131	128	-3	0.26	
	South	Left	13451991	38	1	-37	8.38	
Murphys Ave and Braeside Ave	South	Right	13451992	. 6	9	3	1.10	
	West	Right	13451992	7	0	-7	3,74	R
	West		13451987	89	95	-/	0.63	-
		Through			95 83	5	_	
	East	Left	168003	78			0.56	
	East	Through	167998	130	112	-18	1.64	_
Murphys Ave and Eastern Street	South	Left	167999	31	34	3	0.53	
Murphys Ave and Eastern Street	South	Right	168001	79	86	7	0.77	
			168002	55	54	-1	0.14	
	West	Right	168000	88	87	-1	0.11	



Murphys Ave and John Street	East	Through	13452002	137	134	-3	0.26	
	South	Left.	13452003	8	4	-4	1.63	
	South	Right	13452004	8	2	-6	2.68	
	West	Right	13452000	8	10	2	0.67	-
	West	Through	13451999	106	122	16	1.50	
	East	Left	13452577	78	84	6	0.67	
	East	Through + Right	13452574	62	52	-10	1.32	
	North	Left	13452570	21	18	-3	0.68	
	North	Through + Right	13452571	145	112	-33	2.91	
Murphys Ave and Robsons Road	South	Left	13452579	24	24	0	0,00	
	South	Through + Right	13452578	117	122	5	0.46	
	West	Left	13452585	0	0	0	0,00	
	West	Through + Right	13452584	52	51	-1	0.14	
	East	Left	13452617	9	17	8	2.22	
	East	Through + Right	13452616	160	142	-18	1.46	
	North	Left	13452610	38	43	5	0.79	
No at field A and Daires December	North	Through + Right	13452613	301	315	14	0,80	
Northfields Ave and Princes Ramps	South	Left	13452621	63	61	-2	0.25	
	South	Through + Right	13452620	239	279	40	2.49	
	West	Left	13452624	14	1	-13	4.75	
	West	Through + Right	13452625	391	402	11	0.55	
	East	Through + Right	13449191	124	139	15	1.31	
	North	Left.	13449199	284	305	21	1,22	
Northfields Ave and Uni Entrance	North	Right	13449200	49	37	-12	1.83	
	West	Left	13449196	25	20	-5	1.05	
	West	Through	13449197	96	99	3	0.30	
	East	Left	13448774	72	73	1	0,12	
	East	Through + Right	13448773	117	110	-7	0.66	
	North	Left	13449243	50	56	6	0.82	
Bringing Must and Mr Charles Board	North	Through + Right	13449240	793	799	- 6	0.21	
Princes Hwy and Mt Ousley Road	South	Left	168304	336	380	44	2,33	
	South	Through + Right	168309	1251	1295	44	1.23	£
	West	Left	13449238	109	110	1	0.10	
	West	Through + Right	13449239	309	362	53	2.89	
Deiness House Dair House Code	North	Through	168171	1997	1771	-226	5.21	
Princes Hwy Princes Hwy Exit	South	Through	173227	1749	1789	40	0.95	
	East	Through	173116	1699	1682	-17	0.41	
Primary National Alberta Control Production	North	Left	13448693	342	351	9	0.48	
Princes Motorway and Mount Ousley Road	North	Right	13448695	151	52	-99	9.83	
	West	Through	173118	1893	1897	4	0.09	
	North	Right	13451327	28	30	2	0.37	
	North	Through	13451328	44	28	-16	2.67	
Reserve Street and Gilmores Street	South	Left	13451324	137	131	-6	0.52	-
neserve Street and Gilmores Street	South	Through	13451325	57	48	-9	1.24	
	West	Left	13451326	19	26	7	1.48	
	West	Right	13451329	50	64	14	1,85	
	East	Left	13452558	98	96	-2	0.20	
	East	Through + Right	13452553	83	75	-8	0.90	
	North	Through + Right	13452552	188	177	-11	0.81	
Robsons Road and Gipps Road	North	Left	13452557	43	33	-10	1,62	
Housens read and cipps read	South	Left	13452559	2	0	-2	2.00	
	South	Through + Right	13452554	147	158	11	0.89	
	West	Left	13452555	5	6	1	0.43	
	West	Through + Right	13452556	23	32	9	1,72	
	East	Left	13452598	79	72	-7	0.81	
	East	Right	13452597	23	. 0	-23	6.78	
Robsons Road and Northfields Ave	North	Left	13452605	66	73	7	0.84	-
	North	Through	13452607	98	87	-11	1.14	
	South	Through + Right	13452600	80	71	-9	1,04	-
	North	Left	13451189	45	54	9	1.28	
obsens Road and Brings Material On Same	North	Through	13451190	410	404	-6	0.30	
obsons Road and Princes Motorway On Ramp	South	Right	13451186	229	216	-13	0.87	
	South	Through	13451185	257	282	25	1.52	
	East	Left.	13451281	47	44	-3	0.44	
	East	Right	13451282	3	5	2	1,00	
	East	Through	13451289	7	6	-1	0.39	
	North	Left	13451286	2	0	-2	2.00	
	North	Right	13451287	13	11	-2	0.58	
Robsons Road and William Street	North	Through	13451285	287	298	11	0,64	
Housens near any Willidill Street	South	Left	13451277	15	0	-15	5.48	
	South	Right	13451288	27	15	-12	2.62	
	South	Through	13451278	183	211	28	1.99	
	West	Left	13451279	10	-9	-1	0.32	
	West	Right	13451280	24	1	-23	6.51	
	West	Through	13451290	7	14	. 7	2.16	
	North	Left	13449252	13	23	10	2.36	
	North	Right	13449015	47	10	-37	6.93	
Harting the Assessment Control	South	Left	13449008	499	529	30	1.32	
University Ave and Foleys Lane	South	Right	13449009	11	32	21	4.53	
	West	Right	13449253	340	357	17	0.91	
	West		13449012	15	4	-11	3.57	
		Through Right	13449012 13452674	15 199	226	-11	1.85	



Mea	in			207.57	211.32	3.74		1.80
University Ave and Princes Ramps	East	Left	13454071	66	68	2	0.24	3.03
	West	Through + Right	13448977	855	869	14	0.48	1.64
Contractly Ave and relines Mainlys	North	Through + Right	13448973	166	270	104	7.04	62.65
University Ave and Princes Ramps	North	Left	13448972	218	304	86	5.32	39.45
	East	Left + Through	13448974	193	224	31	2.15	16.06
	West	Through	168185	40	64	24	3.33	60.00
	West	Left	168187	450	463	13	0.61	2.89
University Ave and Porter Street	North	Right	168184	315	338	23	1.27	7.30
University Ave and Porter Street	North	Left	168186	39	43	4	0.62	10.26
	East	Through	168183	25	23	-2	0.41	-8.00
	East	Right	168188	61	94	33	3.75	54.10
	South	Through + Right	13452638	174	263	89	6.02	51.15
	North	Through	13452632	77	80	3	0.34	3,90
University Ave and Irvine St	North	Left	13452634	559	625	66	2.71	11.81
	East	Right	13452637	211	222	11	0.75	5.21
	East	Left	13452636	114	130	16	1.45	14.04
	North	Through	13452666	367	451	84	4.15	22.89
Onineisity Are and Oronom Are	North	Left	13452665	319	362	43	2.33	13.48



Out-session PM peak: Heavy Vehicles

Gipps Road and Berkeley Road	East East East North	Left Right Through	13452423 13452422 13452424	0	0	0	0.00	
Gipps Road and Berkeley Road	East North						1000	
Gipps Road and Berkeley Road	North	Ihrough						
Gipps Road and Berkeley Road		1.6		2	0	-2	0.00	-1
Gipps Road and Berkeley Road		Left	13452421	0		0	0.000	
Gipps Road and Berkeley Road	North	Right	13452429	0	0	0	0.00	
	North	Through	13452430	0	0	0	0.00	
	South	Left	13452426				0.00	
	South	Right	13452428	.0	0	0		
	South	Through	13452427	0	0	0	0.00	
	West	Left	13452419	0	0	0	0,00	
	West	Right	13452425	0	0	0	0.00	
	West	Through	13452420	.0	0	0	0,00	
	East	Right	173239	0	0	0	0.00	
	East	Through	173237	2	0	-2	2.00	-1
Gipps Road and Eastern Street	North	Left	173241	1	0	-1	1.41	-1
	North	Right	173236	0	0	0	0.00	
	West	Left	173238	0	0	0	0.00	_
	West	Through	173240	0	0	.0	0.00	
	North	Right	13452242	2	0	-2	2.00	-1
	North	Through	13452241	1	3	2	1.41	
Gipps Road and Foley Street	South	Left	13452243	0	D	0	0.00	
apparison and rate; street	South	Through	13452244	1	D	-1	1,41	-1
	West	Left	13452239	0	D	0	0.00	
	West	Right	13452240	0	D	0	0.00	
	East	Left	13451443	0	0	0	0.00	
	East	Through	13451444	1	0	-1	1.41	-4
	North	Left	13452492	.0	0	0	0.00	
Gipps Road and Grey Street	North	Right	13452493	0	0	0	0.00	
	North	Through	13451445	.0	0	0	0.00	
	West	Right	13451441	1	0	-1	1.41	- 4
	West	Through	13451442	0	0	0	0,00	
	East	Left	13452654	0	0	0	0.00	
	East	Through	13452653	3	0	-3	2,45	1
Gipps Road and Vickery Street	South	Left	13452649	0	0	0	0.00	
- A COLOR TO COMPANY TO A 45	South	Right	13452650	0	0	0	0,00	
	West	Through	13452644	0	0	0	0.00	
	East	Through	13449030	1	2	1	0.82	- 1
	North	Left	13449029	0	0	0	0.00	
Memorial Drive and Porter Street	North	Right	13449031	2	1	-1	0.82	
	West	Through	13449025	0	0	0	0.00	
	North	Left	13448802	1	0	-1	1.41	
			13449737	9	15	-1	1.73	-
	North	Through						
lemorial Drive North Bound and M1 Princes Hwy	South	Right	13449738	3	0	-3	2.45 0.31	- 4
	South	Through	13449735	11	10	-1		
	West	Left	13449736	-11	10	-1	0.31	
	West	Right	13449734	12	11	-1	0.29	
	East	Left	13448816	4	1	-3	1.90	
	East	Right	168314	0	0	0	0.00	
lemorial Drive South Bound and M1 Princes Hwy	North	Right	168311	4	15	11	3.57	
and the plane board board and the life in the plane	North	Through	168316	17	11	-6	1.60	
	South	Left	13448825	17	17	- 0	0.00	
	South	Through	168315	11	10	-1	0.31	
	East	Right	13451237	3	0	-3	2.45	-
	East	Through	13451238	4	0	-4	2.83	
Mount Keira Road and Robsons Road	North	Left	13451235	2	-3	1	0.63	_
Minorit Kella Koad and Kobsons Koad	North	Right	13451236	0	0	0	0.00	
	West	Left	13451233	2	0	-2	2.00	
	West	Through	13451234	3	0	-3	2,45	-1
	East	Left	13449230	0	0	0	0.00	
	East	Through + Right	13449231	11	54	43	7.54	
	North	Left	13449226	0	15	15	5.48	
	North	Through + Right	13449227	1	0	-1	1,41	
Mt Ousley Road and Gaynor Avenue	South	Left	13449232	0	0	0	0.00	
	South	Through + Right	13449233	0	0	0	0.00	
	West	Left	13448727	0	1	1	1.41	
	West	Through + Right	13448709	10	27	17	3.95	
	East	Left	13451989	0	D	0	0.00	
	East	Through	13451989	1	2	1	0.82	- 51
	South	Left	13451990	0	0	0	0.00	
Murphys Ave and Braeside Ave				1	0	-1	1.41	- 4
	South	Right	13451992			-1		- 3
	West	Right	13451987	0	0		0.00	
	West	Through	13451988	1	0	-1	1.41	-
	East	Left	168003	0	17	17	5.83	
	East	Through	167998	1	2	1	0.82	- 1
Murphys Ave and Eastern Street	South	Left	167999	0	0	0	0,00	_
	South	Right	168001	0	1	1	1.41	
	West	Right	168002 168000	0	0	0	0,00	-1
	West	Through		1	0	-1	1.41	

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	East	Through	13452002	1	2	1	0.82	1
			13452003	0	0	0	0.00	
Murphys Ave and John Street	South	Left.					0.00	
	South	Right	13452004	0	0	0	200	
	West	Right	13452000	0	0	0	0,00	
	West	Through	13451999	0	0	0	0.00	
	East	Left	13452577	1	2	1	0.82	
	East	Through + Right	13452574	0	0	0	0.00	
	North	Left	13452570	0	0	0	0.00	
					0	0		
Murphys Ave and Robsons Road	North	Through + Right	13452571	0			0.00	
	South	Left	13452579	2	D	-2	2.00	
	South	Through + Right	13452578	0	D	0	0.00	
	West	Left	13452585	0	D	0	0.00	
	West	Through + Right	13452584	2	0	-2	2.00	
	East	Left	13452617	0	0	0	0.00	
		_						
	East	Through + Right	13452616	.0	0	0	0,00	
	North	Left	13452610	0	D	0	0.00	
N 116 11 1 12 12 1	North	Through + Right	13452613	0	0	0	0.00	
Northfields Ave and Princes Ramps	South	Left	13452621	0	0	0	0.00	
	South	Through + Right	13452620	2	3	- 1	0.63	
						_		
	West	Left	13452624	0	0	0	0.00	
	West	Through + Right	13452625	3	.3	0	0.00	
	East	Through + Right	13449191	0	0	0	0.00	
	North	Left	13449199	1	1	0	0,00	
Northfields Ave and Uni Entrance	North	Right	13449200	0	0	0	0.00	
	West	Left	13449196	0	0	0	0.00	
								_
	West	Through	13449197	0	2	2	2.00	
	East	Left	13448774	1	10	9	3,84	
	East	Through + Right	13448773	117	50	-67	7.33	
	North	Left	13449243	0	0	.0	0.00	
	North	Through + Right	13449240	10	1	-9	3.84	
Princes Hwy and Mt Ousley Road								
	South	Left	168304	4	3	-1	0.53	
	South	Through + Right	168309	16	9	-7	1.98	
	West	Left	13449238	109	44	-65	7.43	
	West	Through + Right	13449239	2	2	0	0.00	10
	North	Through	168171	32	31	-1	0.18	
Princes Hwy Princes Hwy Exit					19	-13	2.57	
	South	Through	173227	32				
	East	Through	173116	93	118	25	2.43	
Drivers Materials and Mount Charles Pand	North	Left	13448693	5	20	15	4.24	1
Princes Motorway and Mount Ousley Road	North	Right	13448695	1	32	31	7.63	3
	West	Through	173118	144	171	27	2.15	
	North	Right	13451327	0	0	0	0.00	
	North	Through	13451328	0	0	0	0.00	
Reserve Street and Gilmores Street	South	Left	13451324	0	0	0	0.00	
MEDELVE STICCT WITH CHINOTES STICET	South	Through	13451325	0	0	0	0,00	
	West	Left	13451326	0	0	0	0.00	
	West	Right	13451329	0	0	0	0,00	
	East	Left	13452558	0	0	0	0.00	
	East	Through + Right	13452553	1	0	-1	1,41	
	North	Through + Right	13452552	1	2	1	0.82	
makalana Mandand Winna Mand	North	Left	13452557	0	0	0	0.00	
Robsons Road and Gipps Road	South	Left	13452559	0	0	0	0.00	
	South	Through + Right	13452554	1	0	-1	1.41	-
	West	Left	13452555	0	0	0	0.00	
	West	Through + Right	13452556	0	0	0	0.00	
	East	Left	13452598	0	0	0	0.00	
	East	Right	13452597	0	. 0	.0	0.00	
Robsons Road and Northfields Ave	North	Left	13452605	0	2	2	2.00	
- Jesono novo eno igordinello rige				0	D	0	0.00	
	North	Through	13452607					
	South	Through + Right	13452600	0	D	0	0.00	
	North	Left	13451189	0	1	1	1.41	
No. 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	North	Through	13451190	1	2	1	0.82	-
Robsons Road and Princes Motorway On Ramp	South	Right	13451186	4	0	-4	2.83	
	South		13451185	0	0	0	0.00	
	-	Through			0	0	0.00	
	East	Left:	13451281	0			2.27	
	East	Right	13451282	0	0	0	0,00	
	East	Through	13451289	0	0	0	0.00	-
		Left	13451286	0	0	0	0.00	
	North			0	0	0	0.00	
	North					U		
	North	Right	13451287					
Robsons Road and William Street	North North	Right Through	13451285	2	2	0	0,00	
Robsons Road and William Street	North North South	Right Through Left	13451285 13451277	2	2	0	0.00	
Robsons Road and William Street	North North	Right Through	13451285	2	2			
Robsons Road and William Street	North North South South	Right Through Left Right	13451285 13451277 13451288	2	2	0	0.00	
Robsons Road and William Street	North North South South South	Right Through Left Right Through	13451285 13451277 13451288 13451278	2 0 0	2 0 0	0 0 -1	0.00 0.00 1.41	
Robsons Road and William Street	North North South South South West	Right Through Left Right Through Left	13451285 13451277 13451288 13451278 13451279	2 0 0 1	2 0 0 0	0 0 -1 0	0.00 0.00 1.41 0,00	
Robsons Road and William Street	North North South South South West West	Right Through Left Right Through Left Right	13451285 13451277 13451288 13451278 13451279 13451280	2 0 0 1 0	2 0 0 0	0 0 -1 0	0.00 0.00 1.41 0.00 0.00	
Robsons Road and William Street	North North South South South West	Right Through Left Right Through Left	13451285 13451277 13451288 13451278 13451279	2 0 0 1 0 0	2 0 0 0 0	0 0 -1 0 0	0.00 0.00 1.41 0.00 0.00	
Robsons Road and William Street	North North South South South West West	Right Through Left Right Through Left Right	13451285 13451277 13451288 13451278 13451279 13451280	2 0 0 1 0	2 0 0 0	0 0 -1 0	0.00 0.00 1.41 0.00 0.00	
Robsons Road and William Street	North North South South South West West West North	Right Through Left Right Through Left Right Through Left Right Through	13451285 13451277 13451288 13451278 13451279 13451280 13451290 13449252	2 0 0 1 0 0 0	0 0 0 0 0 0	0 0 -1 0 0	0.00 0.00 1.41 0.00 0.00 0.00	
Robsons Road and William Street	North North South South South West West West North	Right Through Left Right Through Left Right Through Left Right Through Left Right Right	13451285 13451277 13451288 13451278 13451279 13451280 13451290 13451290 1349252 13449015	2 0 0 1 0 0 0 0	2 0 0 0 0 0 0	0 0 -1 0 0 0 0	0.00 0.00 1.41 0.00 0.00 0.00 0.00	
Robsons Road and William Street University Ave and Foleys Lane	North North South South South West West West North North South	Right Through Left Right Through Left Right Through Left Right Through Left Right Left Left Left	13451285 13451277 13451288 13451278 13451279 13451280 13451290 13451290 13449252 13449015 13449008	2 0 0 1 0 0 0 0 0	2 0 0 0 0 0 0 0	0 0 -1 0 0 0 0	0.00 0.00 1.41 0.00 0.00 0.00 0.00 1.41 0.00	
	North North South South South West West West North North South South	Right Through Left Right Through Left Right Through Left Right Through Left Right Left Right Right	13451285 13451277 13451288 13451278 13451279 13451280 13451290 13451290 1349252 13449015 13449008 13449009	2 0 0 1 0 0 0 0 0	2 0 0 0 0 0 0 0 0	0 0 -1 0 0 0 0 -1 0	0.00 0.00 1.41 0.00 0.00 0.00 0.00 1.41 0.00	
	North North South South South West West West North North South South West	Right Through Left Right Through Left Right Through Left Right Through Left Right Left Left Left	13451285 13451277 13451288 13451278 13451279 13451280 13451290 13451290 13449252 13449015 13449009 13449253	2 0 0 1 1 0 0 0 0 0	2 0 0 0 0 0 0 0	0 0 -1 0 0 0 0 0 -1 0	0.00 0.00 1.41 0.00 0.00 0.00 0.00 1.41 0.00 0.82	
	North North South South South West West West North North South South	Right Through Left Right Through Left Right Through Left Right Through Left Right Left Right Right	13451285 13451277 13451288 13451278 13451279 13451280 13451290 13451290 1349252 13449015 13449008 13449009	2 0 0 1 0 0 0 0 0	2 0 0 0 0 0 0 0 0	0 0 -1 0 0 0 0 -1 0	0.00 0.00 1.41 0.00 0.00 0.00 0.00 1.41 0.00	
	North North South South South West West West North North South South West	Right Through Left Right Through Left Right Through Left Right Through Left Right Left Right Right Left Right Left Right Right	13451285 13451277 13451288 13451278 13451279 13451280 13451290 13451290 13449252 13449015 13449009 13449253	2 0 0 1 1 0 0 0 0 0	2 0 0 0 0 0 0 0	0 0 -1 0 0 0 0 0 -1 0	0.00 0.00 1.41 0.00 0.00 0.00 0.00 1.41 0.00 0.82	



Mea	in			4.34	4.72	0.38		8,83
University Ave and Princes Ramps	East	Left	13448977	4	2	-2	1.15	-50.00
	West	Through + Right	13448973	2	- 30	28	7.00	1400.00
Cummerated was said extudes tratable	North	Through + Right	13448972	7	11	4	1.33	57.14
University Ave and Princes Ramps	North	Left	13448974	0	3	3	2.45	inf
	East	Left + Through	13454071	- 0	3	3	2.45	inf
	West	Through	168185	0	0	0	0.00	0.00
	West	Left	168187	0	D	0	0.00	0.00
University Ave and Porter Street	North	Right	168184	1	2	1	0.82	100.00
The second secon	North	Left	168186	0	D	0	0.00	0.00
	East	Through	168183	0	. 0	0	0.00	0.00
	East	Right	168188	0	0	0	0.00	0.00
	South	Through + Right	13452638	3	1	-2	1.41	-66.67
	North	Through	13452632	1	3	2	1.41	200.00
University Ave and Irvine St	North	Left	13452634	2	1	-1	0.82	-50.00
	East	Right	13452637	2	3	1	0.63	50.00
	East	Left	13452636	0	16	16	5.66	inf
	North	Through	13452666	9	11	2	0.63	22.22
Onite bity Are and Graham Are	North	Left	13452665	1	2	1	0.82	100.00

Consultant Report



Keiraville – Gwynneville Access and Movement Study

APPENDIX

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TRAVEL TIME DATA







Our Ref: CW80018018-V8 Contact: Jacob Martin

25 November 2020

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KEIRAVILLE-GWINNEVILLE ACCESS AND MOVEMENT STUDY CAR PARKING STRATEGY

Introduction

Wollongong City Council (WCC) has commissioned a Keiraville–Gwynneville Access and Movement Study to improve their understanding of existing access and transport demand in the area, and to mitigate the impacts of future growth.

This letter is provided in response to the parking component of this work, and concerns strategic recommendations to support the objectives of the overall Study, as follows:

- > Examine and document the existing and future potential operation of the traffic and transport system within the suburbs of Keiraville and Gwynneville; and
- Develop strategies to improve the transport system, reduce impacts on surrounding suburbs, promote the use of sustainable travel modes and ensure that the transport network can adequately accommodate future development.

For the purpose of the parking component of the Study, we have reviewed the existing strategic and statutory planning frameworks. From this base we provide recommendations based on the observed function and behaviour of parking across the Study Area.





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Background

For the purpose of parking, the University of Wollongong (UoW) campus dominates the study area. The parking demand from this source has an effect on the function of residential and commercial development, in addition to impacts on recreational amenity at the Wollongong Botanic Garden and Beaton Park facilities.

Other significant land uses include the Gwynneville and Keiraville commercial centres, Beaton Park Leisure Centre and surrounds, Botanic Gardens, North Wollongong Station and Wollongong Hospital. The requirements for, and impacts of parking, will be discussed in the context of these uses.

Literature Review

A short summary of planning documentation identifies the following components related to parking supply, parking management and enforcement.

Table 1 Parking relevance of strategic plans

Document	Parking-related recommendations
Wollongong 2022 Community Strategic Plan (2012)	 Expand shuttle bus service to support peripheral commuter 'Park and Ride
Wollongong City Centre Access and Movement Strategy (2013)	 Encourage developers to provide parking in consolidated off-street parking locations, Improve parking guidance systems Comprehensive on- and off-street parking surveys
Keiraville Gwynneville Community Planning Project (2014)	 Increase provision of bike parking at the Botanic Gardens and retail centres. Improve enforcement of parking Increase quantum of short-stay parking adjacent to retail. Improve parking wayfinding signage Convert of informal to formal parking bays. Expand shuttle bus service to reduce parking demand. Undertake a Parking Strategy, including specifically for University accommodation.
Keiraville Gwynneville Implementation Plan (2015)	 Undertake an Access and Movement Strategy that includes parking Improve regulation and enforcement of parking Increase quantum of short-stay parking adjacent to retail Increase provision of bike parking at retail centres Improve parking wayfinding signage
Beaton Park Precinct Needs Assessment Project (2015)	Maximise on-site parking
University of Wollongong Campus Master Plan 2016- 2036 (2016)	 Consolidate car parking on the periphery of the campus Maintain existing student/parking ratio (5.4 bays per EFTSL student) Increase on-campus accommodation Support carpooling programs Prioritise parking access to those with special needs: vehicles servicing specific facilities, people with disabilities and University operations vehicles UoW to support Wollongong City Council to reduce the impact of on-street parking on the local community
Draft University of Wollongong Transport Strategy (2017)	 Maximise the efficiency of on-site parking Investigate carpooling, reserved parking and car share Investigate automated parking management and dynamic price structuring Increase capacity for pick-up/drop-off parking

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Current Travel Behaviour

Mode share data extracted from ABS 2016 census and Draft UoW surveys suggests that driving remains the primary mode for the majority of work or education trips. Car-as driver mode share was determined to be 47% for UOW staff and students, 57% for Keiraville and Gwynneville residents, and 62% for employees within the Study Area, UOW staff tend to drive fractionally more than the average, at up to 70% (according to both Census data and self-reported mode share in the 2017 draft UOW questionnaire survey). While mode share statistics are difficult to find for other trip purposes, research generally shows that retail, entertainment and regional recreation trips all exhibit higher driving mode shares than work trips (this is mitigated somewhat by the increased vehicle occupancy for these activities).

The results of statistical review shows that the majority of visitors to the Study Area still require a parking bay. Naturally, this demand is clustered around the destination, with consideration made for availability and price, walking distance and public transport interchange penalties.

While the provision of free shuttle bus services offers an alternative to driving, it also extends the range of viable parking locations. This can help to alleviate the intense pressures on parking adjacent to high-demand nodes (e.g. North Wollongong Station, Wollongong Hospital and the University of Wollongong). While this means that that a greater number of residents are affected (due to the wider distribution of parking demand), the impact is somewhat mitigated around these nodes.

Discussion

Within the Study Area, parking is generated by many sources, each of which are defined by different needs and behaviours. The following discussion is intended to generally frame these differences, for the purpose of determining an appropriate response.

In recommending parking interventions it is important to consider both the needs of the individual land uses, and the potential conflicts between them. The following describes a series of recommendations, in the context of the affected user groups.

University of Wollongong Parking

Current Student Behaviour

The UoW campus is attended by over 17,000 students (EFTSLs), according to the UoW Campus Master Plan (2016). Of these, 12% live in student accommodation, though only 4% on campus. Previous surveys have indicated that as many as 55% of students live within 2.5km of the campus.

Students tend to park for periods of between 2 and 6 hours and are generally more price-sensitive than employees. Results from studies of other universities have shown that students are willing to walk further to obtain free parking, and are willing and able to move their vehicle multiple times to circumvent timing restrictions.

University students make up the largest group for parking demand, which is satisfied on-site by approximately 1,600 parking bays (2017 numbers), including carpooling and student accommodation parking. This quantum was increased to nearly 2000 bays in 2020.

A benchmarking exercise has been completed, based on reasonable assumptions of existing behaviour:

- > student attendance: 75% of weekdays*
- percentage of students on-campus concurrently during peak demand period: 75%*
- existing mode share parking on campus or in the surrounds: 33% (from UoW Travel Survey, 2017)
- * indicative benchmarks from other university surveys



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The consumption of parking by students under this existing scenario is in the order of 3,000 bays, of which a large proportion are provided in the public realm. This relative lack of student parking can act as a supply constraint, resulting in higher sustainable transport mode shares, which is consistent with the objectives defined by the UoW Campus Masterplan 2016-2031 (2016). However, in this case it appears that the surrounding free and unrestricted on-street public parking supply is providing capacity for students, off-setting the majority of the effect of on-campus parking restrictions.

In 2017, parking utilisation data was collected from a sub-contractor at 10am on 14 February, 7 March and 4 April. On 19 September 2017, Cardno's audit team completed parking utilisation audits for the remaining streets in the study area. The overflow demand can be seen in the high occupancy of on-street parking up to 1,000m from the campus, as shown below:



Parking utilisation within 1km of the campus

The parking management of these on-street bays does not greatly discourage use by students: nearby, on-street parking is generally unrestricted or occasionally reduced to 2-hour parking (only within 400m of the campus, as shown below). This parking is also free, in contrast to parking on-campus, which ranges from \$3.50 (for up to 4 hours) to \$9.60 (for 6+ hours).

Note that there was very little parking demand observed to the north of the Princes Motorway. This further illustrates the extent of severance created by that road.



Parking restrictions within the Study Area

Current Staff Behaviour

University staff have greater access to on-site parking with over 1,600 parking bays located in staff Permit and Reserved areas. This can be compared with a staff population of approximately 2,400 FTEs in 2017 (UoW Annual Report, 2017).

Parking utilisation collected as part of the Draft UoW Transport Survey shows staff permit parking (approximately 900 bays) operates at or above practical capacity across the campus. However, surveys of a sample of reserved parking bays (available for individual users, department vehicles and some specified groups) showed that these bays were generally only 50-60% full. Therefore, some reserved parking areas can be underutilised.

The draft 2017 UOW Transport Survey data shows that car-as-driver mode share is 47% for UOW commuters, including staff and students. Through self-reported surveys, 69% of staff stated they drove for some or all of their journey to UOW (2017 draft questionnaire survey). ABS Census data from 2016 shows that car-as-driver mode share was 70% in the UOW, Conservatorium and Botanic Gardens zone.

The Census identifies a peak parking demand of approximately 2,150 spaces within the UoW census zone, significantly higher than the available supply on-campus (note that the needs of part-time and casual employees usually result in peak attendance figures being higher than FTEs, which accounts for the higher utilisation). This suggests that on-site parking would act as a restraint on driving modes, if the surrounding on-street parking supply were to be restricted.



Recommended Response

Reserved parking is inherently inefficient. Recent parking occupancy survey results (University of Wollongong Transport Survey and Strategy, 2017) suggest that in the reserved bays surveyed, an average of only 50-60% of bays are occupied across the day. Innovation in this space, perhaps leveraging the excellent UoW parking app, could improve efficiency and allow for a more flexible assignment of spaces. This could include a more centralised system for pool cars, for instance, or a broader definition of parking areas (i.e. parking permitted within a zone, rather than an individual space).

It is noted, however, that Reserved spaces on campus can be poorly accessible to other users, being located in small car parking areas adjacent to on-site facilities. This places a limit on the efficiency of such parking.

The University of Wollongong Master Plan (2016) identifies that increasing the parking provision on-site will have an impact on trip generation and local congestion. However, the large number of unrestricted on-street bays in surrounding residential streets currently reduces the effectiveness of this constraint on trip generation.

It is not considered reasonable to introduce blanket parking restrictions in the area (i.e. 2-hour limits within 1km of the campus); existing demand is much too high to tackle with duration restrictions alone, and the needs of the adjacent land uses vary considerably across the Study Area. Instead, a combination of paid parking, timing restrictions and other management measures is recommended to maintain a controlled level of on-street parking demand. However, the area that might ultimately be included in this paid parking zone is considerable, and so a phased introduction of paid parking is recommended.

It is recommended that paid parking be introduced in the vicinity of the University, with a phased roll-out of infrastructure over time.

Pricing would generally be highest adjacent to the university, with an introductory price of about \$2.00 per hour (equivalent to or slightly higher than the student rate on-campus), decreasing to \$0 based on distance and demand.

The form of paid parking structure will depend on the individual street, but it is recommended that parking adjacent to the Botanic Gardens would retain a linear payment schedule, supporting relatively short-stay use for recreation purposes, while parking beyond this zone might use a 'fee capped' structure which supports use for long-stay and short-stay parking.

Northfields Avenue functions as a primary connection from the Keiraville area, and the University, to the Princes Motorway. This suggests that construction of high-quality pick-up/drop-off facilities could be highly attractive for drivers, improving traffic and pedestrian safety outcomes in the immediate vicinity.

The impacts of student parking occur only during session periods, with significantly less demand during nonsession periods and on weekends. There is potential to vary parking restrictions or pricing to account for these differences, however there are a number of complications:

- > Modifications using signage only create complicated regulations that are difficult to comply with. This results in confusion and reduces compliance by visitors, residents, staff and students.
- > Manual modification is likely to be overly time-consuming for Council staff.
- > Where paid parking is installed, pricing and duration restrictions can be modified as required clear signage that states "Variable Prices – Check Machine" may be used to improve amenity for visitors outside of session times. However, there is likely to be a degree of additional non-compliance due to this variation.

Occupancy in paid parking areas should be monitored and pricing levels adjusted such that peak occupancy is maintained at around 90%.

Due to the fluctuations in demand over the year (during semester vs over university breaks) it would be reasonable to introduce differential pricing – where parking outside of semester would be considerably cheaper or free. This reflects the fundamental premise of paid parking as a 'demand management' measure, not revenue.



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TAFE NSW Wollongong

Current Behaviour

TAFE students typically attend fewer days on-campus, and attendance is distributed throughout the day and evening. However, students and staff may have a higher driving mode share due to the material requirements of training (equipment etc.).

The TAFE site appears to provide a higher rate of parking than UoW, with a corresponding decrease in the overspill effects into the surrounding residential catchment (as shown in parking surveys). However, the location of the TAFE is also not conducive to overspill, being surrounded by regional roads.

There is a relatively low parking fee of \$2/day for student and staff permit parking which may assist to retain parking on-site.

It is noted that on-site parking for UoW staff is permitted at the TAFE via a permit system, improving the overall efficiency of on-site parking while alleviating pressure on the university campus supply.

Recommended Response

The TAFE has the potential to create overspill effects in the adjacent residential streets, particularly where evening classes overlap residential use of on-street bays. However, the location of the site geographically constrains parking availability and the nature of coursework limits the opportunity for students to move their vehicles to circumvent duration restrictions.

Therefore, should parking issues arise, a 2-hour parking limit (8am-6pm Mon-Fri) within surrounding streets is considered to be sufficient to mitigate any impact on local on-street parking.

Wollongong Hospital and Wollongong Private Hospital (outside of the Study Area)

Typical parking strategies are described below to assist with planning and management:

Current Behaviour

Hospitals are intense sources of visitor and staff parking. It is generally expected that parking demands will be catered for on-site and managed via paid parking. Overspill effects can be expected, and should be controlled through short-stay duration restrictions (2-hour parking) and paid parking mechanisms to support the needs of patients and visitors. A large number of residential streets in the vicinity provide unrestricted parking, suggesting that a proportion of all-day staff parking is accommodated in the public realm.

Hospital destinations include a range of shift-work roles, requiring parking on-site to offset reduced public transport opportunities and mitigate safety and security concerns. However, a large proportion of a hospital workforce are employed during standard office hours; high-quality public transport options along with on-site fee payment systems are effective at shifting transport to non-driving modes for these employees.

The close proximity of both hospitals to the Wollongong Station creates excellent opportunities for public transport access via bus, shuttle and rail, at least for staff working core hours.

Recommended Response

The variable nature of hospital stays means fixed duration parking can create unnecessary stress for patients and visitors. Replacing duration limits with a linear fee structure could be considered to shift long-stay demand out of nearby streets while allowing visitors to park as long as necessary. A mobile-pay system is suggested wherever length-of-stay is unknown to reduce the risk of unintentional overstays.

However, it is acknowledged that paid parking is unlikely to be supported by residents and this is therefore recommended as an opportunity to be considered in the medium to long-term with a transition phase rather than an immediate action

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Opportunity: Paid parking could be introduced in the vicinity of the Hospital, with duration restricted to 2 hours or unrestricted with an hourly fee, according to its intended use (staff overspill or visitors).

Occupancy in paid parking areas should be monitored and pricing levels adjusted such that peak occupancy is maintained at around 90%.

School Parking

Current Behaviour

Demand for school parking is intense and short-lived, restricted to less than an hour in the morning and afternoon. Generally, staff parking is easily retained on-site, leaving only student pick-up/drop-off activities on-street. The extremely high generation of demand during peak periods often creates safety and network operation issues. Effective management requires extensive intervention from both the Local Government and the schools themselves

There are several schools in the Study Area, including the Keiraville Public School, Gwynneville Public School, St Brigid's Catholic Parish Primary School, Para Meadows School and Kiera High School.

Recommended Response

Issues with parking around educational establishments are centred around the parking behaviour of parents at drop off and pick up times and the safety issues that result from inconsiderate and illegitimate parking. Parking around primary schools is generally more problematic than at high schools, although there are peaks and troughs in terms of the number of complaints received and infringements issued.

These issues are problematic for residents living in the vicinity of the schools, with relation to property access, verge and footpath parking, and visual obstructions; for the school children with regard to road safety, and for the parents in terms of the efficiency of their journeys.

The main issues are summarised as follows:

- > The lack of parking close to Keiraville Public School meant that people parked on the verge and on the footpaths illegally.
- > There is not always a crosswalk for the children and parking reduces the visibility of oncoming traffic.

If it is appropriate for parking to occur in locations further away from the school, it is necessary to ensure that it is safe for children and their parents to access the school, ensuring adequate **paths and crossing facilities** are provided.

With parking on both sides of the road as well as the illegal parking, road narrowing occurred and resulted in congestion along Gipps Road and Grey Street, which creates significant delays.

Schools could consider appointing **wardens** to assist parents with considerate and formalised parking/drop off facilities, as well as coordinating safe passage of children from the roadside into schools. If such an approach does not produce compliance, rangers can attend the school and issue warnings or infringements as necessary. **Enforcement** should be used as a tool to ensure compliance in conjunction with more positive approaches to parking management.

The kiss and drive is not effective as it only fits a small number of cars causing parents to circle around the block until the area is free, and people have been known to park in the facility.
This is somewhat mitigated by the 'no parking' in school times, but supply is currently less than demand.

Kiss and drive parking should be monitored to prevent parking, and expanded as required to support demand.

The fact that school start and finish times are so clearly defined means that hundreds of people are arriving and departing a single location within a very short period of time. Staggered start and finish times may help to alleviate parking issues.

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It is recommended that Council engage with schools to support behaviour change trials and to monitor progress. Where trials are found to be successful, the Council can support other schools by creating guidance notes that illustrate a working process with case studies.

It is generally accepted that it is impossible to provide sufficient parking for pick up and drop off times. Therefore, the function and management of on street parking surrounding the site becomes more important.

Council could require all schools to produced **Green Travel Plans** and **Parking Management Plans**. Initially these may be secured through planning applications and development approvals however eventually it should be an aspiration that all schools have these plans in place, and the initiatives and outcomes are measured and monitored.

A more comprehensive study could be completed to support the Parking Management Plan. This would evaluate parking utilisation throughout the day in the areas surrounding each of the schools. The results would help identify locations that would be suitable for shared parking, for example outside shops which are not highly utilised until 10am and could be modified to school parking from 8-9am. Council could also provide some guidelines to assist schools in communicating parking availability to parents.

Parking management plans for each school will be very site specific; however, undergoing the process will help schools identify existing parking opportunities and may help them to implement **shared parking** arrangements with underused parking facilities in the vicinify of the school.

Parking for Recreation

Current Behaviour

Two generators are of particular interest within the Study Area, the Wollongong Botanic Garden and the Beaton Park Leisure Centre. These destinations cater for local and regional recreation and can be characterised by a high private vehicle mode share.

Demand can be expected to be highest on weekends and school holidays, outside of peak times for other high-generating sources. This reduces the potential for conflict with other land uses; however, parking demand extending from the UoW campus is likely to restrict access to the Botanic Gardens during weekdays.

Parking is provided in off-street parking areas at both of these destinations. However, peak usage is likely to overflow into the surrounding road network.

Recommended Response: Beaton Park Leisure Centre

Issues have been identified at this location related to the general availability of parking. This is particularly a problem on the weekend, due to sporting activities and during events. Observed informal parking even during weekdays illustrates the lack of sufficient on-site parking to cater for demand.

The proximify of the Beaton Leisure Centre, Wollongong Tennis Club and the Illawarra Basketball Association suggests that there may be opportunities to provide reciprocal parking, by agreement, to increase parking supply during peak periods. Alternatively, a formal arrangement could be maintained between these organisations, facilitated by Council, to create a common overflow car park for use during peak times.

When there are special events taking place that occur sporadically throughout the year, a **special event** parking management plan should be produced and implemented by the Council.

A combination of parking wardens, event parking permits for organisers, drop off/pick up points and way finding tools can be used to ensure a satisfactory experience for visitors.

The nature of this site is that peak demand for parking can offen be limited to a couple of very specific times during the week. Although it is obviously important to provide a quantum of parking for these land uses, it is not efficient to aim to cater for peak demand.



Council should consider improving the opportunities for overflow parking (through facilitating agreements with demand generators) to improve peak accessibility and increase safety in the area.

The lack of parking availability during peak use can mean that heavy sports equipment needs to be transported long distances.

Improved drop off facilities should be considered for the existing facilities.

Facility users may not be aware of alternative parking locations and parking congestion occurs in the immediate vicinity, causing safety issues for both users and residents.

It may be appropriate to implement **parking restrictions** such as timed or paid parking in certain areas, to relocate staff to the periphery of the Centre or off-site.

Recommended Response: Wollongong Botanic Garden

The Wollongong Botanic Garden functions as a regional recreation area with a high level of demand both from local residents and visitors from other suburbs. The parking demand generated by these users can be relatively high, but generally occurs outside of other demand peaks.

Appropriate **wayfinding signage** and transport information is of high importance, as visitors may not be familiar with the area. This information will empower users to identify the most appropriate transport service or parking location.

In the event that sufficient parking cannot be provided to cater for the daily peak demand, **paid parking** should be introduced. This acknowledges that the area is an important and sensitive environment, and the provision of additional parking comes at a cost to amenity and natural heritage.

Retail Centre Parking

Current Behaviour

The Keiraville and Gwynneville Village Centres are both located approximately 1km from the UoW campus, and as such are at the periphery of the generated walking catchment. It is therefore unlikely that there is a great deal of impact from students parking in shopper zones.

Retail centres generally must consider the needs of visitors and staff. The parking hotspot shown on the parking utilisation map in the vicinity of the Keiraville Village Centre suggests that this area is heavily used by visitors. It is noted that bays are generally restricted to 1-hour parking in this vicinity.

Additional off-street parking within the Village Centres is available for use by employees and visitors.

Recommended Response

Parking issues in commercial centres are a concern for businesses; they fear loss of revenue as customers are turned away.



The Council should implement a **parking user priority** in its commercial centres to help support growth and intensification. This would involve prioritising parking among the following types:

- > Loading
- > Public Transport
- > Drop-off/pick up
- > Short to medium stay
- > Motorcycle/Scooters/Cyclists
- > Disability permit holders

Consideration for other specialty uses (e.g. banks, taxis, emergency vehicles, deliveries etc.) should be given, depending on the requirements of adjacent land uses.

Long stay commuter parking should be confined to off-street facilities, preferably in consolidated areas at the periphery of the Centre.

Issues resulting from of the amount of available parking and periods of high demand can be managed through timed restrictions and implementation of paid parking, where appropriate.

The primary use of on-street parking should be for short-stay visitor parking, particularly in and around activated streets. This **parking should be time-restricted** to avoid illegitimate commuter parking or priced on a demand-sensitive basis to promote vacancies. These could be altered during times of **peak demand** such as at Christmas to encourage turnover.

Longer restrictions beyond 2P are suitable **only** for the fringes of a retail centre and accompanied by regular and consistent **enforcement**. Non-compliance for free 3P and 4P parking bays is very high by employees, where these bays are located adjacent to the business.

Paid parking could be considered in areas of high demand, as a tool alongside parking restrictions.



Residents and Residential Visitors

Current Behaviour

It is expected that on-street parking requirements for resident vehicles are relatively minimal where the majority of residences are single-unit dwellings with ample on-site parking. However, multi-unit developments catering for University students from the UoW campus or other demographics may create on-street demand where vehicle ownership exceeds on-site supply.

Residential *visitor* parking is generally provided by the on-street environment, which is the main use of such parking in residential neighbourhoods. While there may be conflicts between residential visitors and other users, it should be noted that residential visitation primarily occurs in the evening, minimising the overlap of demand with other user groups.

Recommended Response

Issues related to parking in residential areas (particularly in high-density residential and mixed use areas) commonly falls under one of the following types:

- > Residential parking in visitor bays
- > Hazardous or illegitimate parking on verges, footpaths and crossovers.
- > Infill in traditional low-density neighbourhoods resulting in an increased visitor demand for on-street parking.

It is recommended to **review enforcement practices** to ensure that regular patrols are taking place that encourage compliance with existing restrictions. Other regulatory practices such as **timed parking or limits on visitor parking** are likely to be necessary alongside rigid enforcement.

Residential parking permit schemes can be introduced where the availability of on-street parking has become an issue. It should be recognised that such schemes shift the burden of the cost to park the vehicle from the owner to the Council. However, during the transition to a paid parking scheme, a short-term (3-5 years duration) residential parking system is reasonable to allow residents an opportunity to adjust.

Opportunity: A short-term scheme would be attached to an escalating monthly fee, increasing at an agreed rate for the life of the permit system. (e.g. \$50/month in year 1, \$75/month in year 2, etc.).

If a long-term parking permit scheme is unavoidable, these permits should attract a fee commensurate with their value.

Strata bodies can and do issue their own permits to their tenants and this is seen as an effective way to enforce parking restrictions, and they should be encouraged to undertake this role wherever possible to alleviate pressure on City rangers.

It is recognised that resident parking schemes are unlikely to be supported by Council and residents, however will eventually be required to manage demand for limited on-street parking spaces. These recommendations should therefore be viewed as an ultimate plan, which could be achieved over time through a phased rollout. This could be implemented in critical sections at first to determine impacts, and utilisation surveys could be undertaken to monitor the outcomes.

Commuter Parking

Existing Behaviour

The North Wollongong Station is located at the edge of the Study Area. There are a small number of formal commuter parking bays immediately adjacent to the Station (Porter Street, west of the Station), but commuters appear to park on-street along Porter Street and within the local residential neighbourhood (Hindmarsh Avenue, Railway Crescent and Crawford Avenue.

The North Gong Shuttle runs direct from the station to the UOW campus, and there is the potential for parking along this route to be consumed by students and staff from the University. Neighbourhood parking surveys



undertaken by UoW illustrate a consistent demand for parking in the vicinity of the Station remains high all year round, suggesting that student and staff demand is not clustered in the vicinity of the North Wollongong Station itself

Recommended Response

While there is generally an under-provision of parking adjacent to the North Wollongong Station, currently few land uses are adversely affected by commuter over-spill into the surrounding streets. However, future redevelopment of the Station surrounds could create a nexus for short-stay demand throughout the day. If this should occur, unrestricted parking should be converted into time-restricted and/or paid parking to support retail shopping, with consideration for an expansion of commuter parking either adjacent to the Station or in a peripheral location accessible by shuttle services.

Parking Management Plan

The following maps depict potential on-street parking management plans, reflecting the recommendations of the above sections. A phased implementation has been shown, for roll-out over several years. This transition period allows for the impacts of parking restrictions to be monitored, and changes made, reflective of the parking behaviour across the Study Area.

The intent of these plans is to reduce on-street parking demand by UoW students through imposition of paid parking, in line with the goals of the UoW Master Plan (2016), and to improve access to the Botanic Gardens and other key destinations by freeing up adjacent spaces and increasing parking turnover. Duration restrictions in minor residential streets assist in increasing capacity for daylime visitation without additional costs. Minor changes adjacent to the Station relocates commuter parking away from minor streets, where these might impact residential amenity.

Paid parking is proposed as a demand management tool (see Principles of Parking section below). As such, the appropriate price for parking is set by occupancy – under a 'demand responsive model'. Due to the variation of student demand across the year, differential pricing is recommended for 'in season' and 'out of season' periods. Similarly, payment rates may be reduced or eliminated over the weekend, according to demand.

This Plan retains free all-day parking within the higher-order road network and areas outside of the influence of high-demand generators such as the UoW campus.

This Parking Management Plan represents a strategic assessment of recommended restrictions only. Specialty parking including loading bays, bus zones, taxi ranks and disabled parking should be retained in all instances. Where parking is currently prohibited due to safety or geometric constraints, the corresponding 'No Parking' and 'No Standing' signage should be retained.

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Short-term Parking Management Plan

MV. Cardno som

16 Long-term Parking Management Plan

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Principles of Parking

Parking management offers a broad and open field of discussion. Often cities try to solve the parking problem by increasing parking supply. By now it has been internationally proven that the provision of more parking spaces induces more traffic.

The following guiding principles have been applied in this Review:

Free parking

Free parking that is available for all has generally been perceived as an ideal objective for both policy and decision makers, with any proposed measures which have sought to constrain demand or determine priority for access bitterly resisted, often in an emotional and irrational way.

This level of emotional response is related to the availability of parking and its significant role and impact on the ability of private individuals to access employment and the range of services and facilities that the community offers. The attitude of many people is that if parking is not readily available and accessible to services and amenities, visitors will choose to go elsewhere.

However, all parking has a cost; in space, in opportunity, in construction, maintenance and enforcement. Where parking is provided free of charge to users, the direct financial costs are borne by the Council and passed on to residents via increased rates, or by businesses and passed onto retailers and consumers through higher rents and prices. The opportunity costs are realised through reduced connectivity (land uses are further apart), decreased local amenity (pedestrian paths, trees), and a higher economic burden for development (the cost of parking infrastructure results in decreased investment in the area).

Support and encourage the use of a range of transport modes

Access for pedestrians, cyclists, public transport users and people with disabilities should be prioritised, and balanced with the needs of the road network, in order to minimise congestion. The support of these modes will help lessen the demand for parking in desirable and well-connected locations.

While the Council only has limited influence over local bus routes, the provision of convenient public transport is a very important aspect of the transport mix, especially if a reduction of traffic generated by private vehicles is desired.

Supply and availability of public parking

Public parking should be located in proximity to major generators and be managed according to a predetermined hierarchy of use. This hierarchy applies primarily to on-street parking but should be considered with respect to the off-street supply and specific provisions within public and private car parks for high priority users

The use of public parking should be monitored to determine hotspots and low utilisation areas so that refinements to parking restrictions can be made. This will ensure a robust system that maximises efficient use of available parking and thereby minimise the capital investment required to accommodate demand.

Parking management should be used as a tool for traffic demand management

It is understood that a perceived lack of parking availability can create an emotional response in car drivers, particularly when there is no viable alternative to driving. Parking supply management therefore relies upon effective alternatives to driving, through high-quality path infrastructure and public transport, such that the



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limitations on parking supply do not reduce the economic viability of the area, or create adverse impacts in the surrounding environment. Provision of wayfinding information can also help raise awareness of little-used parking areas a little further from desirable locations, which could be used if people are willing to walk.

In cities like London and Munich, core areas have relatively low levels of car ownership in spite of greater wealth. This reflects a decreased availability of residential and public parking, offset by a high degree of public transport accessibility and service.

Increases to parking supply

Construction of additional parking spaces should be considered where it facilitates desired activity within an activity centre, and where the associated trips are unlikely to be undertaken by alternative transport modes.

Any increases in public parking supply should be considered in the context of all existing parking, and should be managed in accordance with best-practice design principles.

Interactions with private parking supplies

Parking should be considered as an ecosystem consisting of public and private, on-street and off-street, and considering all of the many needs of those people who use those bays. The optimal parking system would be one where all parking is used efficiently, with the minimum amount of space devoted to parking activities. After all, parking itself only facilitates activity; it does not create any of its own.

Wayfinding and Signage

The effectiveness of parking is greatly improved through supplying better information to users. This information is typically provided in a range of media, including maps, mobile applications, static and dynamic signage and prominent parking information.

A coherent signage strategy is therefore recommended across the study area, identifying off-street car parking supplies and significant on-street parking. This may be implemented through static wayfinding signage displaying route/location and supply numbers, using a design of signage consistent for on-street and off-street.

Parking prices are a strong tool to manage demand

To improve parking management as a tool for traffic demand management, a parking fee structure can be used to preferentially benefit certain target groups, based on the ideal function for a particular car parking location.

For example:

- > A one-hour free period supports short trips including shopping and café visits
- > A linear per-hour rate effectively penalises long-stay parking while maintaining maximum flexibility for users
- > A maximum fee can be used to support employee parking in selected locations effectively giving them a discount beyond a given duration of stay.

These demand management tools can be used in combination, with restrictions on duration to narrow down the target market.

Parking pricing levels should ideally be set such that demand peaks at approximately 85-90% occupancy. Best-practice implementation involves 'demand-responsive' pricing, which increases or reduces fees based on occupancy. This can involve different fees at different times of day, or different days of the week, and

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include a mechanism to modify prices on a periodical basis to maximise the utilify of the parking. Demand responsive pricing relies on a high degree of good quality occupancy and duration of stay data.

On Street Parking Management

The following describes a methodology used to determine parking restrictions within the on-street environment. It is suggested that any implementation measures are reviewed annually.

- > 1P Free Parking: Time restricted 1-hour parking is best used in retail precincts adjacent to fee off-street parking. Employee usage tends to be very low, though enforcement is difficult given the high turnover.
- > 2P Free Parking: Time restricted 2-hour parking is best used in residential areas, to support visitation throughout the day. This form of parking may also be used where there is moderate commercial visitor demand, to limit use by employees. However, where there is a scarcity of employee parking, free 2-hour parking may be used illegitimately by employees (reparking their vehicle every 2 hours).
- > 4P Free Parking: Time restricted 4-hour parking supports medium-stay uses such as recreational and cultural facilities. However, such parking controls are generally not recommended where these areas are located close to businesses. The incentive for employees and other long-stay users to park in these zones illegitimately (reparking their vehicle every 4 hours), is strong.

4P parking has not been recommended for the Study Area.

- All day Free Parking: All-day free parking provides the maximum flexibility for users, but is appropriate only when there is ample parking supply to cater for everyone. Where demand begins to approach 85% or more of supply at peak times, alternative controls should be used to differentiate parking areas.
- > **Time Restrictions:** It is recommended that all managed parking be restricted to the 8am-6pm period. For the majority of the network, this can be retained for Monday-Friday only, but in locations where weekend demand is high, parking restrictions should be set for Monday-Sunday. Limiting duration restrictions and or paid parking to daylight hours limits the potential impact on residents and visitors.
- > 1P Paid Parking: Used in retail areas to support high turnover business visitors, and to redistribute longerstay activates to adjacent off-street public and private car parks.
- > 2P Paid Parking: Used in areas adjacent to retail to support business and medical visitors; specifically excludes use by employees and construction workers and all day parking.
- > 4P Paid Parking: Allows a mixture of short-stay uses; specifically excludes all day parking.

Time limited paid parking has not been recommended for the Study Area.

- Capped Fee Parking: Allows for hourly paid parking up to a set duration, with no additional cost beyond this duration. This is intended to create spaces for employees and students to park in the public realm, while still retaining viability for short-stay visitors.
- First-Hour Free Parking: Used to promote very short stay uses and encourage rapid turnover of parking. This is particularly valuable as a way to shift parking off-street, and away from the prime on-street locations. Private car parks often utilise this form of parking management to shift cars onto their site, ensuring that customers walk through their establishment and an increase in footfall. Its effectiveness can be diminished if there is free parking in close proximity.

First-hour free parking does not provide the same level of advantage in on-street environments, particularly where demand is already high. It also has less utilify in public car parks, where the trip destination is largely unknown.

First-hour free parking has not been recommended for the Study Area.



Hypothecation of parking revenue

Paid parking fees are an effective measure of managing parking, by increasing the efficient use of a shared resource. The revenue obtained from this form of parking management is, by definition, used to offset the cost of enforcement and installation. Beyond this maintenance cost, paid parking revenues may be 'hypothecated' to improvements in transport and local streetscapes.

This provides direct benefit to the community and additional value over and above the impacts of managed parking alone. International examples show that where revenue is hypothecated to local improvements, patronage of these businesses and land values increase markedly.

Conclusion

This work considers a series of strategic recommendations to support the objectives of the overall Study, as it pertains to parking. This includes consideration for policy, planning, management and enforcement changes as necessary to improve the function of the transport system, reduce impacts on surrounding suburbs, promote the use of sustainable travel modes and ensure that the transport network can adequately accommodate future development.

Yours faithfully

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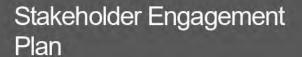
APPENDIX

STAKEHOLDER ENGAGEMENT PLAN – DRAFT



Consultant Report

888



Keiraville - Gwynneville Access and Movement Study

80018018

Prepared for Wollongong City Council

26 September 2017









Stakeholder Engagement Plan Keiraville - Gwynneville Access and Movement Study

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Stakeholder Engagement Plan Keiraville - Gwynneville Access and Movement Study

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Stakeholder Engagement Plan Keiraville - Gwynneville Access and Movement Study

1 Introduction

1.1 Purpose

This Stakeholder Engagement Plan (SEP) has been developed for the Keiraville – Gwynneville Access and Movement Study. This SEP aims to describe the communication and consultation approach and activities for the review and assessment stages of the study, and keep key stakeholders informed during project tasks.

The objectives of the Keiraville - Gwynneville Access and Movement Study are:

- To examine and document the existing and future potential operation of the traffic and transport system within the suburbs of Keiraville and Gwynneville; and
- To develop strategies to improve the transport system, reduce impacts on surrounding suburbs, promote the use of sustainable travel modes and ensure that the transport network can adequately accommodate future development in the area.

1.2 Project background

Wollongong City Council (Council) is undertaking an Access and Movement Study for Keiraville – Gwynneville to improve understanding of existing access and transport demand in the area and to mitigate the impacts of future growth. This will be achieved through implementation of traffic and transport strategies to encourage sustainable travel behaviour and ease pressure on the network. Council needs to understand the impact of planned development and infrastructure upgrades on traffic generation, accessibility, parking demand, and the overall transport network.

Access and movement now and in the future is a key concern for Council, as well as local stakeholders. The University of Wollongong (UOW) has recently developed the Wollongong Campus Master Plan which provides a framework to guide the physical development of the campus to 2036. In addition, the community-led Neighbourhood Forum 5 (NF5) group has been heavily involved in a number of strategies and plans for the area including the Council endorsed Keiraville – Gwynneville Implementation Plan, and has been a key advocate for this study.

The Keiraville – Gwynneville area and surrounds will experience significant growth in the coming decades due to planned education and health precinct expansion to capitalise on the region's knowledge based assets, as well as increased housing supply in surrounding areas such as West Wollongong, Metro Wollongong, Figtree, Dapto and Fairy Meadow.

1.3 Study area

The study area encompasses the area between the Princes Motorway (M1), on the northern and eastern boundary of UOW extending south towards Mount Keira Road, east towards the rail corridor and North Wollongong Station, and west towards Mount Keira Summit Park. A number of important destinations in and around the Keiraville – Gwynneville area which generate a high number of trips per day, influencing access and movement demand and behaviour. These include:

- > Keiraville and Gwynneville village centres;
- > The University of Wollongong (UOW) Campus;
- > UOW Innovation Campus (iC);
- > Wollongong CBD;
- > Wollongong Hospital;
- > Wollongong Botanic Garden;

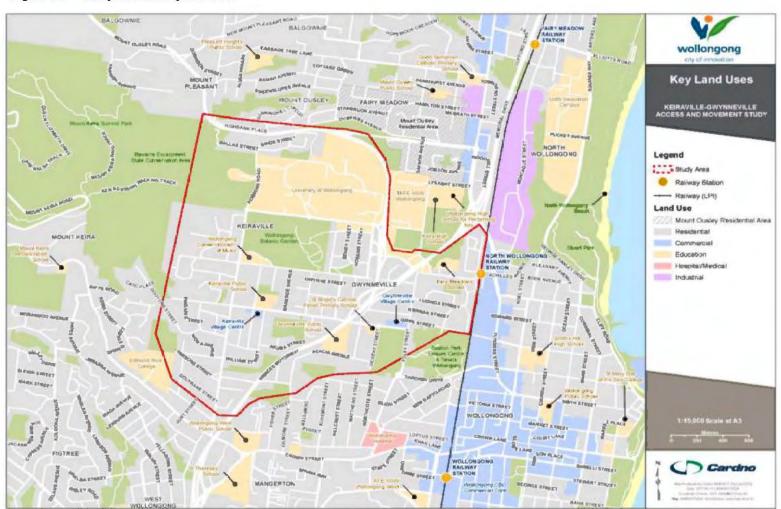
- > North Wollongong Station;
- > TAFE Illawarra Wollongong Campus;
- > Mount Ousley residential area;
- > Local schools; and
- > Sports and recreation facilities.

Access to these destinations via the road network is supported by major routes such as the Princes Motorway (M1), Princes Highway (A1) and Mount Ousley Road. Active transport links exist to some key destinations, however in general the network is disconnected and contains a number of missing links for pedestrians and cyclists. There are also a number of bus routes in the area providing connections to key destinations.

The study area and the key land uses are shown in Figure 1-1.



Figure 1-1 Study area and key land uses



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Stakeholder Engagement Plan Keiraville - Gwynneville Access and Movement Study

1.4 Project milestones

The inception meeting for the project was held on the 9th of August 2017. Three stakeholder workshops are to be held throughout the project to be attended by stakeholder. The future key project milestones are detailed in **Table 1-1**.

Table 1-1 Key project milestones

Milestone	Date		
Inception meeting	8 August 2017		
Stakeholder Engagement Plan for review by Council	Week starting 14 August 2017		
Workshop 1	29 November 2017		
Workshop 2	5 February 2017		
Workshop 3	1 March 2017		
Draft Access and Movement Study	13 March 2018		
Presentation to Councillors	14 March 2018		
Final Access and Movement Study	3 April 2018		





Stakeholder Engagement Plan Keiraville - Gwynneville Access and Movement Study

2 Stakeholder Engagement

2.1 Communication and engagement objectives

The aim of stakeholder engagement for the Access and Movement Study is to ensure that:

- Information on the progress of the project is communicated to key stakeholders in a timely and appropriate fashion;
- > Any key issues from stakeholder groups are identified early and are captured in the study during its development; and
- > The findings and recommendations of the study are comprehensive and address stakeholder inputs.

2.2 Stakeholders analysis

Stakeholders that have an interest in this project are identified in **Table 2-1**. These stakeholders may either be impacted by the project or may influence or become advocates for the project.

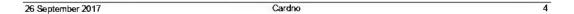




Table 2-1 Stakeholder list

Stakeholder group	Stakeholdername	Level of impact	Level of influence	Required commitment	Roles and Responsibility	Issues/ potential issues	Recommended communication activities
Key stakehol	ders						
Government body	Wollongong City Council, Infrastructure Strategy & Planning Division	High	High	High	Project manage study, provide direction to consultant, facilitate communication between all stakeholders	Parking issues Active transport issues Public transport issues Road congestion Environmental/ heritage constraints Planned transport upgrades	WCC Project Manager to discuss issues as required
Gov	NSW Roads & Maritime Services (RMS)	Medium	High	Medium	Invited to attend stakeholder workshops, advising on draft report and ongoing analysis, targeted feedback sought on matters affecting State road network operations	Planned upgrades Bus performance Road congestion	Face-to-face meeting to discuss known issues and options
Community	Neighbourhood Forum 5 (NF5)	High	High	High	Invite to attend stakeholder workshops, advising on draft report and ongoing analysis	Parking issues Safety issues Public transport performance Road congestion Environmental/heritage issues Active transport issues	 Face-to-face meeting prior to workshop to discuss the study broadly, review known issues (the map NF5 created) and invite for a reps to attend workshop
Education	University of Wollongong (UOW) – including various internal stakeholders (e.g. administration, student representatives, Sustainable Transport team, UniCentre, halls of residence)	High	High	High	Invite to attend stakeholder workshops, advising on draft report and ongoing analysis, targeted feedback sought on matters affecting access to and operation of campus	Public transport performance Active transport issues Parking issues Road congestion	Face-to-face meeting to discuss known issues and options Email communications
Stakeholders							-
	NSW Department of Planning and Environment (DPE)	Low	Medium	Low	Invited to attend stakeholder workshops, feedback sought on draft report and orgoing analysis	Public transport Active transport issues Road congestion	Letter and invite for 1 rep to attend workshops. Offer to meet to discuss known issues Email communications
Government body	Public Transport Operators, including Transport for NSW (TfNSW)	Medium	High	Medium	Invited to attend stakeholder workshops, advising on draft report & ongoing analysis, feedback sought on matters affecting public transport operations	Bus performance Train performance Active transport issues Road congestion Safety issues	Letter and invite for 1 rep to attend workshops. Offer to meet to discuss known issues Email communications
	WCC Active Transport Reference Group	Medium	High	Medium	Invited to attend stakeholder workshops, advising on draft report & ongoing analysis, feedback sought on matters affecting active transport participation	Active transport issues Safety issues	WCC Project Manager to discuss issues as required Email communications





takeholder roup	Stakeholdername	Level of impact	Level of influence	Required commitment	Roles and Responsibility	Issues/ potential issues	Recommended communication activities
	Other WCC divisions including Botanic Gardens, Waste, Senior Citizens Centre etc.	Medium	Medium	Medium	Attending stakeholder workshops, advising on draft report & ongoing analysis, targeted feedback sought on matters affecting operations & clients	Environmental/ heritage issues Public transport issues Active transport issues Road congestion	WCC Project Manager to discuss issues as required Email communications
	Department of Defence, Wollongong Army Reserve Hall & Depot	Low	Medium	Low	Invited to attend stakeholder workshops, feedback sought on matters affecting operations & clients	Road congestion	Letter as per above and invite for 1 rep to attend workshops. Offer to meet to discuss known issues Email communications
	Councillors of Wollongong City Council	Medium	High	Medium	Routine community consultation & representation, formal Council responsibilities including voting on resolutions	Parking issues Active transport issues Public transport issues Environmental/ heritage constraints Planned transport upgrades	Councillor presentation Project updates by enquiry
Transport	Private bus operators (e.g. Premier Illawarra, Dion's etc.), Wollongong Radio Cabs	Medium	High	Medium	Invited to attend stakeholder workshops, advising on draft report & ongoing analysis, feedback sought on matters affecting public transport operations	Bus performance issues Public transport issues Road congestion	 Offer face-to-face meeting to discuss known issues and options, if cannot attend workshops.
	Keiraville - Gwynneville Residential community	Medium	Medium	Medium	Invited to attend stakeholder workshops, feedback sought on draft report & ongoing analysis	Road congestion Parking issues Public transport issues Safety issues Environmental/heritage constraints	Letter to all residents about stud Have your Say page with mappir tool and feedback form EO is invited to attend workshop (10 places available for residents)
>	Bioyale User Group (iBug)	Medium	High	Medium	Invited to attend stakeholder workshops, advising on draft report & ongoing analysis, feedback sought on matters affecting bioyole use	Active transport issues Safety issues Road congestion	 Letter to IBug, as per above and invite for 1 rep to attend workshops
Community	Community organisations & facility operators (e.g. Wollongong Workshop Theatre, Wisemans Park Bowling Club, St Brigid's Catholic Church, Omar Mosque, St John's Catholic Church)	Medium	Medium	Medium	Invited to attend stakeholder workshops, feedback sought on matters affecting operations & their community members	Parking issues Active transport issues Public transport issues Environmental/ heritage constraints Planned transport upgrades	Letter as per above and invite for 1 rep to attend workshops. Offer to meet to discuss known issues
	Friends of Wollongong Botanic Garden	Medium	Medium	Low	Invited to attend stakeholder workshops, feedback sought on matters affecting operations & clients	Parking issues Active transport issues Public transport issues Environmental/ heritage constraints Planned transport upgrades	Letter as per above and invite for 1 rep to attend workshops. Offer to meet to discuss known issues
Private business	Keiraville and Gwynneville business operators	High	Medium	Medium	Attending stakeholder workshops, advising on draft report & ongoing analysis, targeted feedback sought on matters affecting local business community	Parking issues Road congestion Active transport issues Public transport issues	 Visit businesses with letter about study, gather any known issues on the spot. EO is invited to atten- workshop (10 places available)
Educati	TAFE Illawarra (Wallongong campus)	Low	Medium	Low	Invited to attend stakeholder workshops, feedback south on draft report and ongoing analysis	Parking issues Road congestion Public transport issues	 Letter as per above and invite for 1 rep to attend workshops.





Stakeholder group	Stakeholdername	Level of impact	Level of influence	Required commitment	Roles and Responsibility	Issues/ potential issues	Recommended communication activities
						Pedestrian and cycling issues Safety issues	Offer to meet to discuss known issues Email communications
	Schools (including Keiraville Public School, Gwynneville Public School, St Brigid's Catholic School, Para Meadows School, Keira High School, Wollongong Performing Arts High School)	High	Medium	Medium	Invited to attend stakeholder workshops, feedback sought on matters affecting school communities	Parking issues Road congestion Public transport issues Active transport issues Safety issues	Visit schools with letter and gather know issues. Invite to attend workshop.
	Other educational establishments (e.g. Wollongong Conservatorium of Music, child care centres)	Medium	Medium	Low	Invited to attend stakeholder workshops, feedback sought on matters affecting operations & clients	Parking issues Road congestions Public transport issues Active transport issues Safety issues	Visit with letter and gather known issues. Invite to attend workshop.

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Stakeholder Engagement Plan Keiraville - Gwynneville Access and Movement Study

2.2.1 Consultation and approvals

The Cardno team, where appropriate, will consult with the above groups (and others as may be identified) regarding the project with the approval of WCC. Consultation outcomes will be recorded in meeting minutes and in a project comments log which will summarise comments, actions and responses.

2.3 Key messages

The key messages employed during the three stakeholder workshops include:

> Workshop 1:

- The objectives of the Keiraville-Gwynneville Access and Movement Study;
- Findings from the background review;
- Identified issues and constraints relating to the current transport network; and
- Findings of the crash analysis.

Workshop 1 will provide a brainstorming opportunity with the stakeholders. The Aimsun traffic model will also be summarised and presented at the workshop. The workshop will provide the stakeholders an opportunity to provide input into the study, issues and potential strategies.

> Workshop 2:

- Presentation of initial analysis and obtain feedback from key stakeholders;
- Draff strategies and plans for the transport network; and
- Outputs from the traffic mode.

Workshop 2 is a refining session with stakeholders and will provide an opportunity for the stakeholders to provide input in draft strategies.

> Workshop 3:

- Present findings of finalised strategies, upgrades and plans; and
- Identify a prioritised scheme for recommended upgrades, which will then be fed into the development of an implementation plan.

Workshop 3 will provide an opportunity for stakeholders to prove input into the priorities scheme for recommended upgrades. This will then be fed into the implementation plan.

2.4 Communication and engagement tools and techniques

The engagement tools and techniques to be used to communicate include:

- > Letter to residents and other stakeholders;
- > Have Your Say page, with mapping tool, feedback from, document library (including a FAQ);
- > Face-to-face meeting with key stakeholders via workshops and meetings; and
- > Email correspondence and project comments log (as mentioned in Section 2.3 above).

2.5 Communication protocols

Communication with the stakeholders will be conducted in liaison with WCC and the WCC Community Engagement Team. The general protocol for the workshops is:

- > WCC to invite all relevant stakeholders and organise workshop meeting times, location and venue;
- The WCC Project Manager and the Cardno Project Manager will attend some stakeholder meetings together, as agreed. Cardno will record meeting minutes and update the project comment log. For some stakeholders WCC alone will undertake the meetings.

2.6 Reporting and outcomes

Cardno will prepare a summary section in the Access and Movement Study, which will document all consultation activities throughout the project, including inputs received and the outcomes of stakeholder workshops.





Stakeholder Engagement Plan Keiraville - Gwynneville Access and Movement Study

A copy of all meeting minutes and the project comments log will be included as an appendix to the report.









mmunity Exp		
Mode		Expectations
Road	Gooyong St	Speed hump or school zone with speed camera
Pedestrian	Gooyong St	Footpath on the street
Road	Everywhere	"No parking" signs closer to corners of all streets to increase visibility
- 17	- 12 C C C	School pick-up designated zones
Parking	Rosedale Ave	Residential only parking
Parking	Rosedale Ave	Residential only parking
All	UOW	University annually reviews/audits success of access movement strategies
Pedestrian + C		Increase number of people walking and cycling - make it a priority over car use
Parking	Keiraville and Gwynneville	Better parking amenity for residents and businesses
All	Keiraville and Gwynneville	Connections from study area to north Wollongong
Parking	All	Resolve parking issues and more marked parking
I NA	NA	A vision document of direction with proposed fixes and output to D.C.P
Road	University Avenue	Future major interchanges - what is the plan with University Avenue low bridge
Road	Keiraville and Gwynneville	Defining roadway so parking doesn't block traffic flow
NA NA	NA	Criteria for assessing priorities of projects
NA .	NA	Issues are considered and addressed
Parking	UOW	Parking at the uni, commerical properties and multi-unit dwellings is accounted for in the D.C.P
NA NA	Keiraville and Gwynneville	Have livable suburbs
Public transpor		Support infrastructure for modal shift to active and public transport
NA NA	Keiraville and Gwynneville	Infrastructure list for state government investment and cooperation between government agencies
NA .	NA	Set criteria to prioritise for these actions
Road	Keiraville and Gwynneville	Reduce traffic speed and volume through feeder streets
2 All	Keiraville and Gwynneville	Better communication with uni, council and community
Pedestrian	Keiraville and Gwynneville	Safer crossing at Keiraville and Robsons Rd, Gwyneville and Berkley Rd
Parking	UOW	Transparency from uni on student numbers, parking availability and survey results
Parking	Botanic Gardens	Parking for Botanic Garden tourists
Parking	UOW	University to take responsibility for affordable and sufficient parking for staff and students
All	Keiraville and Gwynneville	Balance resident and student needs equally
NA NA	Keiraville and Gwynneville	University recognises its important role as a member of the community
Parking	Keiraville and Gwynneville	Carrpark space marking on street to manage parking
Parking	Keiraville and Gwynneville	Resident permit parking scheme / lined markings on residental streets
Parking	Keiraville and Gwynneville	Greater ranging patrols
Cycling	Keiraville and Gwynneville	Improved shared cycleway network off road
Public transport	Keiraville and Gwynneville	Maintain free shuttle bus
All	Keiraville and Gwynneville	To ensure there is no conflict in planning with RMS projects
Road	Keiraville and Gwynneville	Change habits of driving
All .	Keiraville and Gwynneville	Solutions don't create secondary problems
Cycling	Keiraville and Gwynneville	Improve cycle links
Parking	Keiraville and Gwynneville	Increase turnover near shops
Parking	Gwynneville/Keiraville shops	More parking needed
Parking	Vickery Street	More available parking



ransport Solutions		
. Mode	Location	Solutions
1 Parking	Gwynneville village centre	Optimise parking signage to increase parking and safety
2 Parking	Gipps Street	Widen street with angle parking on southern side
3 Pedestrian	Gipps Road, Gwynneville village	Remove pedestrian refugee island
4 Parking	Vickery Street	Optimise car parking (pave/lines) on eastern side
5 Parking	Keiraville and Gwynneville	Use technology / future technology for parking management - e.g. parking meters that give over-stay alters and automatic fines
6 Public transport	Kelraville and Gwynneville	Better integration of public transport network through better connections (links and transfers) - transport hub interchanges
7 Active transport	Keiraville and Gwynneville	Improve infrastructure to encourage active transport for main traffic generators - UOW, Gwynneville centre, Keiraville, hospital, TAFE, Botanical Gardens
8 Parking	Keiraville and Gwynneville	For business districts: - Parking meters for car turnover and control parking behaviour - Strategies to eliminate revenue raising notion e.g. have first 30 mins free
9 Parking	Keiraville and Gwynneville town centres	Resdiential parking solutions: - Timed parking - Residential parking scheme - One street side for short term parking and the other for residential sticker parking
10 Parking	Wollongong TAFE	Parking infrastructure: TAFE land parking multi-storey carpark for UOW, TAFE, north Wollongong station, Sydney commuters
11 Parking	UOW	Provide more parking or kiss 'n' ride at university
12 Pedestrian	Keiraville and Gwynneville	More footpaths e.g. port conservatorium
13 Road	Beaton Park	Various needs at Beaton Park like school carnival days very busy
14 Train	North Wollongong Station	Improve train timetabling to address car parking around station
15 Parking	Keiraville and Gwynneville	Ensure new developments have enough parking
16 Road	Keiraville and Gwynneville	Signage for drivers to increase awareness of other travel options
17 Parking	Keiraville and Gwynneville	Line marked spaces on streets with consideration of resident parking scheme
18 Pedestrian	Robsons Road	Assess crossing locations on Robsons Road junctions to provide additional safe crossing
19 All	Keiraville and Gwynneville	Think futuristically of using technology, for example - technology based parking meters which give over-stay alters and possible automatic fining
20 Road	John Street	Provide speed hump on John Street for traffic calming
21 Road	John Street	There should be no left turn from John Street to increase safety

Attachment	Meeting of council
ω	Š
1	-
Keiraville	
Gwynneville	
Access	
and	
Movem	

iess Visit 06.							
Mode	Business	Issue	Solutions				
1 Parking 2 Pedestrian	Friendly Grocer Zenders Café	Delivery truck / cleanaway trucks No disabled access BIVS Delivery truck blocks access EIVS Delivery truck blocks access Car parks is not timed and parents of school children park there Condition of footpath on Gipps Road is a concern - people are tripping over essecially the sidering.		- Friendi - Zander - The Wi	Businesses that provided feedback were - Friendly Grocer - Zanders Cafe - The White Rabbit - Kelraville Pharmacy		н
3 Parking	The White Rabbit	Parking on eastern side of Grey Street, adjacent to Zanders Café is untimed Monday is bin day and impacts on parking Liquor licence - disabled tollet and ramp (owner Martin Aguis would like someone to visit reparking this issue)	Parking near Zanders Caté should be timed for at least 4 spots	- Australia Post - 8WS			
4 Parking	Keiraville Phermacy	Parking is a problem particularly with compliance Disabled parking needed Timed parking on opposite side of Grey Street	Rangers to patrol area more often				T
5 Parking	Australia Post	Parking enforcement Poor parking practices	Marked bays may help with poor parking practices Shorter length for parking zones				
6 Parking Road	BWS	- Truck access - Parking					
7 Parking	Gwynneville shops	 Increased traffice and no increase in parking Extension of parking required Masonic building was supposed to provide off street parking but not sure this is done Private car parks - people visiting Senior Citizens Centre often stay longer than allowed 					



Location	[www.ccmmin	ucuning palsafiling
Eastern Stand Gipps Rd	Speeding vehicles and high chances of traffic accidents	2 Roundabout needed in the corner of Gipps Road and Eastern Street
Gopps Hd rail crowing	Open up level or disking to norm going across Giggs is lake commit and Woomans	
Robsons and Dalles	Altendoned carb (primarily farelign un aludema returning home) Nead roundabout	Education of unit to regulations and self-used cars.
North of Gipps Rd	No wherding away on all street corners north of Gippa Rd	
Gooyung	Speeding care uphiliodownthil and cut corners – danger to preachookers entiring disseways, children playing in the street and people walking to the park	Speed bump, draw a centratine marking, traffic celming needed
Gpps st Bridge	Speeding care interesting Commonte village	Speed humps at the weetern and of Bridge on Gipps St. Gwynneville, to stow down care
Gapa Rd at Gwynneville shaps	Read neads to be widered by 1200mm to accommodate increased traffic	Take some of Wisemen's Park to do this
College View Mi Duelley Rol	If there is an emergency evacuation from College. Wew Estate the one road intout is of concern. Months rough on MR Onstew	
Mt Ouslay	Major access to un over Mr Couley. Rd is required	2
Gooyong	Vivos dangevienos, partento, tera nos follamentos repectinges, repectinges, repectinges protegnitudos. Long states sendento efficiencios es antifer hazard vivils speeding vehiclas.	Befor jundon marking, namow jundon and reduce speed
Freeway at Glope 5t overpass	Excessive and Regal use of exhaust brakes by fruits as they slow down because of nothbound speed cameras on feeway. The exhaust brake none travels for the property and second common has been seeded and included fruits movement from the four families for the remind.	Energian of sign autiliang need to 'limit or do not use extraust brakes in bull up area;
Porter and Foley	Keep Charl on the intersection of Porter + University at near up coming traffic light	1 Keep Clear on the intersection of Porter + University st near up coming frame light
Murphys and Rosectale Brisolds at Murphys	Congenue and from Rosedale Are to Marzhin Ave (accident headstile) - have withen to council. Congenue and hom Exaction Are to Marzhin's Ave.	
Grey St	Traffic and parking	
Victory Strand Acada Rd Eastern and Gwynne	Fall and dungstous diness are andengaring the level of challons and eduta Vision on right burn from Geynne to Eastern lented by parking	Speed burge. 1 Repeat burge and the former from the comer. - Repeat and considers to least safe.
Victory St	Charger in children from read cleans - all echooks will have Bushing \$5/4% by 2015 but his in NOT enough. Kings all our kids safe	Children coursing Si Mappins Primary School Sees consulting - Sees drumps - Characteristics - Characteristics
John Street	John Street is narrow when carry park on both vides of server	John Street should be one-way only
North-Seide Avenue	The Moute Cubery Hand exit range forming book is conglished and dangering in gets inner. Kiss and riche are negative at lecations each as Neutrike Avanue and Deny congas. In all inferiors are making access where word is editively in sea concentration of this concentration of this concentration.	d Burka overpass from mit austey ra to nonn soe or uni
Keravile and Gwanneville	The amount of available parking grantes are reduced by hackaged parking	Numerous more parking species could be achieved if parking puning line-merkings were
Keravile and Gwynneville	Many road elucionia use Kartarille/Geyrmentile as a long term car part, until they return home. Wolforgong Council needs to develop a comprehensive	Discount number are that are nonzero number
Keiraville and Gwynneville	policy around manuging parameter and provide a challenge, more ranger policies with people parking brightern. Parking around Xeraville and Gwynnesille shops at items is a challenge, more ranger policies would are set with people parking brightern.	
Won	OUT STREET.	- 1
Keiraville and Gwynneville	Street parting on receiptive to between gigger to and multiply a eve to unattendable to receipting our nours. Residents and their visitors cannot access parking to their over street.	- 64
Grey Strait	Gey street is degred up with one from university students, one there the whole day making it difficult for perents to part close to Keinstelle public action to one with the side.	-
Keravile and Gwynnevile	There is a shortage of parking in the sees which will only be enaberbated if the Goog Shuttle stants to change buildness. This will encourage additional can usage.	
NOW	A multi-tativey car park whould be built on University land in the Mount Outsity than change project, which could be used by a variety of trears and so it would be an excellent and enduring contribution to the local community by the University.	If would be an opportunity to encourage car pooling by commuters and reduce the pressure on offers accesse points to the University. It could also be an attentiative tocation for an avoid functional as
Keraville and Gwynneville	Parking sangers are needed to regulable people parking across driveways. Studeness out have a dans formed and walk interach the face has from living Good matern. No available on street naviton for	
Mountsiere Avenue	residents or visitors during the week.	
Halfmeria Avenue Al	Hammes where a feature in the behavior, and to care place of Delli leader of Delli leader of the Early and the Section of	*
2000	u eo	
Grey Street	STATE SHOULD THE STATE OF THE S	around Kalraville Public School
Coegross Avenue	nation between furning but as care, gains do cope to comerciate and bangkround voters, they are considered as a participated by LDVV students and has high volicity appearing the consideration of the company of the co	7-
All	Compressional variety interactions covered and applications accommodation enrorment on enter partials, creating multiple soutern occupantions with rost enrolls enrolled for it in all states partials where every resident owns a city of control of the partial control of city of the control of	
Hilbries Avenue Gops Road at Geymen'the strops Gops Road and Wokery Gops Road and Murphys Avenue	Gare has parked sequelarly. One known of other given and officient whereas making in difficult to enfer and have the rand- deport or each to be whented by i. Choice in excemmendate investmental traffic.— Harty prime of wavenuring pack. Make object for the subsect soft others in the common of the	1 A "no aboping sign" should be placed here.
Gops Road	Heading north offer foundabout timble to proceed it 30 - 0 30 m	1 Open up Gipps mad at rail crossing to same traffic movement
Capp Street near Goopeng Street	Maintein the "No Through" state of Cappe Read past Pinderi Street, Net joining withten acte street of Cape Road	Mandad and day have no major braille and Manhou Manhou
Eintern Street and Murphys Avenue	When untiknushmusa develorment buckese numbernus tenants, consider the number of contrans has in to account and units to be branches	Line parking baye in Eastern 54 and Murphys Ave.
Section Sheet	not to mention the traffic flow on the business travels when a sometimes of general consequences transplant or present interest in the present interest in the present interest in the present interest in the present i	
	With residental area, safety and physicy source for residents and preachool food sone	_
Gops Road and Vickery Street	Night turn larve from Foley Road atto Glopes Road when trevelling eauth Congestion around Glops Road at SI Bruides pick up time	
Robeons Road Robeons Road	Volume and agreed of traffic expensially on downfull excitors on the north and exouth of Gippa Rid intersection Cars luming to haad south on Robsons Rid from Claps Rid intersection don't see pediatahans worting to sowe Robsons Rid on the southern alde of	Extend achieve zone to top of the hill on qualifiern and northern aide of the road Extend school zone week on Digge Rd to wastern side of the Intersection with Rabsons
Gene Ro	roundabout Pane mail mailtons accardable on nedestriate creation and in the school and Keraulia shows	Rd Road markings and results and administration
Keraville and Gwynneville	Foot national metrings expensely on pootening coasts, plant to introduce and metric of the coasts and metric in difficult to foot are very congreted amund early mornings, reflect done ofte and type in 3 pm. The traffic can be chaolic and metric it difficult to	Thosa manage and repairs processing decemb
Keraville and Gwynneville	Train or as culture forces, conversation for the control of the co	
Keraville and Gwynneville	Imposed and stroke was parents who distalled on the state. Parents crossing roads in heavy traffic with small children review of using the follops crossings.	Debicated drop and go area in each school, in the labe inteers, not on Lappis hig. Whole area as a 40 km per trout zone, not just achieva.
John Siraid	There are think the same of the same of the same	3 Set up John Strait as a 40 mm speed zone



		No screen parking for residents or vestors during the ownic because students park for the day or up to days. Palking screen driverways		
May the free from	an Arreston	ac does to served consents.	(u	
Comer o	Comer of Earliese and Moose St (respectably around St. John's Angloan Charath), Delley Steel, Marphy's Ave.	Patieng problems during the world in Audutin and Spring on sediante.	ų,	 Parking redisclares brinked to Assuren and Spang un assures for insidents and steff. Park at the transmiss compute.
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The state of the s	Securities Avenue	Recarded Aversa meet gels council company doe to can parked - by the filter cause	-	
Name of Street, or other parts	e Avenue (mai enformate la Maianalle Schall)	There is \$50 people because fitness people using eval, are stedents, people and ny new shape, or log of permits diagnass of and	2	Challman aloop of and collect parties agent. WhitPN
Vickery Brees	Shoet	pacing up absterns. According to seeded by passeshibled and paradonness of 80 Grg as - parising in internity by people at skeps and internity all pacing and internity an	e	
Vickery Steet	81961	omponents of personal parents of children - complete backers soundy - many park parkedly occurs of conveys, molecular in paradite for Software to an income.	-	
Beston	WAY When you Study Bodgue UDW	Overflow of paleng into local-streets		Use The Smakepit Stadium for uniqualing and make an brace stop near here
Kerwille	sportrain speeds. Remode and Swymende, including Crawlood Average.	Conspersion by partiest among the many and its difficult to see property that contracts the partiest among processing and its difficult to see property professional among processing and an extensional among processing and an extensional among processing processing and an extensional among processing an extensional among processing an extensional among processing an extensional among processing and an extensional among processing an extensional among processing and an extensional among processing and an extensional among processing an extensional among processing and an extensional among processing and an extensional among processing and an extensional among processing an extension among processing and an extension among processing an extension among processing an extension among processing and an extension among processing and among processing among processing and among processing among processing an extension among processing an extension among processing among processing and among processing among pr	41-	Il remove mention and the second for the second for the second for the second s
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Kernelli	Nemalie and Separatellia	later that guests were determined as and term or pen unit they ream note, woungoing count needs to termine a competency patient or force-declarated by the control of the c	-	
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WICH		Note building at the unimeast that workness are there at 6.30 and fain taking any of the on street parking analobe, bushing suident pushing further into our should.	-	
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Grey Street	100	Chey shad is degreed up with earn from unwentry shades in care them the whole dup minery it allocal for peants to pash chas to Konsolin collect actual to cache them has	-	
Keraville	Certivitie and Gwynneville	There is a metage of parties in the man which will only be a constituted if the Carry Shudia state to change fulfilling. This will	-	
won		A nuth-activity can participate in half on University limit in the Weard Outley Principates project, which could be used by a versity of	69	(breakfull of the agency of the recommend of scales for any and the grant of grant of the second party of the University of the Second of the
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Harkrees	districts Average	minor persons as regulators or wasters cannot the views. Herbreite Avenage of the street in the view due to say perhed on both seles, forcing only one can all a land to peau	4	
Marrieda	Particular Accesses	methods that restricted plants of the extension to many more relational articles in the latest sold from the service of the of eight referring a beneath discounts and new extensional collections are considered from the service of the original collections.	-	
		beaute of parties care.		Parking should be made to be 1 fiv parking between 2 viSpino and 3 viSpin on school days assund Keiraville Pubbo School
Cony Shad	1	Gery Street snood have lares quiting as our Pack have all day and has to pack with up during actived throughout the indexed of the same and th	sn .	Hat Ziben und ning on O sys. He new Petecan. For interpetons were agrounding from the destroy layer utility approaching promised, change particle oppose the school on wetom size of Jost 18 to the Pannag (school zone tress-less the academ. The size of Early 30).
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Hilliam	37,700	occipancies with not except off or to off street pathing where beiny resident owns a bit. One are pathod requisitive or the corner of Felor Breat and Hilliam Aversa material difficult to et all and heles the root.		A To special stock to blood her
Porter B	one bluer		-	Use vesself find on Pother at at the reliefeights contracted perhang. No signed debates
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Georgina Ave Dullas Shoot	Seogra Avenue Outas Silveri	done given a manufacture of promise of the contract of the con		
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Keravilla	Servelle Primary	Make a sineigy reled stop of scook for achoot premate (such me? me sing off met pock up). Managen to chack regulately for positing. Frequing stall for scooking any bear. Strand such terrousme in an beasy med, but many	_	
	alaman Rand - opposite Koelesberg Dod, Gipps Road	clam? Physiques to check, sérem préfeig le faned	F4	
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Cippe Road	999		-	Parking at Gapo Road KempideS syrrowith pamed lives as a guide to alivers parking this would allow more care to be parked
South of	South of High schools north entirel Follow Lane	for the description of the description of the control of the contr		Detection beam befored the high actual to be milled particing and brites in this issue or the local bus multi-
John Street	de hee tud grip	Lack of parking for the bush bringing all day parking through dynomers. The bringing for guests at the parking the parking through parking for guests at the parking.		
Fautigo	Emville and Swymerille ladgrove Street	Part and ride facilities should be considered in Keisaville and Grypmeville. Parking on one side of Paulagione Street.		
Horrs W.	oborgong Station	Carr petings at the station: Lini should nave to stouch pathing as part of tary stew development.	os -	
Horts-we	di corts, what corner of Glope, Stonet and Only-street	Link the number of one per household		Use vocality land on PRV city Charaltops for it uch handful partition
1	Corner of Marytrys Avenues and Presentals Avenues	Common Mayory, Avenue and Recedible Avenue - due to pathwell card both season's revealed and obes to obtace on Mayory, Avenue ser denomina enterior and Avenue consider during point on house - excellent previous.	-	
Hanna	Appendix Averyage Section (Street St. Marco	Parking abouted to make boated on one saids of Rosentials Avenue.	-0	
Kernolle	Centrollis and Commontis	Don 15 Jebra Chard, parking halk to use when they are expecting values on special accessors the towards. Parking at Corporabilities of Capita Rand, nam Meerican is brinking Standing Children avers revited and facelong in congustrat	s -	
Keraville	North Hard Course III	in the affectation from Sam to Sam. In the affectant perform a specially in Samilian Peak and order people in cambed manifest ma	r.	
Kernville	Kersylle and Gwynneide	Faming in the alreets around the unversity area is very corporated maring a difficultion drive in the area.	-	The university about he providing more pashing could for stated and the Council should have before aggrega on wheels or intention passage to provide the council section.
Kerndi	Notes and September the	Official to and already arrural the Barinness Carnins because all the parked carn		Season or Season Season and seaso
Kerwin	Retardle and Owjership	Lighting does but introducing planting optimized. Full ingeligating matter for might 50 per day, sound the university, thay need to practic militared free but to escarrage students, outless that not inculture the miss above.	-	
Masonic Centre	Centre	code probe transport. But not the winger shops	-	Parking signs alread be almentic at learn perities and at Masonic Centre
Horth VV	Month of the Assessment Officers			The second secon

es -	Public Transport			
	Location	Issue/Comment	Number of times	Suggested Solution
			issue raised	Ophica coldini
1	Crawford Avenue	Vehicles speed on Crawford Avenue	1	
2	Crawford Avenue	Bus (#10?) too large for the street, taking up both lanes, and the turns - runs residents off the road	1	
3	Crawford Avenue	Vehicles parked over white lines make it difficult for buses to mansuver on bends		
4	Everywhere	Changing free shuttle bus to paid service will add congestion	1	1
	Keiraville and Gwynneville	The free shuttle bus is an excellent innovation and should be maintained as it encourages public transport use rather than driving and congesting roads and parking	7	
6	Cochrane Street	Parked cars on both side of Cochrane Street make it difficult for buses to navigate	1	
	Robsons Road	Bus stop shelters are needed on Robsons Road	1	
	UOW	Centralise pick up - bus into the uni from outleying greas for student travel	2	
- 0	OOW	Train services are infrequent, and only arrive once per hour in both directions, causing many		
	North Wollongong Station	students to wait a long time for the next service. Extend the free bus service to Porter Street and North Wollangong station	2	
	Keiraville Shope	Tram of shuttle bus to service retail areas in Keiraville and Gwynneville	1	
- 11	North Wolkingong Station	Light rail between North Wollongong station and UOW	1	
12	South of High schools- north end of Foleys Lane		1	
	Braeside Avenue area	Extend the free bus service to assist elderly and disables e.g Braeside close, Gipps Rd, or have more free bus routes	1	
14	Robsons Road and Gipps Road, Robsons Road and Northfields Avenue, Keiraville and Gwynneville	More free buses	3	
15	Gywnneville and Keireville Shops	Shuttle bus does no service stops Free bus to service Gwynneville and Keiraville Shops	3	
16	North Wollengong Station	Shuttle bus to include North Wollongong Railway station on weekdays and weekends. It is vary difficult to park on weekdays, especially after 9.00am.	2	
17	Botanic Garden - Gipps Road	Bus should go to Botanic Gardens – seen in other cities timefables from city to botanic gardens vie	1	Provide more park and ride locations in the surrounding suburbs identify what percentage of staff/students would be willing to mode shift to using a bus if a firm connecting KeiravilleiGwynyellle to asy [righereiCordeaux] + Heights/Mount Keira was implement
18	Foleys Street near Porter Street	Extra free bus stop near corner of Foleys Street/Porter Street - many students live in that area	1	
19	Everywhere	Bille racks on buses	1	Discuss with the bus company on whether re-routing the No.10 service would benefit more of community and/or relocate the bus shelter in Cochrane Street to where it can be better utilise Robsone Road.
20	Everywhere	Shuttle bus route extension via Keiraville (to Uni and Figtree/Mangerton/West Wollongong)	1	
	Northfields Ave	Light rail between the uni and the city. The free bus wont be free forever as it is government funded	1	
22	John St aren, Gipps Street	Buses for rate payers for John Strret and Gipps Street	2	
23	NW Cnr of Foleys Street and Gipps Road	Move bus stop up Foley Street or in front of Bowls. Too congested being too much traffic and foot traffic in servo carpark	1	
24	Everywhere	Even with better than average bus routes in Kelraville and Gwynneville its still hard to bus it on weekends and public holidays - can this be improved	1	Detention beain behind the high school to be added parking and linked to free bus or unil loca route
25	Robsons Road and Gipps Road		1	Provide a tranvilight rail up Gipps Road and Robsons Road
	Beaton Park	Shuttle bus - put schematic diagram in buses which shows route and parking areas. Parking at Beaton park Basketball stadium should be promoted and get cars off the streets	1	
27	Everywhere	Appropriate bus stops are needed within suburbs of Keiraville and Gwynneville	- 1	
	Keiraville and Gwynneville	Need additional services to the Illawarra. The trains are full on any given day, even Saturday and Sunday mornings at 7am, it's great to see our people travelling to Sydney for leisure, but standing for 1.5 hours is unacceptable. I commuted to Sydney 30 years ago and train travel has not improved here since than.	i	
29	North Wollengong Station	Stops have been removed at Fairy Meadow causing commuters to park at North Wollengong Stellon	1	



Location	Issue/Comment	issue raised	Suggested Solution
Матрауы Аметыш	Pedastrians are forced to walk on road which is dangerous faring the week due to traffic Fordigath isolate based to Storing pash to Bearwood distincts and Conservatorium Foodigath for scholers and wheekfair access to the Casterior Foodigath on the bottonic pasiden side of murphys ave.		Footpath
Greenacres Road Robants Phed	Nanar foopath despta very high packetrian volume and wheelphank (Genmanta). Colophight needed to take disembass accessible in all weather for disabled access to Green bus Frankish naturation seations with 40 October 2014.	es (F	
Vickery Street	Pedestitan prosong is needed for school children	-	-Paddedman crossing to Asep Mds safe - Children crossing St Brigid's Primary School - Challen crossing St Brigid's Primary School - Challen furnits - Speed Humps - Charter Stgnage
Gipps Road and Rebsons Road	Safe prossing needed across Robsons road for school children and encourage walking/cycling in Keinaville conerally		
Balgownie Gwonnedie houn Sahra	Pedestrian access to UOW is needed from Balgownie Rosen/ Conceine one pended at each and of Commontalia chomion neets		
Botanic Garden	Topicoval Oraning are required for parts contacting to the gradient in open of the region of south west traproved forbitation are required for parts contacting to the garden or the proof of adely in nary park of the South Clear Writers Centre is poor with uneven ground (south west end of the Gardens).	m	
Rail crossing between Throsby and North gong station	Another rall crossing between Throsby Drive and North Wollongorg station for pedestrians and cyclists	7	
Kerraville Shape, Uni, City, Beach	Factpaths to university, dy, and beach from Keiraville shops	4	
Throsby Drive Eastern Street Chine Double and Debone Double	Foepath on northern side of Throsty Drive from traffic lights to Filmeers St. More forbigalise the western acids of Eastern St. Cocheants to the communication of Music March.		Get rid of roed island near bowling club
Glpps Road at relivay	Limited opportunities for pedestrains and cyclists to cross rathway line - open underpass at Gapps Road. This many bridge falls declaration. On the processing boths currently at Smith St underpass, barmary bridge, and North Wolngong as a stations overpass.	-	
Throsby Drive and Flinders Street	Better connections from Gwyrnewille to the beachiory noundabout by burnings buts off pedestrian access	2	
Northwest corner of Foleys Street and Cipps Road	In this city of innovation couldn't we find something bettern than concrete and tar to surface our valences. But softwares the software to acid valence.	Ť	
Mulphys Road	Footpath on murphys rd from Robsons rd to Eastern St	2	
Everywhere	wayfinding signage between north gong station and iC for cyclasts and pedestrians. Any control pedestrians of cyclastics and the change collection in the control of the c		
Everywhere - Murphys Avenue	Any tem pedestrian or cycleways should be shared parts where practical Shared paths needed on Murphys Ave	2	
Northfields Avenue pedestrian overpass	Access to Northfields Ave 'Curly Vihirly' overpass is dangerous for cyclists and pedestrians - extent curfy whilly to other side of uni entrance.		
Overpass from Unito TAFE Milliance Street and Gross Street	Texture cost paint has worn off overpass bridge - extremely slippery	w 4	
Gipps Road at relivary	Padestrian Bike path under rail at Cipps street - doubles as flood bypass		
Everywhere	Fix patriviays first but we need more. Clean up footpaths etc round Gwynneville shops - maintain plants etc.	64	
Keira Oval	Very wet on hill and was used by uni students and residents for access to Mt Keira - would love a path	-	
Western corner of Robsons Road and Northfields Avenue	Mantain walking trails - Osborne track and trail to Mt Pleasant and trails to Mt Keira (this trail is part of Keinville)	-	
Everywhere	A walkipath from the mountains to the sea - stroller and bike friendly	1	There is no underpass at this point - might mean that are is suggested
Spearing Park (is this the right name?) on Spearing Avenue	Z	***	
Everywhere	Footpath that are even for the elderly, young & everyone. Bad accidents have happened due to uneven tootpaths	2	
Greenacre Road	Street lighting along Dreenacre rd is territize and this is a popular pedestrian walkway - also need paths		
Western comer of Robsons Road and Northfields Avenue	Repair some of the track - widen if a it more so that more than one person can walk up there at a time		
Eastern end of Greenance Road Reserve/Tramways near- Vickery Street	Path through here is washed out and difficult to gush a stroller through. Nearly toppled the stroller over- going down to the bridge to Greensoes Rd = cut through is very handy.	**	
Western comer of Robsons Road and Northfields Avenue	Remove the trees near the roundsbout on 2 Robsons Road very difficult to walk along the track. Welking nath - need to walk on the road bassuse of the trees.	- 4	Footpath that are even and flat. Le. Safe to walk on
North Wallangong Station	Footpaths are disconnected	611	
Botanic Garden	Another entrance to Botanio Claritan to encourage wider use. East public access	re.	
Бгевпасте Road	Street lighting along Greenacte of is lentifice and this is a popular pedestrian walkway - also need paths		
Kerraville and Gwymneville	There are insufficient pathways, almost zero	-	
Keiraville and Gwynneville	There are a lack of bodpaths and the conditions of existing footpaths are in very poor condition, creating a bito hazard.	+	
Keirayille and Gwynnevilla	Would like to eee more pathways around key areas. Wallangong university should PAY or at least contribute alson that they are consuming the suburb.		



o. Location	Terror Personnell	Number of times	Proposed d Parketter
Location	Issue/Comment	issue raised	Suggested Solution
1 UOW	Greater integration of bike plans for the local community (idea from uni)	1	Promote cycling and create bikes paths and be supported in our plans
2 UOW		1	Promote UOW cycling premotions to local community and show support in local pla
3 Robsons Rd	Cycle path required all the way up and down Robsons Road to try and alleviate some of the traffic	1	
Everywhere - Gipps rd lo Sluari Park, car of Robsons and Northlields Rd, Gipps Rd to City Beach, Uni,	Dedicated bicycle paths from Keiraville to City, Beach, and University Cycleway Uni - to CBD, Stuart Park, North and South Beach Cycleway down Gipps Rd throught to Stuart Park Innovation Campus	7	
5 Gipps Road		1	Proposed cycleway will prevent parking between 6am - 6pm on Gipps Rd
6 Mt Pleasant and Mt Ousley	New cycleway footbridge from Mt Pleasant over Mt Ousley road to University	1	
7 Gipps Road near Freeway overpass	Free bike exchange system around the suburbs	1	
8 Mt Keira	Plan summit access via adjoining suburbs that have interconnecting cycleways and footpaths Promote Mt Keira as cycle destination	2	
9 Entrance to Uni at Irvine & northfields, Everywhere	Bikes for hire - as per paris with their velo systems Free/Hire bike scheme - may need lockers, not just racks OR shop fron @ keiraville, gwynneville, uni	3	
10 Botanic Garden	Footpeths and cycleways to the Botanic Gardens	1	
11 Porter St	Footpaths needed in Porter st which can be used as a cycle path	1	
12 Keiraville Shops, Gwynnevill Shops, Gipps Road at the north-west corner with Grey Street	Parking for bikes	3	
13 Everywhere, Thorsby Drive	Cycle paths to continue rather than stop eg Throsby Drive - there is no footpath and no bicycle path Cycle paths on northern side of Throsby Drive from traffic lights to Flinders St	3	
14 Gipps Rd and Freeway	Create an on road bike land on Gipps road over the freeway	1	
15 Uni on Northflekts	Bike path goes nowhere from here - slops at the Uni bus stop	2	
16 Gipps Road at railway	Limited opportunities for pedestrains and cyclists to cross railway line - open underpass at Gipps Road. Transway bridge fails pedestrains. Only crossing points currently at Snirth St underpass, transway bridge, and North Willongoon; rail stations overpass	1	
17 Everywhere	Council to clean bike paths more often of glass and low hanging trees	2	P. S. Carlotta and C. Carlotta and C. S. Carlotta and C. Carlotta and C. S. Carlotta and C. Carlotta and C. S. Carlotta and C. S. Carlotta and C. S. Carlotta and C. Carlo
18 Everywhere		1	Cyclepaths following watercourses could solve problem of disjointed cycle paths (at from roads). Waterways provide a direct route
19 Everywhere	Cycling connections from Uni to Figtree	1	
20 Everywhere	Cyclists ring your bell' signs	1	
21 Everywhere	wayfinding signage between north gong station and iC for cyclists and pedestrians	1	
22 Everywhere - Murphys Ave	Any new pedestrian or cycleways should be shared paths where practical Shared paths needed on Murphys Ave Access to Northfields Ave 'Curfy Whithy' overpass is dangerous for cyclists and pedestrians - extent	2	
23 Northfields Curly Whirty - fwy overpass access	Access to Northfields Ave 'Curty Whirty' overpass is dangerous for cyclists and pedestrians - extent curty whirty to other side of uni entrance	1	
24 Botanic Garden	Support bike though botanic gardens on designated route	1	
25 Everywhere	Cyclists facilities between Gwynneville and coast, non existent, family friendly, cycles on bus (at least 4)	1	
26 Gipps Rd at railway	Pedestrian Bike path under rail at Gipps street - doubles as flood bypass	1	There is no underpass at this point - might mean that one is suggested
27 Nyrang Park	Link a cycleway through here to make a safe route to Beaton Park, North Gong station, Wollongong City, and beach etc	1	
28 Greenacre Rd Reserve	Cycleway through tramway, Repair potholes, Remove weeds to allow open park land environment	1	
29 Keinwille and Gwynneville	Have lived in Gwynneville for 25 years. Would love to see uni student riders wear helmets and use bike lights	1	
30 Keiraville and Gwynneville	Insufficient cycle ways for people to travel to and from Gwynneville to the hospital, university or Wollongong	1	
31 Keiraville and Gwynneville	Bicycles shouldn't be on roads because they are a danger	1	
32 Kelraville and Gwynneville	Cycling loo dangerous with university parking nightmare	1	
33 North Wollongong Station	Cycling north on Porter Street from North Wolllongong Station is dangerous for cyclists travelling to Tale and UOW as they are required to cross dangerous intersections	1	Bicycle path should be relocated to other side of road for increased safety
34 North Wollangong Station	Bicycles get vandelised at North Wollongogn Station	1	Provide more secure bike parking at North Wollangung Station



sues	- Other			
No.	Location	Issue/Communt	Number of times issue raised	Suggested Solution
	1 Shared path next to TAFE oval	Clean up along freeway around uni and TAFE	1	
	2 Keiraville Primary	Cars need to cross intersection before Lollipop lady steps into traffic	1	Training for Lollipop lady
	3 Everywhere, College View area, Gywnne Street	Keep boarding house style out of small streets - we are a village Parking is a diseaster Noise issues	5	
	4 Everywhere	There should be a duty of care or an ombudsmen about the complaints for bad behaviour of uni students	1	
	5 Gipps Road near Fairy Street	When untitiownhouse development involves numberous tenents, consider the number of garbage bins to be emptied as many end up as traffic hazards, not to mention the traffic flow on the busine streets when bins are being emptied	1	
- 1	B Everywhere	Iconic walk from MI Keira to the sea via Bolanic Garden	2	
	7 Gwynne St	Proposed development a no 6 Gwynne st Gwynneville - we belliave it is a commercial development. (raffic issues, sets a precident for boarding houses within residential areas, safety and privacy issues for residents and preschool, flood zone	1	
	8 AM	Limit number of car per house eg - we have local house with 6 cars belonging to boarders	1	
	9 Everywhere	Bicycles and pedestrians should have right of way - not cars	1	
	All	RMS/UOW/WCC/NF5 joint submission to Bike plan - source doc for future workshops from Jacqui 肉 UOW	1	
1	In the bushland north west from end of Gooyong St	Utilise the great features of the escarpment more effectively, Make Keiraville a hub for outdoor activities, such as proper (and maintained) mits trails. Move 'lost' walking trails. Generate activities leading to revenue etc back to WCC to help pay for upkeep.	1	
1	2 Eastern end of Greenarce Rd Reserve/Tramways near Vickery St	The walk way which exits to Vickery Street needs to have 'bark chips' or gravel put down as becomes very muddy	1	
	3 Western corner of Robsons Road and Northfields Avenue	Need to clear as much lantana as possible	2	
1	Gwynneville and Keiraville area, Throsby Drive to Acacia Ave via Wisemans Park	Keep traffic away from Beaton Park, Wisemans Bowling club and St Brigids School	1	Improve safety and access - give access to Keiraville and West Wollongo without having traffic going through Gwynneville shopping area
1	suow		1	UOW should educate students on the best ways to travel to campus and promote the use of active and public transport. This can be done especia for first year students.
1	6 All		1	Suggested strategies should align with future government
1	7 Koolabong Oval	Plans/Events at Koolaborg oval are set to increase. Road network will suffer accordingly	1.	
1	8 Everywhere	Car-centric community - students still choose to drive	1	
1	9 UOW		1	UOW should be responsible for reducing students parking in suburbs
2	0 Traffic model	Traffic model boundary is too limited - Greenacre Road, Vickery Streef, Berkeley Road, Acadia Avenue - if parking spreads this will cause an issue for Gwynneville School	1	



Item 6 - Attachment 3 - Keiraville Gwynneville Access and Movement Study Consultant Report

APPENDIX

COUNCIL IDENTIFIED ACTIONS IN RESPONSE TO COMMUNITY COMMENTS



Consultant Report



Draft actions in response to community comments

Traffic

Potential intersection improvements

- Gilmore Street and Fisher Street Pedestrian Refuges (Completed 2018/19)
- Robsons Road Gipps Road Pedestrian Refuge (Completed 2018/19)
- Robsons Road and Northfields Avenue (University VPA)
- Eastern Street and Gipps Road
- Porter Street and University Avenue
- Bulwarra Street and Pindari Street
- Murphys Avenue and Rosedale Avenue
- Murphys and Braeside Avenue
- Murphys Avenue and Eastern Street
- · Eastern Street and Moore Street
- · Foley Street, Gipps Road and Porter Street
- Robsons Road and Gipps Road

Potential locations for traffic calming

- · Gipps Road at Motorway bridge
- Vickery Street
- Acacia Avenue
- Robsons Road
- Gooyong Street
- Murphys Avenue
- Francis Street
- Gwynneville shops
- William Street
- Robsons Road and Murphys Avenue
- · Robsons Road and Gipps Road
- Bulwarra Street
- Berkeley Road and Gipps Road

Review safety around schools

- St Brigid's School
- Keiraville Public School
- Gwynneville Public School
- Wollongong West Public School
- Edmund Rice College
- St Therese School
- Keira High School
- Wollongong High School for Performing Arts
- Para Meadows School
- Mount Keira Demonstration School

Guardrail - New

University Avenue – Memorial Drive to Porter Street east side. (Completed 2018/19)

Public Transport

Bus Shelter 113 Robsons Road (Construction 2019/20)

Maintain and further promote

- Keiraville/Gwynneville Shuttle
- North Wollongong Shuttle
- Wollongong Shuttle



Item 6 - Attachment 3 - Keiraville Gwynneville Access and Movement Study Consultant Report

Parking

Implement Marked Parking Bays

All suburbs in study area

Review timed parking

- University of Wollongong
- Botanic Garden
- Keiraville shops
- Gwynneville shops
- North Wollongong Station
- Keira High School
- Wollongong Performing Arts High School
- Edmund Rice College

Review Ranger patrols

All suburbs in study area

Cycling/Pedestrian

Include suggested footpath locations in future programs

- Botanic Garden Rainforest walk. (Completed 2018/19).
- Murphys Avenue Robsons Road to Grey Street southern side. (Design completed 2018/19 Construction 2019/20).
- Robinson Park Crawford Avenue to Mountview Avenue. (Construction 2020/21).
- Crawford Avenue Porter Street to #3 east side. (Design completed 2018/19 Construction 2019/20).
- Railway Crescent Porter Street to Hindmarsh Avenue; east side. (Design completed 2018/19 Construction 2019/20).
- Hindmarsh Avenue Railway Crescent to Porter Street; south side. (Design 2018/19 Construction 2019/20).
- Kiernan St; Foley St to Crawford Ave; south side (Design 2018/19 Construction 2019/20).
- Murphys Ave Robsons Rd to Grey St. (Construction 2019/20)
- Robinson Park Crawford Ave to Mountview Ave. (Construction 2020/21)
- Reserve St Gilmore to Robsons Rd south side (Construction 2021/22)
- Botanic Garden \$100,00 (Included in University VPA)
- Robsons Road and Northfields Avenue western side (Included in University VPA)
- Robsons Road western side
- Greenacres Road
- Eastern Street western side
- Gipps Road and Robsons Road Conservatory of Music
- William Street and Grey Street
- Keira Oval
- Spearing Park

Include suggested shared path locations in future programs

- Keiraville Town Centre Bicycle Parking. (Completed 2018/19).
- Gwynneville Town Centre Bicycle Parking. (Completed 2018/19).
- Porter Street and Crawford Street. (Completed 2018/19).
- Fisher Street; Phillips Avenue to Gilmore Street; west side. (Completed 2018/19).
- Reserve Street; Gilmore to Robsons; south side. (Completed 2018/19).
- Crawford Avenue; Porter Street to Hay Street access. (Design 2019/20 Construction 2020/21, 2021/23).
- Porter Street: Hindmarsh Ave to Flinders St. (Construction 2019/20)
- Gipps Road at railway
- Gipps Road to Stuart Park
- Nyrang Park

Consultant Report







Ordinary Meeting of Council Item 6 - Attachment 3 - Keiraville Gwynneville Access and Movement Study Consultant Report

D	Туре	Location	Non-compliance
1	Zebra crossing	UOW (NW of Building 38)	Lack of "No Stopping" signs on the approaches and lack of pedestrian crossing signage.
2	Zebra crossing	UOW (South of Building 3B)	Lack of "No Stopping" signs on the approaches, width is less than 3.6m and the kerb ramps do not align.
3	Zebra crossing	UOW (adjacent to the Sydney Business School)	Lack of 'No Stopping' signs on the approaches and the width is less than 3.6m.
1	Zebra crossing	UOW (adjacent to "Uni Active")	Lack of 'No Stopping' signs on the approaches.
l.	Pedestrian refuge	Northfields Avenue at Robsons Road	Length is less than 3m and retroreflective markers are not provided.
	Pedestrian refuge	Northfields Avenue/UOW entrance (West approach)	Length is less than 3m, retroreflective markers are not provided and kerb ramps do not align.
	Pedestrian refuge	Northfields Avenue/UOW entrance (North approach)	Length is less than 3m and kerb ramps do not align.
	Pedestrian refuge	Northfields Avenue/UOW entrance (East approach)	Length is less than 3m retroreflective markers are not provided and kerb ramps do not align.
	Pedestrian refuge	Northfields Avenue east of the UOW bus stops	Insufficient No Stopping' signage at correct locations and kerb ramps do not align.
	Pedestrian refuge	Northfields Avenue adjacent to the P8 Unicentre Carpark	Width is less than 2m.
7	Pedestrian refuge	Northfields Avenue/Irvine Street (West approach)	No Stopping' signage at incorrect location on the approach.
3	Pedestrian refuge	Northfields Avenue/Irvine Street (North approach)	Length is less than 3m and insufficient "No Stopping" signage on the approach.
9	Pedestrian refuge	Northfields Avenue/Irvine Street (East approach)	Length is less than 3m and insufficient "No Stopping" signage on the approach.
0	Pedestrian refuge	Irvine Street/University Avenue (North approach)	Length is less than 3m, insufficient 'No Stopping' signage on the approach and no kerb ramp on the western side.
11	Pedestrian refuge	Irvine Street/University Avenue (East approach)	Length is less than 3m and insufficient "No Stopping" signage length on the approach.
12	Pedestrian refuge	Irvine Street/University Avenue (South approach)	Width is less than 2m and length is less than 3m.
13	Pedestrian refuge	University Avenue/M1 Ramps (East approach)	Length is less than 3m, insufficient "No Stopping" signage length on the approach and no kerb ramp on the northern side.
14	Pedestrian refuge	University Avenue roundabout NE of College Place (West approach)	Width is less than 2m and length is less than 3m.
15	Pedestrian refuge	University Avenue roundabout NE of College Place (East approach)	Width is less than 2m, length is less than 3m and kerb ramps are not aligned.
16	Pedestrian refuge	University Avenue/Foleys Lane (West approach)	Width is less than 2m, length is less than 3m and insufficient No Stopping' signage length on the approach.
17	Pedestrian refuge	University Avenue/Foleys Lane (North approach)	Length is less than 3m and kerb ramps do not align.
18	Pedestrian refuge	Robsons Road/Murphys Avenue (South approach)	Length is less than 3m, incorrect linemarking, insufficient 'No Stopping' signage length on the approach and lack of retroreflective markers.
5 -	Zebra crossing	Gipps Road/Grey Street (East approach)	Insufficient 'No Stopping' signage length on approach.
1	Children's crossing	Gipps Road between Berkeley Road and Vickery Street	Width is less than 3.6m and incorrect placement of 'No Stopping' signs, posts and linemarking.
19	Pedestrian refuge	Gipps Road/Vickery Street (East approach)	Length is less than 3m and insufficient "No Stopping" signage length on the approach.
20	Pedestrian refuge	Gipps Road west of Foley Street	Length is less than 3m
21	Pedestrian refuge	Gipps Street/Foley Street (North approach)	Length is less than 3m, width is less than 2m, insufficient 'No Stopping' signage length on the approach and incorrect linemarking.
2	Children's crossing	Vickery Street south of Gipps Road	Insufficient "No Stopping" signage length on the southern approach.
3	Children's crossing	Berkeley Road between Gipps Road and Acacia Avenue	Insufficient "No Stopping" signage length on the southern exit.
22	Pedestrian refuge	Robsons Road/William Street (North approach)	Length is less than 3m, missing retroreflective markers, lack of "No Stopping" signage provided.
23	Pedestrian refuge	Robsons Road/William Street (South approach)	Length is less than 3m, missing retroreflective markers, lack of 'No Stopping' signage provided.



Keiraville Gwynneville Access and Movement Study Action Plan

Mode	Action	High Priority	Medium Priority	Low Priority
Cycling	Include suggested new shared path locations in future programs			
Cycling	Provide active transport connection across train line close to Beaton Park			
Cycling	Provide improved cycling wayfinding on the key regional cycle routes			
Cycling	Provide a widened shared path through Wiseman Park in line with the Fairy Creek Corridor Master Plan			
	Provide adequate secure and undercover bicycle parking at key land uses such as the UOW, Keiraville and Gwynneville village centres, Beaton Park, the local schools and off-street parking			
Cycling	locations			

Mode	Action	High Priority	Medium Priority	Low Priority
Pedestrian	Provide compliant pedestrian refuge island at roundabouts			
Pedestrian	Ensure that all crossing facilities comply with Australian Standards (upgrade where needed)			
Pedestrian	Provide a direct pedestrian connection towards the north and east of UOW			
Pedestrian	Provide wayfinding to key destinations including train stations, UOW, key centres and recreation facilities			
Pedestrian	n Provide increased pedestrian priority within the village centres			
Pedestrian	Provide increased marketing especially in schools, workplaces and town centres to show the benefits of walking and cycling			
Pedestrian	Review street lighting with respect to pedestrian needs			
Pedestrian	Undertake audit of pedestrian kerb ramps			
Pedestrian	Include suggested footpath locations in future programs			



Keiraville Gwynneville Access and Movement Study Action Plan

Mode	Action	High Priority	gh Priority Medium Priority	Low Priority	
Motor					
Vehicle	Realignment of roundabout at Murphys Avenue and Robsons Road				
Motor					
Vehicle	Undertake safety around schools assessments at schools				
Motor	Advocate for implementation of the Mount Ousley Interchange				
Vehicle	project				
Motor	Investigate traffic calming measures on Robsons Road to manage vehicle speeds, particularly on the north and south downhill				
Vehicle	sections to the Gipps Rd intersection				
Motor					
Vehicle	Investigate suggested intersection improvements				
Motor					
Vehicle	Investigate suggested calming improvements				
Motor	Investigate traffic calming installation at Braeside Avenue -				
Vehicle	Murphys Avenue to reduce vehicle speed				
Motor					
Vehicle	Investigate safety improvements on University Avenue				

Mode	Action	High Priority	Medium Priority	Low Priority
	Investigate the provision of marked parking bays to increase the			
Car Parking	efficiency of parking spaces within the precinct			
	Review timed parking, pick up and drop off and special parking			
Car Barking	restrictions surrounding key destinations			
car Parking	restrictions surrounding key destinations			
	Review ranger patrols to ensure all vehicles abide by the			
Car Parking	corresponding parking restrictions			
	Investigate introduction of parking restrictions in close vicinity of			
Car Parking	the University			
	Develop a special event parking and traffic management plan for			
Car Parking	significant events at Beaton Park			



Keiraville Gwynneville Access and Movement Study Action Plan

Mode	Action	High Priority	Medium Priority	Low Priority
	Monitor school kiss and ride zones to prevent parking and expand			
Car Parking	as required to support demand			
	Investigate parking wayfinding opportunities to parking at			
Car Parking	attractors such as Beaton Park and the Botanic Garden			
Car Parking	Work with schools to manage parking and safe drop off/pick up			

Mode	Action	High Priority	Medium Priority	Low Priority
Public				
Transport	Advocate for extension of bus service times and frequency			
Public	Work with Transport for NSW to investigate bus priority			
Transport	infrastructure			
Public	Work with Transport for NSW to better integrate bus and train			
Transport	timetables			
Public	Work with Transport for NSW to ensure adequate capacity of bus			
Transport	services			
Public	Work with Transport for NSW to investigate commuter parking			
Transport	options around North Wollongong Rail Station			
Public				
Transport	Provide improved bus stop facilities			
Public				
Transport	Advocate for direct bus services between key trip attractors			
Public				
Transport	Advocate for retention of local shuttle bus services			



File: CCE-020.50.25.20.016 Doc: IC20/684

ITEM 7

POST EXHIBITION - WOLLONGONG COMMUNITY SAFETY PLAN 2021-2025

Council, at its meeting on 21 September 2020, resolved to place the draft Wollongong Community Safety Plan 2021-2025 on public exhibition from 23 September to 26 October 2020 (inclusive). The draft Wollongong Community Safety Plan 2021-2025 provides a framework to guide community safety and crime prevention strategies. The plan identifies community safety strategies undertaken over the last four years, current crime trends affecting the Wollongong Local Government Area (LGA) and reflects Council's ongoing commitment to creating a vibrant, connected community and recognises the role community safety plays in the development of a liveable city.

RECOMMENDATION

- 1 Council adopt the Wollongong Community Safety Plan 2021-2025.
- 2 Council submit the adopted Wollongong Community Safety Plan 2021-2025 to the NSW Department of Communities and Justice for endorsement.

REPORT AUTHORISATIONS

Report of: Sue Savage, Manager Community Cultural + Economic Development Authorised by: Kerry Hunt, Director Community Services - Creative and Innovative City

ATTACHMENTS

- 1 Draft Wollongong Community Safety Plan 2021-2025
- 2 We Asked You Said We Did Wollongong Community Safety Plan 2021-2025

BACKGROUND

Council made a commitment to improve community safety and reduce crime in the 1990's. This plan is the fifth iteration and builds on the achievements and key learnings of our previous community safety plans. The plan continues Council's commitment to community safety, partnership development and strategies to build the capacity of local communities to prevent crime and increase the perception of safety.

The plan comprises:

- A review of the actions and initiatives undertaken over the last four years.
- A detailed community safety and crime prevention action plan targeting specific crimes and perceptions of safety.
- Current crime trends relating to the Wollongong LGA.

Crime prevention and community safety, at its most effective, requires a 'whole of community' approach. The delivery of the plan is undertaken in partnership with key organisations, services and the community recognising they play a key role in supporting and delivering the initiatives outlined in the plan.

The detailed Crime Prevention Action Plan targets specific crimes that impact the Wollongong community and enables eligibility for funding from the NSW Department of Communities and Justice (DCJ).

PROPOSAL

Council adopts the Wollongong Community Safety Plan 2021-2025.



CONSULTATION AND COMMUNICATION

Consultation has occurred with the Regulation and Enforcement, Development Assessment and Certification, Community Cultural and Economic Development, Property and Recreation, Environment Strategy and Planning, City Works and Services and Infrastructure Strategy and Planning Divisions.

Engagement was undertaken with external partners, stakeholders and our community in early 2020. A public safety survey was available online and at information stands throughout March 2020. Neighbourhood forums and Council's Reference Group were encouraged to provide feedback and promote the online survey.

The Community Safety Reference Group brings partners together including NSW Police, local, state and federal government agencies, non-government agencies and the community and have played a key role in the development of the Plan.

Once the Plan is adopted by Council it will be forwarded to DCJ for endorsement to enable funding eligibility.

The community was asked for comment and feedback on the plan over the public exhibition period from 23 September to 26 October 2020 (inclusive). Two submissions were received during this period, both supported the Plan, with no suggested changes. Their comments were noted (refer Attachment 2).

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 Goal "We have a healthy community in a liveable city". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Operational Plan Actions
5.4.1 Partnerships continue to strengthen and achieve a safe, accessible and resilient community.	5.4.1.2 Facilitate a range of partnerships and networks to develop community	5.4.1.2.1 Contribute to a range of community safety initiatives in conjunction with community partners.
	safety initiatives.	5.4.1.2.5 Continue the "I belong in the Gong" safety initiative.
		5.4.1.2.7 Implement a mobile CTV pilo to reduce the incidents of vandalism and mitigate risks to community safety and public amenity.
		5.4.1.2.8 Provide support and participate in the Illawarra Domestic and Family Violence Trauma Recovery Centre Consultative Working Group.
5.4.2 Local crime continues to be prevented and levels of crime reduced.	5.4.2.1 Deliver projects and programs to reduce crime in the Wollongong Local Government Area.	5.4.2.1.1 Provide Crime Prevention through Environmental Design (CPTED) advice in Development assessments and Planning.
		5.4.2.1.2 Monitor and maintain Alcoho Free Zones including new assessments as required.
		5.4.2.1.3 Continue to liaise with Local Area Commands on key initiatives and crime reduction strategies.
		5.4.2.1.4 Complete and finalise Safety Audits and relevant reports.
5.5.1 Public facilities in key locations and transport routes are maintained and clean, accessible and inviting to our community and visitors.	5.5.1.1 Well maintained assets are provided that meet the needs of current and future communities.	5.5.1.1.1 Coordinate and undertake Graffiti Prevention actions on Council assets and deliver the Community Partnership program to remove graffiti from non-Council assets.



SUSTAINABILITY IMPLICATIONS

The plan has been informed by an extensive community engagement process. Effective engagement resulted in improved service delivery and efficiencies through targeting service provision to community needs.

The endorsed plan provides a vital mechanism for securing funding through grants processes.

RISK MANAGEMENT

The plan sets out a framework of actions that aims to reduce risk in the community relating to crime and increase community safety across Wollongong LGA.

FINANCIAL IMPLICATIONS

The delivery of the plan is primarily funded through existing operational and capital budgets. Funding will be sought from DCJ for unfunded actions.

CONCLUSION

Wollongong City Council has developed and implemented community safety plans incorporating crime prevention strategies since 1999. Community safety relies on effective collaboration between Council and residents, NSW Police, community groups, local businesses and various other organisations at the local, state and federal level to prevent crime and improve safety. The Wollongong Community Safety Plan 2021-2025 provides a framework for Council's continuing role in crime prevention and community safety.





Wollongong Community Safety Plan 2021-2025

Crime Prevention Strategy





Acknowledgement of Country

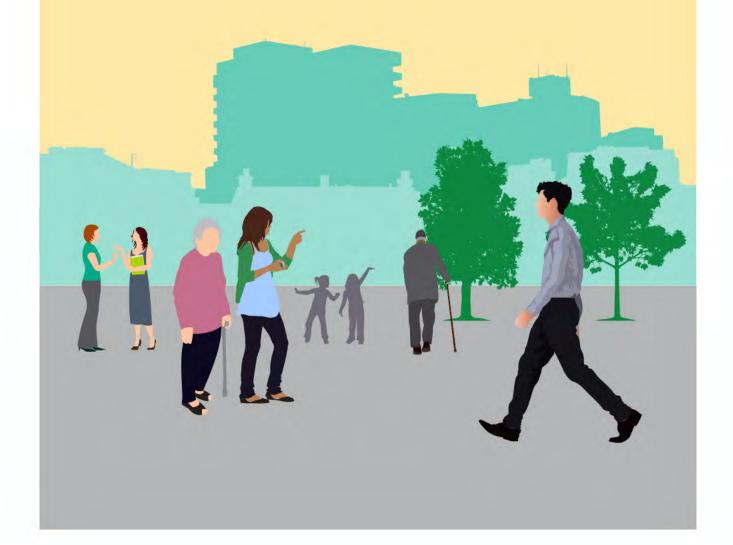
Wollongong City Council would like to show their respect and acknowledge the Traditional Custodians of the Land, Elders past and present, and to extend that respect to other Aboriginal and Torres Strait Islander people.



Commitment to Safety

We are committed to creating a safe and vibrant city where people feel safe and well-connected.

We recognise the importance of a 'whole of community' approach and will work with government and non-government agencies, service providers and the community to increase safety for our community.





Glossary

ABS	Australian Bureau of Statistics	
ADF	Australian Drug Foundation	
AFZ	Alcohol Free Zone	
APP	Alcohol Prohibited Park	
ASIT	Australian Social Investment Trust	
ASB	Anti-Social Behaviour	
CALD	Culturally and Linguistically Diverse	
CBD	Central Business District	
ссти	Closed Circuit Television	
CDAT	Community Drug Action Team	
CPTED	Crime Prevention Through Environmental Design	
DA	Development Application	
GLBTIQ	Gay, Lesbian, Bi-Sexual, Transgender, Intersex, Queer	
ICADV	Illawarra Committee Against Domestic Violence	
LGA	Local Government Area	
LGCSCPN	Local Government Community Safety Crime Prevention Network	
NAIDOC	National Aboriginal and Islander Day Observance Committee	
NSW BOCSAR	NSW Bureau Of Crime Statistics And Research	
PAL	Police Assistance Line	
POPA	Prevention of Older Persons Abuse	
SEIFA	Socio-Economic Indexes For Areas	
TNSW	Transport NSW	



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Lord Mayor Message

I am pleased to present our Community Safety Plan 2021-2025.

A Community Safety Plan is an important document – it sets out the how we can help everyone in our city to be, and feel, safe no matter where they are or what they're doing.

Whether a person feels safe in a place can be influenced by many factors including the physical environment, time of day and location itself. This Plan sets out how we're focusing on safety as an essential criteria in all new developments, infrastructure and public space projects. We are committed to putting safety front and centre when considering design, lighting and landscaping.

This Plan builds on the achievements and key learnings of our previous Community Safety Plans. We're proud to demonstrate leadership and play an active role in community safety, and are committed to building, maintaining and promoting Wollongong as a safe, vibrant and welcoming city.

Community safety relies on effective collaboration between Council and residents, NSW Police, community groups, local businesses and various other organisations at the local, state and federal levels. We will continue to work closely with a range of partners to help prevent crime, address safety concerns and encourage activated spaces and connected communities.

I would like to thank everyone who took the time to share their personal experiences and ideas for making Wollongong an even better place to live work and play as we developed this Plan. Your feedback, along with research and crime data, has influenced the final document.

Wollongong City Lord Mayor Councillor Gordon Bradbery AM





Introduction

The Community Safety Plan 2021-2025 outlines Wollongong City Council's commitment to promoting Wollongong as a safe and vibrant city, emphasising the importance of a 'whole of community' approach to fostering places where people feel safe and well-connected. The Plan has been informed by research and evidence, using information provided through community engagement as well as data from the NSW Bureau of Crime Statistics and Research (NSW BOCSAR) and local Police. We have analysed this information and identified key community safety and crime prevention priorities for Wollongong.

HOW TO READ THIS PLAN

The Community Safety Plan 2021-2025 is presented in two sections:

SECTION 1

Explains how Wollongong City
Council approaches crime
prevention and improves community
safety. Details about our partners
are included, describing how we
work with them and the community
to make the Wollongong local
government area (LGA) a safer
place. An overview of the actions
and outcomes delivered from the
Community Safety Plan 2016-2020
are also presented.

SECTION 2

Describes what crimes and behaviours will be targeted from 2021 to 2025. The Community Safety and Crime Prevention Action Plan sits in this section showing the actions that will be implemented to address each crime and the rationale for prioritising these crimes.

The community's perceptions and fear of crime is also included acknowledging how safe people feel can have a major impact on their quality of life and interaction within the community.

Appendices are included showing who lives in the Wollongong LGA and what crimes have impact on our community.





Community Safety Plan Summary

The actions in the Community Safety Plan 2021-2025 aim to reduce crime and improve community safety. Improving community safety requires a whole of Council approach, support from partners and the community. The crimes that are the focus of the Community Safety Plan 2021-2025 have been chosen based on issues and concerns highlighted by the community, consultation with NSW Police and crime trends in the Wollongong LGA as reported by NSW BOCSAR.

The priority crime terms are in keeping with those reported by the NSW BOCSAR.

Priority Crime	Project	Lead agency and partners	Expected outcome	
1. PROPERTY & ENVIRONMENT TARGET CRIME: Malicious damage including graffiti	Reduce damage to property including graffiti by reducing the opportunities for it to occur and making it less rewarding for offenders. Encourage reporting of malicious damage including graffiti.	Wollongong City Council, NSW Police, NSW Department of Communities and Justice, Corrective Services of NSW, the business sector and residents.	Improved perception of safety an pride in place due to a reduction in graffiti across the LGA and in graffiti hot spots.	
2. GENDERED VIOLENCE TARGET CRIME: Domestic assault	Reporting of domestic assault increases due to campaigns that raise awareness and promote support services in Wollongong. Education and support relating to elder abuse is promoted. Child Safe Standards, established by the Royal Commission, are embedded into Council policy.	Illawarra Committee Against Domestic Violence (ICADV), Wollongong City Council, NSW Police, business, community.	Reporting of domestic violence will increase. Attendance figures for annual ICADV events continue to rise. Council's policies and practices reflect the ten Child Safe Standards.	
3. ANTISOCIAL BEHAVIOUR TARGET CRIME: Non-domestic assault (alcohol related) Intimidation, stalking and harassment	Opportunities for alcohol related assault are reduced as a result of community education and community partnership strategies. Anti-social behaviour (ASB) including intimidation, stalking and harassment is reduced through the activation of Wollongong Crown Street Mall and other public places that are otherwise underused or isolated from regular activity.	NSW Police, Wollongong City Council, Wollongong Liquor Accord, Community Drug Action Team (CDAT), residents, community groups and the business sector.	Wollongong continues to show a decreasing trend regarding incidents of alcohol related assaults in the CBD and other hotspots. People feel safer across the LGA. Incidents of reported and actual ASB are reduced.	
4. PERSONAL PROPERTY TARGET CRIME: Fraud Steal from motor vehicle Motor vehicle theft	Community awareness is raised regarding trends targeting personal property for the specific offences of; fraud, steal from motor vehicle and motor vehicle theft. Reduction in the number of steal from motor vehicle offences and the correlating fraud offences linked through use of contactless payment systems. People are securing their keys, cars and homes to help reduce fraud, steal from motor vehicle and motor vehicle theft.	NSW Police, Wollongong City Council, Community groups and business sector.	Increased awareness of the frequency of fraud and types of incidents occurring. Incidents of steal from motor vehicle are reduced. Incidents of motor vehicle theft via stolen keys is reduced.	
5. Perceived and actual community safety	Feelings of safety by residents across the LGA are improved.	Wollongong City Council.	Residents feel safer.	



SECTION 1

Background

WHAT IS COMMUNITY SAFETY?

People feel safer when they can contribute to life outside their homes and can participate without fear. Making public spaces safe places is a focus of community safety. Council also has a role in improving safety in privately owned places, such as hotels, bars and clubs and private homes.

Council works with government and non-government agencies, service providers and the community to develop and implement strategies to increase safety for our community.

WHAT IS CRIME PREVENTION?

Crime prevention is about reducing opportunities for people to commit

Crime prevention strategies seek to ensure new building and open space refurbishments are designed to make committing crime more difficult, less rewarding and riskier. It also focuses on making public space more appealing and friendlier so they are more likely to be used

Crime prevention programs and projects focus on educating people about ways to prevent crime and increase participation in community life.

OUR APPROACH

There are a range of crime prevention approaches Council implements in collaboration with our community partners:

Situational Prevention:

This approach reduces the opportunities to commit crime and increases the risks of getting caught.

Some examples of this approach include:

- Trimming trees and vegetation for clear sight lines making it harder to hide
- Removing graffiti so a place feels safer because it's not neglected
- Providing additional or improved lighting where appropriate
- Planting 'green screens' along walls to make it harder to graffiti
- Using public art to improve the look and feel of a place
- Activating public spaces so more people are out and about

Social Prevention:

This approach focuses on creating a more inclusive society where all people feel they belong and are valued. Belonging to a place, a society, a community, means people are less likely to commit crimes against neighbours or vandalise neighbourhoods they feel proud of and live in.

Activating Space:

This approach turns underused public spaces into spaces that are used regularly by the community. Public places that are used regularly by the community reduces opportunities for crime or anti-social behaviour. Markets, public art and exercise groups are examples of activating space.

Community Development and Early Intervention:

Using this approach, Council works with specific communities or groups to 'help them, help themselves' to reduce crime and improve safety. These are usually long-term strategies with partner agencies and the community to improve the physical and social environments of specific neighbourhoods.





Approaches to Crime Prevention

Primary Crime Prevention

Situational Prevention

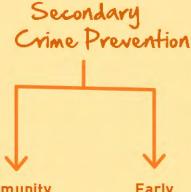
- Design goods and services with crime prevention in mind.
- Crime Prevention through Environmental Design (CPTED). For example, urban design that considers lighting, improved sightlines, trimmed trees, green screening and place based public art to minimise opportunities for crime to occur.

Social Prevention

- · Alleviating poverty
- · Improving health and education
- · Reducing unemployment
- · School based programs
- · Organising community safety groups

Activating Space

Events, community participation and public art activities are examples that combine aspects of situational and social crime prevention principles.



Community Development

- Longer term strategy to foster community shared ownership of crime and solutions
- Process of community engagement

Early Intervention

- Early identification of potential offenders
- Targeting high risk neighbourhoods
- Programs for youth at risk

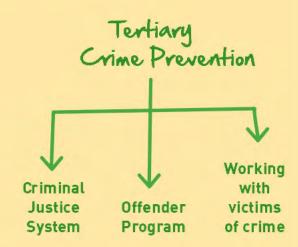


Diagram 1: Approaches to Crime Prevention



Connecting to other Council Plans

The Community Safety Plan 2021-2025 is underpinned by and supports Our Wollongong 2028. Our Wollongong 2028 is a long-term community strategic plan developed in consultation with communities from across the LGA. There are six goals included in this Plan, Goal 5 specifically relates to community safety: We have a healthy community in a liveable city.

THE STATEMENT FOR THIS GOAL IS:

Our community is safe, healthy and happy. The city provides diverse and accessible recreation and lifestyle activities to foster community wellbeing for people of all ages, abilities, cultural backgrounds and personal challenges. Our people thrive with a sense of self and a connection to place. We enjoy the relaxed pace, opportunities for being with family and friends, helping our neighbours and meeting new people. We encourage informal and lifelong learning and we share a common goal to make Wollongong a place where as a minimum, all resident's basic needs are met and our quality of life improved.

THE OBJECTIVES FOR THIS GOAL ARE:

- There is an increase in the health and wellbeing of our community.
- Participation in recreational and lifestyle activities is increased.
- Residents have improved access to a range of affordable housing options.
- Community safety and community perception of safety is improved.
- The public domain is maintained to a high standard.

Other strategic plans of Council that reinforce the goals of Our Wollongong 2028 and include aspects of community safety include:

- Places for People Wollongong Social Infrastructure Framework 2018-2028
- Creative Wollongong 2019-2024
- City of Wollongong Pedestrian Plan 2017-2021
- A City for People Wollongong Public Spaces Public Life
- · City Centre Wayfinding Strategy
- Disability Inclusion Action Plan 2020-2025
- Public Toilet Strategy 2019-2029



COMMUNITY STRATEGIC PLAN

A 10 year plan that identifies our community's priorities and vision for the future





SUPPORTING DOCUMENTS

Interconnected documents that reinforce the goals of Our Wollongong 2028 and include aspects of community safety.

Council is developing a Child Safe
Wollongong implementation plan to
embed child safety into all aspects
of Council's business. This Plan will
respond to the Royal Commission into
Institutional Response to Child Sexual
Abuse recommendations and recognises
a city that is safe for children is safe for
everyone.

What we want to achieve

Council made a commitment to improve community safety and reduce crime in the 1990's. In 2000, Council adopted a Crime Prevention Policy which was amended in 2013 and reviewed every three years.

The Community Safety Plan 2021-2025 is a strategic plan of actions aimed to reduce specific crimes and improve safety and perceptions of safety across the LGA. The Plan guides Council's work with the community, government

and non-government partners and the business sector to:

- Improve actual and perceived community safety
- Embed community safety strategies across the whole of Council
- Reduce crimes that have the highest impact in our area



Who are our partners?

Crime prevention and community safety, at its most effective, requires a whole of Council approach. Many Council divisions contribute to reducing opportunities for crime and improving community safety.

INTERNAL PARTNERS:

Council Division	Community Safety Activities
Regulation and Enforcement	Animal control, illegal dumping, noise control, parking.
Development Assessment and Certification	Assess development applications city wide using controls such as Crime Prevention through Environmental Design (CPTED), traffic management and pedestrian safety.
Community, Cultural and Economic Development	Community development officers specialising in community safety, community safety audits, Aboriginal, multicultural, cultural, aged and disability, graffiti prevention, youth and place-based communities.
	City wide events coordination such as Viva la Gong, NAIDOC, Refugee, Seniors and Youth Weeks, Australia Day and New Year's Eve.
	Public art and delivery of Creative Wollongong.
	Economic and business development
	Alcohol Free Zones and graffiti removal and prevention.
Property and Recreation	Lifeguards and water safety education. Temporary CCTV.
Open Space and Environmental Services	Bush fire and flood mitigation.
	Planting and trimming of trees.
City Works	Graffiti and rubbish removal.
	Maintenance of public spaces.
Infrastructure Strategy and Planning	Road safety.
	CCTV operations and management. Lighting.

EXTERNAL PARTNERS

External organisations play a key role in supporting Council initiatives. Similarly, Council supports strategies and initiatives that are originated by other agencies and the business sector.

External Partners	Activities
NSW Police (Lake Illawarra and Wollongong Police Districts)	Community Safety Precinct meetings. Community Safety Audits.
	Representation on Council's Community Safety Reference Group.
	Joint projects including place-based and targeted projects.
Illawarra Committee Against Domestic Violence (ICADV)	W hite Ribbon and Reclaim the Night campaigns.
	Domestic and family violence education and awareness raising.
Community Drug Action Team (CDAT)	Community, government and non-government interagency meetings implementing projects such as Creating Synergy
	Conference.
Local Government Community Safety and Crime	Information sharing across NSW Councils.
Prevention Network (LGCSCPN)	Education and conferences.
Wollongong Liquor Accord	Joint strategies and projects to promote responsible drinking behaviour that improves community safety and
	amenity.
NSW Department of Communities and Justice	Funding partner for Community Safety Plan initiatives.
	Compact with the NSW Attorney General.
NSW Corrective Services	Graffiti Removal Partner.
Dapto Rotary Club	Graffiti Removal Partner.
Specialist non-government agencies	Partners in place-based and other community developmen
	programs including graffiti prevention programs targeting crimes and anti-social behaviours across the LGA.



What our community told us

Council relies on information and intelligence from our community and partners. Community members from across the LGA were asked if they have ever felt unsafe and why. Surveys and focus groups with specific communities were undertaken to find out more about personal safety in public and how Council can improve safety for everyone.

Council work in collaboration with Lake Illawarra and Wollongong Local Police Districts. Each quarter, NSW Police Community Safety Precinct meetings are held, and Wollongong and Lake Illawarra Police share crime intelligence with Council officers, Chambers of Commerce members and other community stakeholders.

Information on crime data is also accessed from the NSW BOCSAR and demographic data from the Australian Bureau of Statistics (ABS).

All this information has been collated and analysed to develop actions to reduce specific crimes and improve safety. The Community Safety Plan 2021-2025 was placed on public exhibition in 2020 for community feedback and reviewed before being adopted by Council.

WHAT THE NSW POLICE TOLD US

Wollongong and Lake Illawarra Police provided us with detailed analysis of crime in our region. They reported steal from motor vehicles and fraud are continuing crimes for both Police Districts. Both Police Districts deliver regular campaigns to educate the community about locking vehicles and removing valuables from cars. Many of these reported crimes are opportunistic and perpetrators have targeted suburban streets and city car parks, looking for unlocked vehicles. Wallets with credit and debit cards are taken and used fraudulently, especially at service stations and other retailers. The maximum limit without needing a PIN (Personal Identification Number) has recently increased to \$250. Stolen motor vehicles also leads to fraud. Vehicles are stolen after a home break-in where car. keys, on display and easily accessible, are used to steal the car. Despite public campaigns to hide car keys at home, this crime continues.

Both Police Districts recognise the need for Council to continue working to eliminate gendered violence against women. Domestic violence and sexual assault are crimes that show local increases. Whether this is due to greater reporting by victims and survivors, NSW Police operations or because it is occurring more frequently is unclear.

Alcohol-related assault is another crime (Assault-non DV) that both Police Districts recommend should be a key focus. These crimes have decreased significantly in Wollongong over the last five years, however they are often connected to domestic violence, sexual assault and indecent assault, which appear to be increasing and targeted by NSW Police.

Intimidation, stalking and harassment, is a complex category both Police Districts recommend Council continues to work in partnership with them on. International circumstances sometimes leads to an increase in harassment and abuse in public of community members based on appearance.

WHAT THE COMMUNITY TOLD US

Council's online community safety surveys were completed by over 400 community members, providing responses relating to feeling safe, and experiences of crime or anti-social behaviour in public. Over the last two years, 54% of those who responded to safety surveys felt unsafe in public at various locations across the LGA. Results from a survey conducted in March 2020 indicated those who felt unsafe had either witnessed or experienced crime. The experiences of crime included vehicles broken into, attempted home invasion, stalking, verbal abuse and harassment, sexual

abuse or harassment, hearing domestic violence close by, assault and retail theft. People experienced fear of crime when streets were empty or dark or because they witnessed concerning behaviour by others in public, for example, shouting, fighting, public drunkenness or what they believed to be drug affected people.

A Perception of Safety Survey was undertaken in 2017. This survey asked the community about experiences of crime and feelings about safety in two parts; in the city and in neighbourhoods. Overall, 354 people responded, evenly divided between the city and the suburbs. Over 60% of survey participants felt safe both day and night in both types of locations and felt places with lots of people engaging in social activities were the safest. Those participants who felt unsafe suggested it was a result of witnessing aggressive behaviour and fighting in public, being close to people who appeared drug or alcohol affected as well as being in places that felt neglected and isolated. Survey participants suggested crimes that made them feel unsafe included drug related offences and vehicle related crimes

What have we done in the last four years?

Council's Community Safety Reference Group meets bi-monthly bringing together NSW Police, government and non-government agencies and community members. These meetings provide the opportunity to share information, discuss issues relating to community safety and implement strategies with partners. Over the last four years, Council has worked with the community and partners to implement programs and strategies to address the key areas identified in the Community Safety Plan 2016-2020, which included:

- · Malicious damage including graffiti.
- Assault (domestic violence).
- Assault (non-domestic violencealcohol related).
- Anti-social behaviour (ABS) including harassment, threatening and offensive behaviour.
- Perceived and actual community safety.

MALICIOUS DAMAGE, INCLUDING GRAFFITI

Council recognises the negative impact graffiti and malicious damage has on the community and the business sector. Graffitied and broken outdoor furniture, fences, bus shelters and other buildings leave people feeling unsafe and vulnerable. This results in perceptions by the community that a place is unguarded. Council continues to implement initiatives to reduce graffiti and other damage, and to support communities in taking control of their own environment. Some of these initiatives include:

- Rapid graffiti removal on Council property.
- Encouraging community to report graffiti as well as providing graffiti removal packs so people can remove graffiti from their property, particularly fences and garage walls.
- Continuing the City Centre Special Rate Levy to fund daily rapid removal of graffiti in Wollongong's CBD.

- Assessing new building development applications and refurbishment of outdoor spaces from a CPTED perspective to reduce graffiti opportunities.
- Auditing shops licensed to sell aerosol paint to ensure each retailer is following legislative requirements.
- Implementation of specialist graffiti prevention training in schools reaching over 600 students. As a result, more than 95% of participants think graffiti is no longer "cool" and 89% have changed their minds about doing graffiti. Schools who participated in the training were from areas of high graffiti activity.
- 236 graffiti inspections have been carried out on Council property.
 Council partners with community organisations and government agencies to remove graffiti from sporting clubhouses, private property and fences across the LGA.
- Community members have participated in graffiti removal each year on National Graffiti Removal Day. Council provides partners with paint, removal kits and other essential equipment to keep graffiti and tagging to a minimum.
- Murals have been created by artists and communities across the LGA on amenity blocks, fences and Council works caravans. These mural and art installations reduce tagging, keep neighbourhoods feeling well cared for and graffiti free.
- Transport NSW worked with Council to create large art murals on the sound insulation panels along Memorial Drive, Woonona. These panels were frequently tagged before the installation of the artworks. Since the artworks have been completed, minimal tagging has occurred.





Artist: Anthony Jones, graffiti prevention artwork panels on Memorial Drive, Woonona

ASSAULT (DOMESTIC VIOLENCE)

In 2019, in response to a request from ICADV, Council waived pool fees for families escaping violence. These families are often financially stressed and enabling access to recreational facilities and services reduces isolation, eases financial burden and improves wellbeing. The opportunity was accessed by families staying in temporary accommodation near the pool and contributed to normalising life after domestic violence.

Council worked with ICADV to support the delivery of a Culturally and Linguistically Diverse (CALD) Domestic Violence Forum in 2019. The forum investigated ways to reduce barriers for CALD families to access mainstream domestic violence support services in the Illawarra.



Council is a member of Illawarra Committee Against Domestic Violence (ICADV), attending meetings and supporting committee strategies such as Reclaim the Night and Illawarra White Ribbon Walk. Reclaim the Night is an annual event to raise awareness of sexual violence against women, which brings together several hundred people marching and rallying through Crown Street Mall. The White Ribbon Walk is coordinated on alternate years with Shellharbour City Council. Each year, school students from across the Illawarra lead the march and take the White Ribbon Oath to end gendered violence against women.

This event is always well attended, and across the Illawarra, white ribbons are worn by many Council workers to show solidarity in the fight to end violence against women.





Reclaim The Night and White Ribbon Walk banners

ASSAULT - NON-DOMESTIC (ALCOHOL RELATED)

Council is committed to continuing the downward trend in the levels of alcohol related violence across the city. A range of projects and strategies have been undertaken to achieve this.

I Belong in the Gong is a community safety project designed to make Wollongong CBD a safer place, particularly at night, for people visiting, shopping and living in Wollongong's CBD. Funded by NSW Department of Communities and Justice, the project encouraged small bars, cafes and hotels in Wollongong's CBD to commit to keeping patrons safe. Local small bars that joined the project received training, signed a charter and displayed a decal in their shopfront to indicate their commitment to safety. Participating establishments said they were more likely to talk with people who appeared distressed, instead of feeling unequipped to help. 17 small bars have joined the I Belong in the Gong campaign and alcohol related assaults continue to decline in Wollongong LGA with a ten-year declining trend of 7.8%

The I Belong in the Gong campaign was recognised through the National Awards for Local Government, awarded the winner of the Prevention and Community Safety category.

Another strategy of I Belong in the Gong was a lighting audit within the CBD. The audit was conducted to investigate current pedestrian pathways to transport hubs in the city at night. While most of Wollongong's CBD is well lit, some key paths leading from the centre can be dark. The lighting audit has resulted in an integrated approach to lighting upgrades across the city including switching on and fixing broken lights in key places in the city. New festive lights have been installed to make a well-used pedestrian pathway brighter and a more attractive path to travel. Outdoor car park lights have been audited and upgrades continue.

Council has re-established Alcohol Free Zones (AFZ) and established new Alcohol Prohibited Areas (APA), where required. There are currently seven AFZ's located in Helensburgh, Thirroul, Corrimal, Wollongong, Warrawong, Berkeley and Dapto. The AFZ's will be reviewed in 2022.

Monitoring is undertaken for large scale commercial events that include the sale

of alcohol such as music festivals and sporting events. Alcohol management plans are reviewed and meetings are held with event organisers to ensure processes are in place to reduce alcohol related incidents and emphasise safety of patrons. Comments and conditions to manage alcohol consumption and maintain patron safety are included in the Council approvals.

Wollongong Liquor Accord meetings are attended regularly and projects related to alcohol management are presented to ensure collaboration and cooperation with Accord members.

ANTI-SOCIAL BEHAVIOUR (ASB), INCLUDING HARASSMENT, THREATENING AND OFFENSIVE BEHAVIOUR

Anti-social behaviour (ASB) affects most people at some time in their lives. The impact can vary from inconvenient to frightening or threatening. ASB includes behaviours that others find intimidating in public, like swearing, fighting, verbal abuse and public drunkenness. ASB can change how people feel in public and potentially where people go.

The Women's Safety Project was developed to address the impact of ASB on women in Wollongong's CBD. Working with partner organisations and interagency meetings, such as the Illawarra Refugee Issues Forum (IRIF), the intimidation women were experiencing in the city was revealed and the subsequent impact and fear as a result.

The Women's Safety Project aim was to create a more inclusive and tolerant Wollongong. The Women's Safety Survey showed that while 52% or 171 women indicated they felt safe in the Crown Street Mall, only 32% or 106 had not experienced some form of harassment, which was mostly verbal. The I Belong in the Gong campaign was part of the project and focused on working with businesses to educate them on how to support patrons and create a safe environment free from harassment or intimidation. A sticker appears in the shop front of supportive establishments indicating they are places in which you can get help if feeling threatened.17 small bars and 15 retail stores and cafes participated in the campaign and Crown Street Mall security guards created inhouse training to ensure staff knew appropriate responses and how

to provide support for women who needed their assistance. A series of television commercials were developed and aired on a local station which showed women doing ordinary activities in iconic locations saying, "we all belong in the Gong". A key objective being to challenge cultural stereotypes, reducing harassment and increasing inclusion.

ONGOING INITIATIVES TO KEEP WOLLONGONG A SAFE PLACE

Council assesses large scale development applications using CPTED principles. New builds, open space refurbishments and upgrades are assessed to ensure committing crime is made more difficult, less rewarding and more likely for criminals to be caught. It also focuses on making public space more appealing, so they are more likely to be used. Having more people in public reduces the opportunity for crime and anti-social behaviour. Over the last four years, over 700 safety assessments have been conducted on new builds, developments and refurbishments of public spaces. Assessments were also completed on liquor licence applications for major events to increase safety and reduce potential negative impacts. Safety audits have been conducted across the LGA, which informs refurbishments and upgrades of Council owned and managed properties.

Community safety audits are conducted when requested, to determine what is needed to make a place safer. Sometimes community safety audits are done for a group of streets, or for a laneway or new pedestrian path. The audits are primarily undertaken in partnership with NSW Police and generally include community members who live in or near the site.

The CCTV Policy and Code of Practice has been updated to include temporary CCTV. CCTV, both permanent and temporary, can be a successful strategy in reducing crime, if selected appropriately. Within the last four years Council has been investigating ways to expand our CCTV network into parks and playgrounds in the suburbs. While not desirable to install CCTV everywhere, it may be possible to move temporary CCTV to places they are needed the most, for a specified time.

Council regularly upgrades infrastructure, facilities and public open spaces. Car park lighting upgrades have been completed and pedestrian paths and cycle paths are continuing to be constructed across the LGA, connecting the community in safer and healthier ways.

Over the last two years, the NSW Motor Vehicle Theft Reduction Council (NMVTRC) has asked Council to coordinate the delivery of 'Operation Bounce Back', a media campaign aimed at reducing theft from motor vehicles. The campaign raised awareness about the rising trend of car keys being stolen from dwellings, after a break and enter. Television advertisements were delivered over a two-month period in both 2019 and 2020. Total airtime reached in 2019 was 961 advertisements and in 2020 was 1967 advertisements.

Council implements place-based initiatives to improve safety outcomes. Long term Collective Impact strategies were implemented in Bellambi and Warrawong involving many government and non-government partners working with the community to design and execute actions to fulfil community aspirations and goals. Improving community safety was one of those aspirations.

The Bellambi Collective Impact program has been operating for over four years and continues. Within that time, Council has refurbished the ocean pool and sea wall, upgraded the children's playground, improved safety facilities at the pool car park, upgraded facilities at Bellambi Surf Life Saving Club, and improved landscaping and removed weeds along the shared cycle path. Monthly safety group meetings with community members are held focused on removing rubbish in the area. Graffiti and traffic safety are other key areas that have been improved by teaching and supporting the community to remove graffiti, create murals, as well as improving pedestrian safety on the main arterial road into the suburb.

The Warrawong Collective Impact program resulted in a partnership approach with relevant government agencies working together to streamline how rubbish is removed in Warrawong and Bundaleer housing estates. The ongoing achievement has resulted in a stronger sense of civic pride and support for regular rubbish removals.

Council's City Centre Team focuses on activating Wollongong's Crown Street Mall, holding regular Safer City Centre Working Group meetings to develop strategies to improve safety and amenity for all Crown Street Mall users. The Working Group delivered a successful initiative to improve outcomes for disadvantaged community members through offering free coffees in a discreet location within the CBD. The initiative provided a space for people to meet, drink coffee together and access services and support mechanisms that might have been more difficult to access in other situations.



Launch of I belong in the Gong campaign 2018



Bellambi Community Safety Group



SECTION 2

Moving forward: the next four years

The Community Safety Plan 2021-2025 outlines Council's commitment to creating a safe and vibrant city and recognises the importance of a 'whole of community' approach to fostering places where people feel safe and well-connected. The Plan has been informed by research and evidence, using information provided through community engagement as well as data from NSW BOCSAR and local Police. Key community safety and crime prevention priorities for Wollongong have been identified and the following Community Safety and Crime Prevention Action Plan sets out our focus for the next four years.

The priorities in the Community Safety and Crime Prevention Action Plan are:

Priority crimes:

 Property & environment - malicious damage including graffiti

- · Gendered violence domestic assault
- Anti-social behaviour (ASB) nondomestic assault (alcohol related) & intimidation, stalking and harassment
- Personal property fraud, steal from motor vehicle, motor vehicle theft

Priority for community safety:

· Perceived and actual community safety

Many of the crimes targeted in the Plan are interrelated. For example, alcohol related assault often goes hand-in-hand with anti-social behaviours. Anti-social behaviours can also include malicious damage and graffiti and theft from a motor vehicle often results in fraud.

The majority of crimes targeted in this Community Safety and Crime Prevention Action Plan have not shown an upward trend over the last five-year period, however they continue to have a significant impact on the local community. It is recognised that many crimes are under reported to NSW Police, which means crime statistics are not reflective of the real numbers of incidents and the real impact to the community.

Developing strategies and implementing projects that reduce crime and increase the perception of safety will improve the community's feelings of safety, reduce their fear of crime and positively impact on their quality of life.

What do the LGA crime rankings mean?

The NSW BOCSAR rank LGAs in NSW that have populations greater than 3,000. In 2020, NSW BOCSAR reported there are 120 such LGAs.

Rankings are statistical equations that factor in the number of incidents of reported crime against a rate per 100,000 population.

An LGA ranked #1 out of 120 (or close to the top) for any reported crime has the highest incidents of that crime against the population rate.

A ranking for a particular crime that has a larger number indicates a community with fewer reported incidents of that crime per population. Therefore, the larger the ranking number the better.



Community Safety and Crime Prevention Action Plan 2021-2025

1. Priority: Property & Environment

Target offence: Malicions damage including graffiti

Project:	Reduce damage to property including graffiti by reducing opportunities for it to occur and making it less rewarding for offenders. Encourage reporting of malicious damage including graffiti.
Rationale:	9,897 incidents of graffiti were reported to Wollongong City Council's Graffiti Line over the last four years. Wollongong LGA is ranked 61 out of 120 LGAs in NSW*. Hot spot suburbs recorded significantly higher numbers of incidents for malicious damage than the state average*.
Objective:	To reduce graffiti and malicious damage. To increase reporting of graffiti to Council's Graffiti Line.
Lead Agency/partners:	Wollongong City Council, NSW Police, NSW Department of Communities and Justice (DCJ), Corrective Services NSW, Wollongong business community.
Expected outcome:	Improved perception of safety and pride in place due to a reduction in graffiti across the LGA and in graffiti hot spots.

^{*} Crime profile Appendix 1 NSW BOCSAR (2020)



Action	Performance Measures	Timeframes	Funding	Partners	Milestones
1.1 Assess building development applications against Crime Prevention Through Environmental Design controls to minimise graffiti opportunities	Number of development application referrals with graffiti controls completed.	Ongoing	Existing operational budget	Development Assessment and Certification	All major building development applications are referred by Development Assessment and Certification for Crime Prevention Through Environment Design assessment.
1.2 Conduct rapid removal of graffiti on Council assets	Non-offensive graffiti is removed within a week in the CBD and Special Rates Levy boundary. 100% of offensive graffiti on Council assets is removed within 24 working hours of it being reported. Non-offensive and other types of graffiti across the LGA are removed from Council assets within one to twenty days.	Ongoing	Special Rates Levy Existing operational budget	City Works Community partners	The CBD is free of offensive graffiti every day. All non-offensive or other types of graffiti are removed from Council assets across the LGA.
1.3 Support the removal of graffiti from non-Council assets	Record the number of graffiti removal kits provided to asset owners to assist in removing graffiti. Incidents of graffiti given to partner agencies are removed by those agencies. Review and investigate graffiti removal by Council officers to incorporate private fences that face onto Council parks and reserves.	Ongoing	Existing operational budget	Community Partners Community and government agencies	Asset owners contribute to the removal of graffiti on their own assets. External agencies continue to partner with Council in removing graffiti on non-Council assets. Review of graffiti removal on private fences by Council completed.

Table continues overleaf.



Action	Performance Measures	Timeframes	Funding	Partners	Milestones
1.4 Conduct place-based graffiti prevention projects in graffiti hot spot areas	 Participate in and promote Graffiti Removal Day. Graffiti reduction and prevention projects are conducted as appropriate. Contract with graffiti prevention education providers to run graffiti prevention programs in identified schools and follow up with mural projects that includes the students. 	Conducted annually	Existing operational budget External funding, when secured	 Place-based community organisations NSW Police Warner Youth Graffiti and Education Participating schools 	Community participates in removing graffiti in their own neighbourhoods. Warner Youth Graffiti and Education Program is contracted. School mural projects are undertaken.
1.5 Participate in arts-based graffiti prevention partnership projects	 Graffiti prevention murals involving collaborative community input for design are undertaken. Murals to be painted on traffic signal boxes to reduce the incidence of graffiti. 	Ongoing	Existing operational budget Transport NSW funding	Cultural Services Community Partnerships and Safety	Graffiti prevention murals are completed. Perception of Safety Survey indicates people feel safer when art replaces graffiti. Traffic signal boxes painted.
1.6 Promote Council's Graffiti Line to report incidents of graffiti and other malicious damage	The numbers of reports to Graffiti Line over 4 years has increased.	Ongoing	Existing operational budget	Wollongong City Council Customer Service	Community reports graffiti using Graffiti Line.
1.7 Conduct community safety audits	 All customer service requests for community safety audits are investigated. 	Ongoing	Existing operational budget	 NSW Police Community Partnerships and Safety Place-based organisations and communities 	To reduce graffiti, place- based organisations and communities request community safety audits.



2. Priority: Gendered violence

Target offence: Domestic assault

Project:

Awareness of gendered violence, including elder abuse, is increased throughout the community, and

the community are empowered to support victims.

Reporting of domestic assault increases due to campaigns that raise awareness and promote

support services in Wollongong.

Education and support relating to elder abuse is promoted.

The ten Child Safe Standards recommended in the Royal Commission into Institutional Reponses to

Child Sexual Abuse Final Report 2017, are embedded into Council policy and practice.

Rationale:

Wollongong LGA is ranked 77 out of 120 LGAs in NSW*

Hotspot areas show significantly higher rates than the NSW state average and double the rate of

incidents when comparing with the overall Wollongong LGA*.

Lake Illawarra and Wollongong Police Districts highlight domestic violence as a significant priority crime with Lake Illawarra Police District ranked in the top ten Police Districts for this crime in NSW**. Domestic violence across NSW has increased by over 4% per year over the past two years. Breaches of apprehended violence orders continue to increase in NSW over a ten year period. In Wollongong, breach of apprehended violence orders (domestic violence related) has increased 2% per year over ten years, with a rate mostly above the NSW average*

There is an awareness elder abuse is rising with challenges surrounding how this is reported and a

need to provide support and education to victims and service providers.

The Royal Commission into Institutional Reponses to Child Sexual Abuse Final Report was released in 2017. The report included a range of recommendations to make organisations child safe. From these recommendations there have been legislative changes in the way organisations prevent and respond to risk to children, including introduction of ten Child Safety Standards that aim to make institutions safe for children. These standards apply to all government, non-government and community based organisations across NSW.

Objective:

Increase reporting of domestic violence assault in the Wollongong LGA.

Provide support for local networks and services in raising awareness about domestic and family

violence in Wollongong

Local networks and the community are more aware about the incidence and support available for

elder abuse

The ten Child Safety Standards are embedded into Council's work practices, creating an environment where risk of harm to children can be better prevented, identified, reported and responded to.

Lead Agency/partners:

Illawarra Committee Against Domestic Violence (ICADV). NSW Police, community organisations, local

businesses, NSW Office of the Children Guardian.

Expected outcome:

Reporting of domestic violence will increase.

Attendance figures for ICADV events will continue to rise.

The community and service providers are educated on elder abuse and how to receive support.

Council's policies and practices meet the ten Child Safe Standards.

^{*} Crime Profile Appendix 1 NSW BOCSAR (2020)

^{**} Lake Illawarra Police District (2020)



Action	Performance Measures	Timeframes	Funding	Partners	Milestones
2.1 Work in partnership with lead agencies that provide support for victims of family and domestic violence to share information and raise awareness about the issue	Regular attendance at meetings held by the ICADV.	Ongoing	Existing operational budget	ICADV members	The production and distribution of an Illawarra Domestic Violence Services resource showcasing all services available for families in the region. ICADV organised forums and training are scheduled annually.
2.2 Support ending Domestic Violence and Reclaim the Night campaigns	Participate in campaigns with the ICADV each year. Reclaim the Night held annually.	Annually	Existing operational budget	ICADV Committee Reclaim the Night Committee	Both campaigns are included in Council's Operational Plan.
2.3 Raise awareness of elder abuse	Council attends Prevention of Older Persons Abuse (POPA) meetings.	Ongoing	Existing operational budget	POPA members	Awareness-raising campaigns are conducted.
2.4 Council acts as a lead organisation that stands against domestic violence	Council's Enterprise Agreement includes the provision for staff to take domestic violence leave to seek support as needed. Council provides access to an Employee Assistance Program (EAP) for staff.	Ongoing	Existing operational budget	Council Executive	 Council as an employer supports staff who are experiencing domestic violence to find safety from the violence. Staff can access the EAP at no cost.
2.5 The ten Child Safe Standards are embedded into Council policies and practices	Council completes child safe audit. Child Safe Wollongong Implementation Plan is endorsed. Council establishes ongoing review of child safe practice and implementation of recommendations for child safety.	Ongoing	Existing operational budget	NSW Office of the Children Guardian	Child Safety Standards are embedded into Council's work culture, policy and practices, creating an environment where risk of harm to children can be prevented, identified, reported and responded to. Review cycle implemented.
2.6 Council leads the way in creating a child safe organisation and community	Council provides support to other organisations to implement the ten Child Safety Standards.	Ongoing	Existing operational budget	NSW Office of the Children Guardian Key community service organisations	 Community organisations understand the requirements of the ten Child Safe Standards. Community organisations are implementing the ten Child Safe Standards.



3. Priority: Anti-social behaviour (ASB)

Target offence: Non-domestic assault (alcohol related) & Intimidation, stalking and harassment

Project:

Opportunities for alcohol related assault are reduced as a result of community education and

partnership strategies.

Anti-social behaviours including harassment and threatening behaviour is reduced through the activation of Wollongong Crown Street Mall and other public spaces that are otherwise underused or isolated from regular activity.

Rationale: Wollongong is ranked 63 out of 120 LGAs in NSW, for recorded incidents of non-domestic assault.

This ranking shows Wollongong has the highest incidents per capita of all LGAs in the Illawarra. In

2019, 34% of all non-domestic assaults were linked to alcohol*.

Non-domestic assault (alcohol related) and incidents of intimidation, stalking and harassment are densely concentrated in our CBD and have a profound impact on how safe people feel. Both impact local residents, visitors and businesses.

Wollongong is a regional city centre and entertainment precinct, therefore the risks associated with alcohol and strategies to mitigate these need to be considered. The rate of alcohol non-domestic assault is higher in our CBD with 44% of the 258 incidents linked with alcohol*.

The Perceptions of Safety Survey (2017) and Women's Safety Survey (2018), highlighted anti-social behaviour in the Wollongong Crown Street Mall as a concern where many women were experiencing some form of harrassment. Only 32% of respondents in the Women's Safety Survey had not experienced some form of harrassment**.

For incidents of intimidation, stalking and harassment, Wollongong LGA reported more than 800 incidents to police in 2019*. The rate is lower than the upward trend in NSW, however, this crime is significantly under reported with recent evidence highlighting how the prevalence of harassment is so common that young women perceive it to be normal***.

Multicultural harassment is also an emerging concern for Wollongong LGA****.

Objective: Reduce incidents of alcohol related non-domestic assault.

Reduce the incidents of ASB in the CBD and public places throughout Wollongong LGA.

Lead Agency/partners: NSW Police, Wollongong City Council, Wollongong Liquor Accord, Community Drug Action Team (CDAT).

Expected outcome: Wollongong shows a decreasing trend regarding incidents of alcohol related assaults in the CBD and

other hot spots.

People feel safer in the Crown Street Mall and other public places

Incidents reported and actual ASB are reduced.

^{*} Crime Profile Appendix 1: NSW BOCSAR (2020)

^{**} Women's Safety Survey - Wollongong City Council (2018)

^{***} Unsafe in the City (Everyday Experiences of Girls and Young Women) Research by Monash University (2018).

^{****} Wollongong District Police (2020)



Action	Performance Measures	Timeframes	Funding	Partners	Milestones
3.1 Assess Development Applications for liquor licences against Crime Prevention Through Environmental Design Principles	100% of all new liquor licence applications are referred to community safety for comment.	Ongoing	Existing operational budget	Development Assessment and Compliance	The process for referring new liquor licences against community safety is a standard operating process.
3.2 Respond to requests from NSW Police and the community for alcohol free public places	 Alcohol Free Zones (AFZ) and Alcohol Prohibited Places are reviewed every four years. All customer service requests relating to alcohol free public places are investigated. 	Ongoing	Existing operational budget	 Events and Visual Strategy Infrastructure Systems and Support NSW Police Property and Recreation 	All AFZ and Alcohol Prohibited Places are mapped and available on Council's website for the community's information. AFZ's and Alcohol Prohibited Places are re-established where and when appropriate.
3.3 Conduct community safety audits focusing on consumption of alcohol in public spaces	 All customer service requests for safety audits are investigated. 	As requested	Existing operational budget	NSW Police Community Community groups	People acknowledge Council has a role to play in restricting the consumption of alcohol in public spaces.
3.4 Undertake partnerships with CDAT and youth based services to support and promote community development and education programs that target unlawful consumption of alcohol	 Talking Tactics Together is conducted in public schools. Community resources are produced. Community forums are conducted. 	Ongoing	External funding for CDAT programs if successful	Community Drug Action Team (CDAT) Wollongong Liquor Accord NSW Police	Community acknowledges its responsibility in reducing drinking habits of young people.



Action	Performance Measures	Timeframes	Funding	Partners	Milestones
3.5 Promote and attend Wollongong Liquor Accord meetings	Number of meetings attended.	Ongoing	Existing operational budget	Wollongong Liquor Accord NSW Police	The partnership between Council, NSW Police and Wollongong Liquor Accord is strengthened.
3.6 Continue to support the Night Time Economy Policy	Night Time Economy Policy actions developed to promote safe spaces.	As requested	Existing operational budget	Economic Development	Review of Night Time Economy Policy actions reflect community safety needs.
3.7 Monitor and assess events that are not alcohol-free	 Meet with and assess alcohol management plans for major events that plan to sell alcohol to patrons. 	Ongoing	Existing operational budget	Events team NSW Police Event organisers	Events selling alcohol are well managed and proceed without alcohol related incidents.
3.8 Work in partnership to develop localised place-based strategies to improve safety and amenity in hotspot areas	 Number of partnership projects and activation strategies. ASB is reduced. 	Ongoing	Existing operational budget	Place-based organisations Place-based Chambers of Commerce Community	Public places in hotspot locations are activated and used by residents.
3.9 Assess building Development Applications using CPTED Principles that encourage valid social activity	Number of DA's assessed using CPTED principles.	Ongoing	Existing operational budget	Development Assessment and Compliance NSW Police	All new building development applications are referred to the Community Safety Team for CPTED assessments.
3.10 Conduct safety audits at facilities and public spaces in hotspot locations	All customer service requests for community safety audits to reduce ASB are investigated.	Ongoing	Existing operational budget	Branch Libraries and Community Facilities Sporting clubs and facilities Community NSW Police	Community and partners acknowledge Council's role in reducing ASB.



4. Priority: Personal property

Target crime: Fraud, steal from motor vehicle, motor vehicle theft

linked through use of contactless payment systems.

Project:

Raise awareness within the community about the types of crime trends targeting personal property for the specific offences of fraud, steal from motor vehicle and motor vehicle theft. Reduction in the number of steal from motor vehicle offences and the correlating fraud offences

Rationale:

Fraud continues to be one of the major crime categories holding an upward trend in the Wollongong LGA. Wollongong is ranked 57 out of LGAs in NSW, with 1,076 incidents of fraud reported in 2019* Fraud has trended upward by 3.3% per year for five years and 5.2% per year for ten years*. Many people are unfamiliar with what fraud offences are and feel removed from the risks, however, the risks relate to everyone and have grown as online scams and contactless payment increases opportunities for crime to occur.

Steal from motor vehicle is an ongoing prominent problem in our LGA. While the crime trend is stable the rate has shown no improvement over ten years.

Wollongong is ranked 30 out of 120 LGAs in NSW with a higher rate than the NSW average*. This crime is significantly under reported and holds a strong connection to incidence of fraud when credit cards are taken which flows on to contactless payment use and 'fail to pay' incidents at service stations

Motor vehicle theft and strategies to educate the community about changing trends is the third offence to focus on in this priority area. Wollongong LGA is ranked 46 for this crime and our rate is higher than the NSW average*. Changing trends towards car keys being targeted increase the risk of this crime.

There is some level of complacency related to many of these crimes, where often they have occurred because an owner has not secured their car keys, vehicle or home.

Objective:

Raise awareness within the community about the types of fraud incidents occurring.

Raise awareness within the community about the link between steal from motor vehicle and fraud

(fail to pay) offences.

Identify strategies to minimise the incidents of steal from motor vehicle. Identify strategies to minimise the incidents of 'fail to pay' at service stations.

Raise awareness within the community to be more vigilant about securing valuables including their vehicle and home.

Lead Agency/partners:

Wollongong City Council, NSW Police, National Motor Vehicle Theft Reduction Council, community

groups and business sector.

Expected outcome:

People are more aware of the frequency of fraud and types of fraud incidents occurring.

Incidents of steal from motor vehicle are reduced. Incidents of 'fail to pay' fraud offence are reduced.

Incidents of motor vehicle theft from keys being stolen is reduced.

People are securing their keys, cars and homes to help reduce fraud, steal from motor vehicle and motor vehicle theft.

^{*} Crime Profile Appendix 1: NSW BOCSAR (2020)



Action	Performance Measures	Timeframes	Funding	Partners	Milestones
4.1 Develop and implement projects that educate the community about fraud offences	 Research and conduct an audit to identify expert information and assistance available to identify, address, and respond to fraud trends (including scams). Identify strategies to educate the community about ways to minimise the incidence of fraud. 	Ongoing	Existing operational budget and external funding	 NSW Police Community Partnerships and Safety Team Community Development and Planning Team 	 Council is aware of the latest fraud trends and has identified key partners to help educate the community. Provide information to Council's partners and community to help reduce incidents of fraud.
4.2 Work in partnership with NSW Police to raise community awareness about the incidence of steal from motor vehicles	 Identify strategies to educate the community about ways to minimise steal from motor vehicle. Raise awareness about the link between steal from motor vehicle and fraud. Identify specific strategies to help reduce incidents of 'fail to pay at service stations'. Deliver education campaign aimed at reducing steal from motor vehicle offences. 	Ongoing	Existing operational budget and external funding	NSW Police Community Partnerships and Safety Team	Provide information to Council's partners and community to help reduce incidents of steal from motor vehicle. Steal from motor vehicle offences are reduced. Incidents of motor vehicle theft is reduced.
4.3 Support education strategies aimed at reducing motor vehicle theft	Promote education campaigns that raise awareness about new trends used to steal motor vehicles.	Annually	External funding	NSW Police National Motor Vehicle Theft Reduction Council Community Partnerships and Safety Team	Provide information to Council's partners and the community to help reduce incidents of motor vehicle theft. People are securing their keys, cars and homes to help reduce motor vehicle theft.



5. Priority for Community Safety: Perceived and actual community safety

Project: Feelings of safety by residents across the LGA are improved.

Rationale: The community's perceptions and fear of crime has a major impact on their quality of life and

community interaction. The Perception of Safety Survey (2017) showed people have mixed feelings

regarding how safe they feel.

Over 60% of people felt safe day and night in both the city and our neighbourhoods. People

acknowledged feeling safe in activated places*.

Feelings of being unsafe were attributed to neglected and isolated places and witnessing antisocial

behaviour such as aggressive fights to observing drug affected people*.

Objective: To improve the actual and perceived feelings of safety for community.

Lead Agency/partners: Wollongong City Council

Expected outcome: Residents feel safer.

^{*} Perception of Safety Survey - Wollongong City Council (2017)



Action	Performance Measures	Timeframes	Funding	Partners	Milestones
S.1 Conduct a comparative LGA wide Perceptions of Safety Survey with Wollongong residents	 Comparative Perceptions of Safety Survey findings are published. Comparison findings show people feel safer where they live, recreate and shop. 	2024	Subject to funding	 Events and Visual Strategy Community Development and Enagagement External consultant 	Comparative Perceptions of Safety Survey is completed. Comparative findings of the Perception of Safety Survey provides a benchmark about how the community feels in the public arena.
5.2 Develop and implement projects that reduce residents' concerns	 Projects that activate public space are developed and implemented. Partner with NSW Police in combined community safety meetings. 	Ongoing	Subject to funding	 Community Partnerships and Safety Team NSW Police City Culture and Activation 	 Communities actively participate in the development and implementation of activation projects. Community safety meetings in community settings are conducted.

APPENDICES

Appendix 1:

Crime Profile Wollongong LGA Crime Statistics

Information and tables below were created from data retrieved from the NSW Bureau of Crime Statistics and Research (NSW BOCSAR) using their online crime data tools and crime mapping tool in May 2020 (www.bocsar.nsw.gov.au). The data reflects the period from January 2015 to December 2019.

Many crimes in the Wollongong LGA, as with NSW, are either stable or trending downwards.

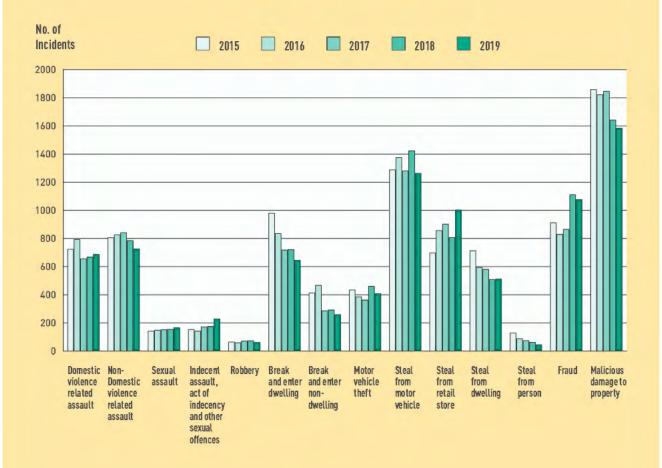


Figure 1: Major crime categories over a five-year period (2015-2019) in Wollongong LGA.



Major Crime Category	Rank 2019
Steal from retail store	18
Steal from motor vehicle	30
Robbery without a weapon	32
Motor vehicle theft	46
Fraud	57
Malicious damage to property	61
Non-domestic violence related assault	63
Steal from dwelling	64
Break and enter dwelling	65
Steal from person	66
Break and enter non-dwelling	73
Sexual assault	74
Domestic violence related assault	77

Table 1: Major Crime Category Rank Table

Table 1 shows the ranking of Wollongong LGA major crime categories in comparison to 120 other NSW LGAs.

The NSW BOCSAR rank LGAs in NSW that have populations greater than 3,000. Rankings are statistical equations that factor in the number of incidents.

Wollongong is ranked within the top 50 positions for:

- Steal from retail store
- Steal from motor vehicle
- Robbery without a weapon
- Motor vehicle theft

The rank provides one perspective to compare against other LGAs. Analysis for such rankings is complex. Wollongong's character, city size, geographic location, laid-back coastal environment and the socio-economic vulnerability of some areas, when combined, can influence crime like retail theft and steal from motor vehicle.

The crime priorities of this safety plan target the following offences. Data has been extracted from NSW BOCSAR to review each offence.

- Malicious damage to property (incl. graffiti)
- Domestic assault
- Non-domestic assault (alcohol related)
- Intimidation, stalking and harassment
- Fraud
- Steal from motor vehicle
- Motor vehicle theft

METHODOLOGY

The following characteristics were considered when reviewing each offence.

General assessment - Review the trend occurrence over a two, five and ten year period, along with comparisons to the NSW trends.

Rank - Review the position of Wollongong LGA compared with the other 120 LGAs in NSW with populations more than 3,000. **Hot spots** - Identify hot spot areas where the offence has most commonly occurred.

Time and location - Assess when and where the offence occurs i.e. weekends or weekdays.

Offender & victim details - Review data on both offender and victim incident records. The data commented on in this crime assessment reports on recorded incidents up until December 2019.

Individual figures given refer to those recorded by NSW BOCSAR in 2019.



Offence 1. Malicious damage to property (including graffiti)

Number of incidents: 1583 Rank Position: 61

General	LGA Hot Spots	Incident times	Offenders & Victims
 This crime has been stable for the past two years consistent with the NSW trend. The longer-term declining trend is: 4.8% per year over five years 6.4% per year over ten years. For Wollongong suburb specifically, crime levels are stable with no downward trends. The data shows Wollongong suburb has a rate more than double the NSW average rate. The total number of reported graffiti incidents to Council over the last four years was 9,897. In 2019 there were 2,825 reported incidents. In 2019, 10.45% (166) of the BOCSAR malicious damage incidents (1583) represented graffiti incidents. This highlights graffiti is a localised crime, predominantly reported to Council rather than NSW Police. 16.9% (267) of recorded BOCSAR incidents for this offence were related to domestic violence. 	Wollongong suburb is the largest hot spot area within our LGA. The incident rate in the suburb of Wollongong is more than double the NSW average rate. Other BOCSAR hotspot areas include Woonona, Bellambi, Fairy Meadow, Figtree, Berkeley, Warrawong and Dapto. Hot spot suburbs recorded significantly higher levels of incidents above the NSW state average, with some areas more than double that rate.	Peak time: Saturday 6pm - midnight When: Incident rates are spread evenly between day and night-time. Night-time is more prevalent over the weekend. - 60% occurred during the week - 40% occurred on the weekend. Where: - 52% (821) residential premises - 18% outdoor public space.	Offenders: 149 offenders were recorded in 2019, relating to 368 incidents. - 77% male offenders - 23% female offenders. The most common age category: - 30% aged 30-39 years - 28% aged 20-29 years - 19% aged 10-17 years. The percentage of juvenile offenders has declined significantly: - 25.9% over two years - 15.6% over five years This is lower than the NSW average. Victims: There was no recorded data on victims for this crime.

Note: There are no crime statistics available on victims for this offence, or alcohol related incidents

- While reports depict a declining incident rate for malicious damage to property our main hot spot area, Wollongong suburb, records incident levels more than double the NSW average rate. This emphasises that the Wollongong LGA incident rate does not reflect what is happening in key hot spot areas where a targeted response is required.
- Incidents of vandalism and graffiti are under reported. Incidents occurring on residential property are more likely to be reported than public property. Factors such as the need to report vandalism to enable access to insurance for repair of damage encourages this reporting.

The difference between Council's online graffiti reports compared with

NSW BOCSAR data highlights how localised this crime is where reporting is made to Council rather than NSW Police. This highlights the importance of promoting Council's Graffiti Reporting Line and graffiti web based reporting as a prevention strategy.

Mount Ousley

Figure 2: Incident of malicious damage to property from April 2019 to March 2020 Map.

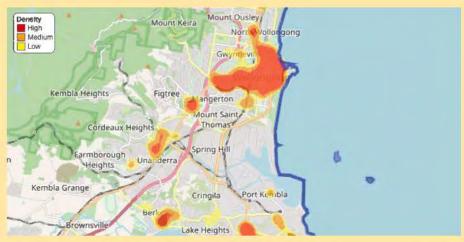


Figure 3: Incident of malicious damage to property from April 2019 to March 2020 Map.

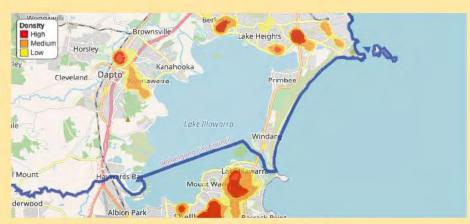


Figure 4: Incident of malicious damage to property from April 2019 to March 2020 Map.

Offence 2. Domestic Assault

Number of incidents: 686 Rank Position: 77

General	LGA Hot Spots	Incident times	Offenders & Victims
 The two, five and ten year trend for this crime is stable. Lake Illawarra Police District inform since 2019 it has risen. The rate of offence in Wollongong LGA is just below the recorded NSW average. 30.5% of the domestic violence related assault incidents were linked with alcohol in 2019. Other offences linked with domestic violence: - 267 malicious damage to property incidents - 371 intimidation, stalking & harassment incidents - 445 (90%) domestic violence related against justice procedures (breach apprehended violence orders (AVO) incidents. In Wollongong breach of AVO (domestic violence related) is up 2% per year over ten years, with a rate mostly above the NSW average for each year. Lake Illawarra Police District is rated in the top ten districts across the state for domestic violence. 	 There are hot spot areas scattered across our LGA. In many of these areas the rate of incidence is much higher than the NSW average. The most significant areas in 2019 were: Berkeley, Warrawong, Koonawarra and Bellambi. The number of incidents remains stable in these specific areas however, in some places the incident rate is more than double our LGA rate and more than 150% of the NSW state average. 	Peak time: Friday midday – 6pm Tuesday 6pm – midnight Saturday midday – midnight. When: Summer period – December was the peak month followed by January and February. - 63% occurred during a weekday with half of these happening in daytime - 37% occurred on the weekend with nearly two third of these occurring at night. Where: 87% residential premises.	Offenders: 306 offenders were recorded relating to 478 incidents. 76% male offenders - 34% aged 40 and over - 29% aged 20-29 years - 25% aged 30-39 years. 23% female offenders - 34% aged 20-29 years - 28% aged 40 and over - 25% aged 30-34 years. Victims: 752 reported victims. 29% male victims - 46% aged 40 and over - 29% aged 20-29 years - 25% aged 30-39 years. 71% female victims - 34% aged 20-29 years - 33% aged 40 and over - 25% aged 30-39 years. 90% of victims were adults and 10% children. 30.5% of events recorded were linked with alcohol.

2019 NSW BOCSAR data retrieved May 2020

- Domestic assault is an under reported crime where successful education campaigns will lead to increased incident reports. While crime trends demonstrate stable levels for Wollongong LGA some hot spot areas, in our most vulnerable locations, have rates double the Wollongong LGA rate and well above the NSW state average. There is also a concerning awareness
- of the emerging abuse of elders and the challenges linked with how this crime is reported.
- Domestic violence is a key focus for NSW Police where the implications are far reaching and often result in additional related offences. Accurately demonstrating or understanding the true impact of domestic violence on

our community, both socially and economically, is complex. Keeping domestic violence as a crime priority will help work toward the cultural shift required to aid behaviour change and anchor long term for our community.

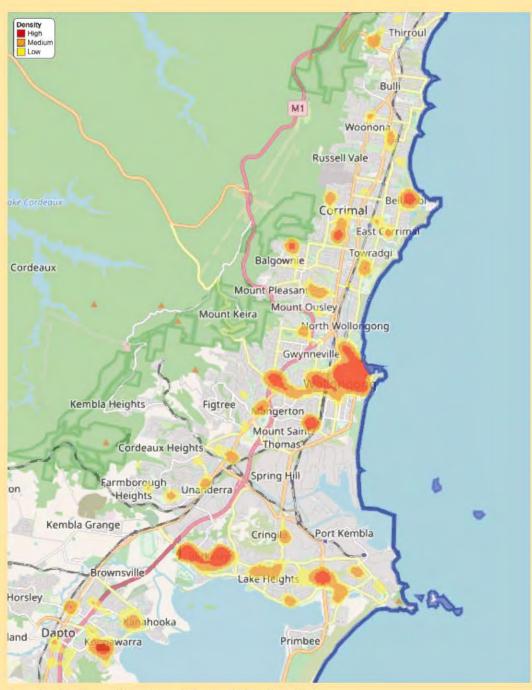


Figure 5: Incident of assault (domestic assault) from April 2019 to March 2020 Map.



Offence 3. Non-domestic Assault

Number of incidents: 726 Non-domestic assault

(247 Alcohol related non-domestic assault)

Rank Position: 63

General	LGA Hot Spots	Incident times	Offenders & Victims
 This crime has been stable for the past two years. The longer term declining trend is: 3.4% per year over five years 4.5% per year over ten years. 36% (258) of these incidents occurred in the suburb of Wollongong, of which 44% (113) were linked with alcohol. 34% of all incidents were linked with alcohol. Alcohol related nondomestic assaults show patterns of decline: 14% per year over two years Five year trend is stable 7.8% per year over ten years, to December 2019. The levels of alcohol related non-domestic assaults in Wollongong suburb have remained stable over the past five years, while significant declines have occurred beyond the five year trends. The rate of alcohol related non-domestic assault in Wollongong LGA continues to decline mirroring the NSW declining trend. 	 Non-domestic assaults occur in hot spot areas primarily situated in and around town centres. Wollongong suburb, as our CBD, is our predominant area of concern. Other hotspot locations include; Dapto, Warrawong, Bellambi, Port Kembla, Unanderra and Berkeley*. These suburbs have seen a decline in this category over the last two years in line with BOCSAR and NSW Crime figures*. Bottle shops have been highlighted as an area of concern by NSW Police. 	Peak time: In 2019 the most common times were: Saturday 6pm - midnight Wednesday midday - 6pm Sunday midnight - 6am. When: Summer period - December through to March was the peak time. February had the highest monthly recorded incidents. Where: Alcohol related non domestic incidents occurred: 34% licenced premises 26% road/street/footpath 25% residential premises.	• Offenders: 130 reported offender events relating to 234 incidents. 70% (130) male offenders - 32% aged 40 and over - 26% aged 20-29 years - 19% aged 10-17 years. 30% (55) female offenders 36% (20) were juveniles aged 10-17 years with the remainder spread relatively evenly across all female age groups. 22% of incidents were young people under 18. 33% (78) of incidents were linked with alcohol. The juvenile offenders were not linked with alcohol. Offender incidents of alcohol related assault have declined 5.4% per year over a ten year period. • Victims: 821 reported victims: - 37% (195) aged 40 and over - 26% (139) aged 18-29 years. 36% (292) female victims: - 34% (98) aged 40 and over - 29% (85) aged 18-29 years. 36% of all victims were aged 40 and over. 42% of adult victims were linked with alcohol.

2019 NSW BOCSAR data retrieved May 2020

• Despite some long-term trending of alcohol related assault declining, the attraction of town centres, late night venues and bottle shops will continue to hold risks associated with alcohol.

^{*} Lake Illawarra Police District

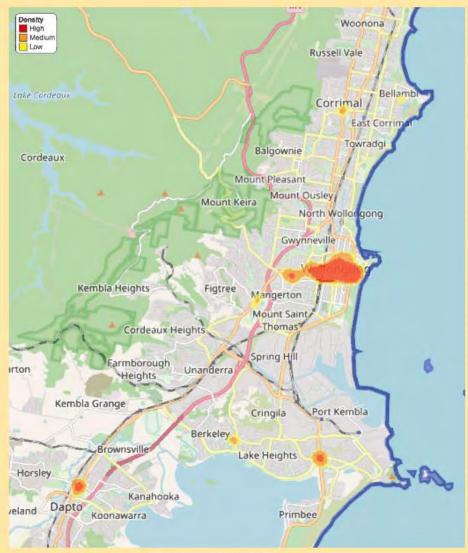


Figure 6: Incident of assault (non-domestic assault) from April 2019 to March 2020 Map.



Offence 4. Intimidation, stalking and harrassment

Number of incidents: 827 Rank Position: Not available

General	LGA Hot Spots	Incident times	Offenders & Victims
 This crime has been stable over two, five and ten years. 19% of incidents were linked to alcohol. 45% of incidents were related to domestic violence. Wollongong is below the state average with 384.6 incidents for rate per 100,000 compared with the NSW rate per 100,000 at 442.8 incidents. NSW has seen incidents increase in the last two years. 	 There are no hot spot maps to indicate where reported incidents occur. A significant proportion of incidents occurred in residential premises. Wollongong CBD, other town centres, transport hubs, and education institutions; through number of people transiting; can have a higher risk of ASB occurring. The Perceptions of Safety survey (2014 and 2017) and Women's Safety Survey (2018) identified Wollongong CBD as an area where people experience or are fearful of harassment and ASB. 	Peak time: Midday - 6pm Friday followed by Tuesday, Wednesday and Monday were the peak days in 2019. When: - 69% occurred on a weekday - 31% occurred on the weekend. 58% of weekend incidents occurred at night with 44% linked to alcohol. 70% of weekday incidents occurred in the day with minimal link recorded with alcohol. There were slightly more incidents reported over the summer months. Where: 65% residential premises 11% road/street/footpath.	Offenders: 344 offender events relating to 460 incidents. - 82% (282) male offenders 18% (62) female offenders. Offenders age spread relatively evenly from 20 years and above for both male and female. 9% of offender incidents were linked with alcohol. 20% of offender incidents were linked to domestic violence. Victims: 34% (291) male victims - 47% (201) aged 40 and over 64% (543) female victims - 37% (201) aged 40 and over. 11% of victims were under 18 years of age. 16% of victim incidents were linked with alcohol. 47% of victim incidents were linked with domestic violence.

2019 NSW BOCSAR data retrieved May 2020 There are no rank positions or hotspot maps available for this crime.

- Anti-social behaviour encompasses a broad set of behaviours impacting public safety and how a person experiences a public place. Many of these behaviours are exacerbated when linked with alcohol and other drugs.
- The rate of ASB including intimidation, stalking and harassment along with alcohol related non-domestic assault are more concentrated in our CBD.
- As a regional hub, an entertainment precinct, gateway to a major University, and a tourist destination, risks associated with ASB can have long-term implications.
- Strategies that encourage reporting and help make it more difficult for unacceptable behaviour to occur will create an inclusive space where people will want to return.
- Results from Council's Perceptions of Safety Surveys and the Women's Safety Survey identified ASB as a crime affecting them and they were less likely to report this to NSW Police.



Offence 5. Fraud

Number of incidents: 1,076 Rank Position: 57

General	LGA Hot Spots	Incident times	Offenders & Victims
 This is a major crime category for Wollongong LGA with a growing long-term trend: 3.3% per year over a five year period 5.2% per year over ten year period. The NSW crime trends show stability for two and five years with a ten year rising trend of 2.8% per year. While the Wollongong crime trend is growing our rate per 100,000 population is 498 which is below the NSW rate of 656.3. 	There are no hot spot maps available for incidents of fraud. NSW Police advise there is a growing trend of 'fail to pay' offences at service stations. Service stations are therefore potential hot spot areas. This type of crime is broad and can also occur online challenging the notion of having a hot spot area.	Peak Time: Monday midday - 6pm. When: - 59% occurred in the day - 41% occurred at night. 72% of incidents occurred during the week with 66% of these in the daytime. 28% occurred over the weekend with 59% of these occurring at night. Between 50-77 incidents occurred per month, relatively consistent for the twelve months. July and September were peak months in 2019 with 77 incidents occurring in each month. Where: - 50% residential premises - 37% retail or wholesale premises.	Offenders: 173 offenders were recorded relating to 203 incidents. 76% male offenders - 71% (122) male offender - 29% (51) female offender. Offenders age spread relatively evenly from 20 years and above for both male and female. Victims: While victim data is not available anecdotally many fraud offences result from stolen credit cards. Steal from motor vehicle is a common offence that can lead to incidence of fraud. Victims of steal from motor vehicle, who have their credit cards stolen, are potential victims of fraud.

2019 NSW BOCSAR data retrieved May 2020 There are no rank positions or hotspot maps available for this crime.

• Fraud, and the types of crime associated with it, is growing in NSW. Many people are not familiar with or educated about fraud trends or targeted scams that may affect them.



Offence 6. Steal from motor vehicle

Number of incidents: 1,263 Rank Position: 30

General	LGA Hot Spots	Incident times	Offenders & Victims
 Ranked 30th place this crime is Wollongong's second highest ranking in comparison with other LGAs. This crime continues to be significant and an ongoing problem in many areas across our LGA. Crime levels have remained relatively stable for Wollongong over the past 10 years, while the NSW trend has shown a five and ten year downward trend. The Wollongong rate per 100,000 population is 584.5, higher than the NSW average of 478. This crime is opportunistic. Anecdotally 50% of steal from motor vehicle incidents occur when the owner has left the vehicle unlocked with items in the car. Despite the opportunistic nature of this crime, areas and streets are targeted by offenders to check for unlocked vehicles. 	This crime occurs across our LGA from Helensburgh to Windang. Areas showing higher density on the hot spot map in 2019 include: Bulli, Woonona, Corrimal, Bellambi to Towradgi, Wollongong, Dapto, Warrawong, Port Kembla, Primbee, Windang, Koonawarra and Mount Ousley. This crime is under reported. Many victims leave vehicles open, sometimes only small items are taken, influencing their decision to report this crime.	Peak time: Tuesday midnight – 6am Tuesday 6am – midday. This crime occurs sporadically and at all times. When: - 65% occurred during a weekday - 35% occurred on a weekend. Nights were more common on the weekend (68%). Weekday incident times occurred evenly across day and night-time. This crime is mostly consistent across all months. March and October recorded the highest incidence rate in 2019. Where: - 45% residential location - 33% outdoor public place - 15% car park.	Offenders: 37 offenders events relating to 52 offender incidents. - 81% (30) male offenders - 19% (7) female offenders aged 10-17 years. This crime is often opportunistic. Anecdotally 50% of steal from motor vehicle incidents occur when the owner has left the vehicle unlocked and items in the car. Victims: There is no data available on victims.

2019 NSW BOCSAR data retrieved May 2020

• Steal from motor vehicle has been a consistent crime in the Illawarra for the past ten years. Approximately 50% of incidents occur when the owner has left the vehicle unlocked with items inside.



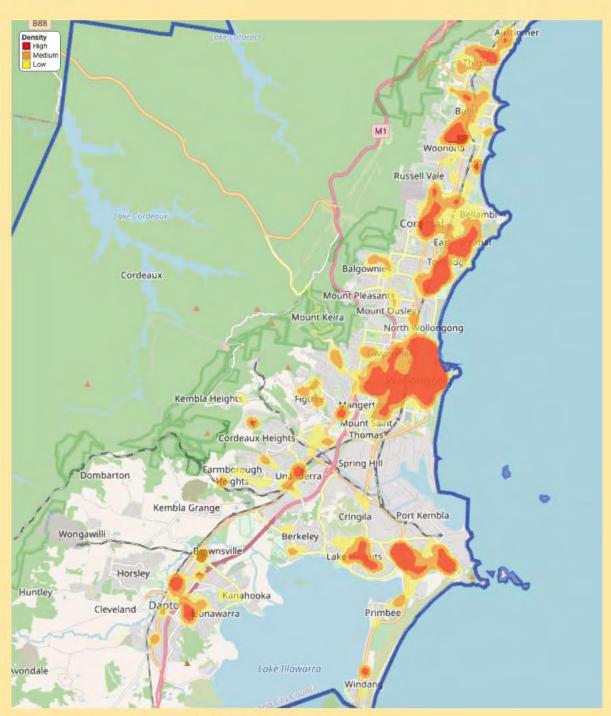


Figure 7: Incident of theft (steal from motor vehicle) from April 2019 to March 2020 Map.



Offence 7. Motor vehicle theft

Number of incidents: 408 Rank Position: 46

General	LGA Hot Spots	Incident times	Offenders & Victims
This is the fourth highest ranking crime for Wollongong in comparison with other LGAs. This crime is declining. The declines for Wollongong LGA are: 10.9% per year for 2 years Five year trend is stable 4.1% per years for 10 years. The declines for NSW are: Two year trend is stable 2.4% per year for five years 5.7% per year for ten years. The rate per 100,000 population for Wollongong in 2019 was 189.8, placed slighting higher than NSW at 168.2.	Wollongong LGA has been selected by the National Motor Vehicle Theft Reduction Council (NMVTRC) over the past two years to initiate a community education campaign based on Wollongong being flagged as a hotspot area for this crime. Car keys are being targeted and stolen from homes with the intention to steal motor vehicles.	Peak time: Wednesday 6am - midday Followed by: Saturday midday - 6pm Sunday midnight - 6am Monday midnight - 6am. When: - 62% occurred during the week, evenly spread across day and night 38% occurred on the weekend with 64% of these happening at night. In 2019 June had the highest recorded incidents although levels are relatively consistent across all months. Where: - 43% residential location - 34% outdoor public place - 14% car park - 5% retail/wholesale premises.	Offenders: 87 offenders events were recorded, relating to 93 incidents. - 78% (68) male offenders - 22% (19) female offenders 11% juvenile offenders. Victims: There is no data available on victims.

2019 NSW BOCSAR data retrieved May 2020

The number of cars being stolen in NSW has generally reduced; however Wollongong LGA is ranked within the top 50 LGAs
for this crime. The growing trend is that car keys are being targeted from within a person's home. There is some level of
complacency linked to this crime where often an owner has not secured their vehicle or home and keys are left on bench tops,
hooks and in cars.





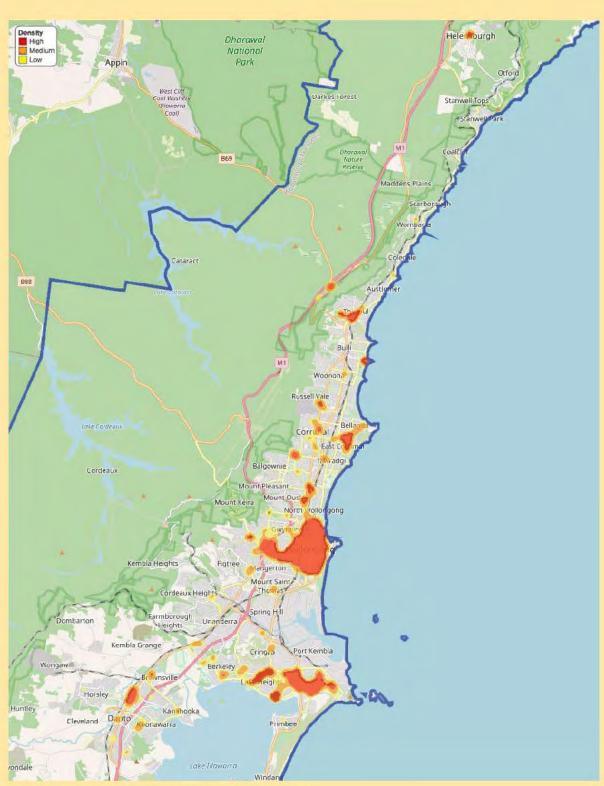


Figure 8: Incident of theft (motor vehicle theft) from April 2019 to March 2020 Map.



Appendix 2:

Demographic profile for Wollongong LGA

The table below (unless noted otherwise) provides data about people living in the Wollongong LGA, based on the Australian Bureau of Statistics Population and Housing 2016 Census. The information is delivered and maintained by the census data service .id profile.

Number of People	203,630 usual resident population (100,542 males and 103,087 females). Median age 39 years.		
Age Distribution			
7.90 2.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	In 2016:		
	24.3% of the population was aged between 0 and 19 (24.5% in NSW)		
	14.2% were aged 20-29 years (13.5% in NSW)		
	• 25.3% were aged 30-49 years (27.2% in NSW)		
	18.6% were aged 50-64 years (18.4% in NSW)		
	17.7% were aged over 65 years (16.2% in NSW)		
	The largest changes in age structure in Wollongong between 2011 and 2016 were in the age groups:		
	• 66 to 69 (+ 1,715 persons)		
	• 55 to 59 (+ 1,588 persons)		
	• 20 to 24 (+ 1,085 persons)		
	85 and over (+ 995 persons).		
Diversity: Cultural Identity, Place of Birth, Language Spoken at Home	A total of 5,348 people identified as either Aboriginal or Torres Strait Islander, representing 2.5% of the total population.		
	21.5% of Wollongong's population were born overseas and 16.3% were born in a non-English speaking (NES) country with the dominant NES countries being China, North Macedonia, Italy, India and Germany.		
	16.8% spoke a language other than English at home with the most common languages other than English spoken at home being:		
	 Macedonian 2.3% (4,764 persons) 		
	• Italian 1.8% (3,675 persons)		
	Mandarin 1.5% (3,048 persons)		
	Arabic 1.4% (2,873 persons)		
	Greek 0.8% (1,714 persons)		
	• Spanish 0.8% (1,578 persons)		
	Serbian 0.7% (1,422 persons).		

Table continues overleaf.



Income Distribution	Household income is an important indicator of socio-economic status. The amount of income a family generates is linked to a number of factors: the number of workers in the household; the percentage of people unemployed or on other income support benefits, and the type of employment by the household members. The median household income was \$1,339 per week which was \$147 less than
	the NSW median, with 20.8% of Wollongong total households classed as low income (earning less than \$650 per week), compared to 17.8% in NSW.
	Median household incomes ranged from a low of \$750 in the suburb of Warrawong to a high of \$2,299 in the suburbs of Stanwell Park, Stanwell Tops, Coalcliff and surrounds.
Housing	In 2016:
	33.4% of the population fully owned their dwelling.
	• 29.8% were purchasing i.e. have a mortgage.
	• 26.5% were renting.
	8.5% were experiencing mortgage stress.
	34.8% were experiencing rental stress.
Family Structure and Household	In 2016:
	• 30.2% of families were couple families with child(ren).
	23.9% couples without children.
	• 11.5% one parent families.
	• 24.3% lone person households.
	Between 2011 and 2016 the largest changes of household types were:
	Couples with children +896
	Couples without children +438
	Lone person households +280.
Employment and Workforce	Wollongong's workforce is comprised of 55.2% full time workers and 36.1% part time workers.
	 In 2016, 7.1% of Wollongong's labour force was classed as unemployed compared to 6.3% in New South Wales.
	 A total of 23.2% of Wollongong's labour force main occupation areas were professionals, 14.8% are technicians and trades workers and 13.6% are clerical and administrative workers.
	 A total of 15.6% of Wollongong's labour force aged 15-25 years were classed as unemployed.
	A quarter, (25.5%) of Wollongong's labour force lives outside the LGA and consequently must commute from another LGA to Wollongong.



Who We Are		
People with needs for assistance due to disability and carers	56.4% of the population reported needing assistance with core activities whilst 13.3% of people provided unpaid care.	
Access to the Internet	In 2016, 76.6% (compared with 71% in 2011) of Wollongong's households had an internet connection compared to 78.2% in NSW. Internet connection varied from a low of 55% in Warrawong to a high of 91.3% in Cordeaux Heights, Mt Kembla and Kembla Heights.	
Educational Attainment and Qualifications	In Wollongong 23.9% of people were attending an educational institution. 8.1% were in primary school, 6.2% in secondary school and 6.9% in a tertiary or technical institution. 50.8% of the population identified as having a formal qualification (vocational, advanced diploma, diploma or bachelor's degree or higher).	
Homelessness	In 2016 it was estimated there were 816 homeless persons in the LGA*.	
University	In 2019, there were 35,660 students enrolled at the University of Wollongong with 20,042 domestic students and 15,618 international students**.	
Tourism	In the one-year period from July 2018 to June 2019 the annual average travel statistics for Wollongong: • 3.2 million domestic day trip travel • 80,527 international visitors • 1.76 million International visitor nights with an average stay of 21.8 nights***.	

^{*}Australian Bureau of Statistics, 2018

^{**}University of Wollongong 2020

^{***.}id Community Demographic Resources 2020



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OUR WOLLONGONG JOIN THE CONVERSATION



We asked... for your feedback on the draft Community Safety Plan 021-2025

Here is a snapshot of what you said and what we did with your feedback.

Property and Environment

- 🗪 You said: you wanted to reduce the amount of graffiti on property and make it harder to place graffiti on property.
- >> We did: We listened and thought conducting graffiti prevention projects in the locations with the highest levels of graffiti would be a great mitigation tool.
- You said: Encourage people to report graffiti.
- >> We did: Promotion of Council's Graffiti line consistently

Gendered Violence

- You said: You wanted more awareness and reporting in terms of gendered violence
- >> We did: Work collaboratively and in partnership with lead agencies to raise awareness and share information
- You said: You would like to be more educated on how to support elder abuse and more information on how this is promoted
- >> We did: Work collaboratively with campaigns such as Reclaim the Night, and support available for ending domestic violence

Anti-social Behaviour (ASB)

- You said: You would like more opportunities for alcohol related assault to be reduced
- ▶ We did: Council will promote and attend Wollongong Liquor Accord meetings
- You said: ASB to be reduced through the activation of public places
- >> We did: forming partnerships to develop strategies to improve safety in these hotspots



Personal Property

▶ We did: Develop and implement projects that better educate the community about fraud offences and work with BSW Police to raise community awareness about steal from motor vehicle.

Perceived & Actual Community Safety

You said: You wanted to feel safe as residents in this community

▶ We did: Led 'Perceptions of Safety' surveys at the beginning of the year, developed & Implemented projects that reduce resident's concerns



File: FI-230.01.540 Doc: IC20/688

ITEM 8

PROPOSED FUNDING AGREEMENT WITH THE ILLAWARRA COMMUNITY HOUSING TRUST

This report recommends Council enter into a proposed funding agreement with the Illawarra Community Housing Trust (Housing Trust) for the provision of affordable housing in the Wollongong Local Government Area in accordance with the Council resolution of 9 December 2019 (Minute 332).

RECOMMENDATION

- 1 Council resolve to enter into a proposed funding agreement with the Illawarra Community Housing Trust.
- 2 Council authorise the General Manager to execute the agreement between Wollongong City Council and the Illawarra Community Housing Trust.

REPORT AUTHORISATIONS

Report of: Sue Savage, Manager Community Cultural + Economic Development Authorised by: Kerry Hunt, Director Community Services - Creative and Innovative City

ATTACHMENTS

There are no attachments for this report.

BACKGROUND

On 9 December 2019, Council resolved to accept in principle the tender of the Housing Trust for the delivery of affordable housing in the sum of \$4,340,000 excluding GST. Council further resolved:

- (i) To delegate the power to finalise contract terms to the General Manager being terms consistent with the items identified in the T19/25 Invitation to Tender, and
- (ii) Following completion of the contract negotiation process, that Council be provided with a further report for its consideration prior to execution of any contract.

Following negotiations throughout 2020, the terms of the proposed funding agreement (Proposed Agreement) have now been settled between Council and the Housing Trust.

PROPOSAL

The Proposed Agreement identifies funding in the amount of \$4,340,000 (excluding GST) to cover the purchase of land, the design and construction of a minimum of 17 affordable housing dwellings, and the ongoing management of the affordable housing for a period of 25 years. The funds will be paid in two lump sum amounts.

The Proposed Agreement also contains financial reporting obligations.

The Proposed Agreement also establishes a Project Monitoring Group comprising of representatives from Council and the Housing Trust which will meet every four months until the construction and occupancy of the final affordable housing dwelling to monitor the performance of each party's respective obligations. Thereafter, the Housing Trust will provide Council with annual data in relation to the household composition of tenants in the affordable housing dwellings.

In order to protect Council against possible non-performance, a failure to expend funds in accordance with the terms of the Proposed Agreement and other risks, the Proposed Agreement contains a number of protective mechanisms including -

Deadlines relating to the purchasing of land and commencement of construction



- The repayment of funds in the event of funding being expanded other than in accordance with the terms of the agreement
- The registration of a caveat over the land (until the construction and occupancy of the final affordable housing dwelling)
- The registration of a public positive covenant to the effect that the dwellings constructed under the terms of the Proposed Agreement will be used for affordable housing purposes only and be managed by an affordable housing provider

For the reasons set out above, it is recommended that Council resolve to enter into the proposed funding agreement.

CONSULTATION AND COMMUNICATION

General Manager

Office of Legal Counsel

Chief Financial Officer

Members of the Tender Assessment Panel

Housing Trust CEO and Legal Representative

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 Goal 5 "We have a healthy community in a liveable city". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Operational Plan Actions
5.3.1 Housing choice in the Wollongong Local Government Area is improved, taking into account population growth, community needs and affordability.	5.3.1.1 Prepare a Housing Study and Strategy incorporating affordable housing issues.	Deliver the Council Resolution for affordable housing (targeting of commonwealth funding).

SUSTAINABILITY IMPLICATIONS

The Illawarra Community Housing Trust is a registered Tier 1 Community Housing Provider under the National Regulatory System Community Housing. The Housing Trust has extensive experience in the development and management of affordable housing. Any operating surplus will be reinvested to secure additional housing stock.

RISK MANAGEMENT

The funding agreement has been prepared by Council's Office of Legal Counsel and is the culmination of months of ongoing negotiation. The contract contains protective mechanisms, described in this report, which are designed to minimise Council's exposure to legal or financial risk.

On this basis, the risk in accepting the recommendation of this report is considered low.

FINANCIAL IMPLICATIONS

The funding will be delivered from the identified budget of the Housing Affordability Program Restricted Asset.

CONCLUSION

The Proposed Agreement is the culmination of 12 months negotiation between Council and the Housing Trust. In executing the agreement, Council will be facilitating the delivery of affordable housing



in the region in fulfilment of its obligation under the Memorandum of Understanding with the Commonwealth Government.



File: CST-100.05.064 Doc: IC20/666

ITEM 9

DRAFT PLANNING AGREEMENT - HANLYN PTY LTD - 344 FARMBOROUGH ROAD, FARMBOROUGH HEIGHTS

A draft Planning Agreement has been lodged in association with a Development Application 2020/1245 which proposes 30 rural-residential community title lots at 344 Farmborough Road, Farmborough Heights. The proponent, Hanlyn Pty Ltd, has requested that Council enter into a Planning Agreement for the dedication of 7.7363 hectares of environmentally sensitive land with a monetary contribution of \$476,025 toward the ongoing maintenance cost.

The Draft Planning Agreement and Explanatory Note are provided as attachments to this report. It is recommended that Council endorse these documents and exhibit for community feedback.

RECOMMENDATION

- The Draft Planning Agreement and Explanatory Note between Wollongong City Council and Hanlyn Pty Ltd (Attachments 2 and 3) for 344 Farmborough Road, Farmborough Heights, be exhibited for a period of 42 days (including an extension of the required 28 days due to the Christmas New Year holiday period).
- The Wollongong Local Planning Panel be advised that Hanlyn Pty Ltd and Council are proposing to enter into a Planning Agreement for the dedication of land and a monetary contribution, and should it determine that DA-2020/1245 be approved, appropriate conditions of consent be included requiring the Planning Agreement to be entered into and the terms of the Agreement to be satisfied.
- 3 The General Manager be delegated authority to determine, finalise and execute the Planning Agreement, including making minor amendments, after consideration of any issues raised in the public exhibition.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

- 1 Location and Zoning Map
- 2 Draft Planning Agreement
- 3 Explanatory Note

BACKGROUND

Planning Proposal

In 2015, a draft Planning Proposal request was lodged to rezone 344 Farmborough Road, Farmborough Heights (Lot 101 DP 825516), from RU2 Rural Landscape to E4 Environmental Living and E2 Environmental Conservation (Attachment 1). The site is located in the area covered by the Farmborough Heights to Mount Kembla Strategic Management Plan (2013) where any draft Planning Proposal for residential development needs to demonstrate improved conservation outcomes.

The areas proposed to be zoned E2 Environmental Conservation are environmentally significant and include moist forest and grassy woodland. These areas are also mapped as natural resource sensitivity – biodiversity land.

The E2 zoned land was proposed to be dedicated to Council as public reserve together with a Vegetation Management Plan (VMP) and funding. In February 2016, a VMP was prepared for the site which indicated an estimated in-perpetuity maintenance cost of \$370,000.



On 27 June 2016, Council resolved to prepare a draft Planning Proposal and that -

3 Council support the proposed dedication (with funding) of the area proposed to be rezoned E2 Environmental Conservation (7.8 hectares) to re-vegetate and protect in perpetuity the identified environmental values of the site.

Following exhibition of the Planning Proposal, Council resolved on 13 March 2017 to finalise the Planning Proposal and that -

- 2 Council support the proposed dedication (with funding) of the area proposed to be rezoned E2 Environmental Conservation (7.8 hectares) to re-vegetate and protect in perpetuity the identified environmental values of the site.
- 3 The legal agreement for the transfer of E2 zoned land with funding to Council be finalised prior to development consent for subdivision.

On 19 May 2017, Wollongong LEP 2009 (Amendment No 34) was notified which rezoned the site to E4 Environmental Living and E2 Environmental Conservation. The site now contains four separate areas of E2 zoned land.

Development Applications

DA-2018/1035 - Withdrawn by Applicant

In 2018, DA-2018/1035 was lodged for "Subdivision - demolition of existing dwelling, tree removals, construction of a 30 lot Community title rural residential subdivision and Neighbourhood lot for the access road and a four (4) lot Torrens title subdivision for public reserves to be dedicated to Council and utility infrastructure".

This application proposed the dedication of the four E2 zoned areas to Council as public reserve lots. During the assessment concern was raised regarding fragmentation of the E2 areas, in particular the two areas to the south east, and ensuring continuation of the areas and maintenance access.

During negotiations the in-perpetuity maintenance costs were reviewed and updated to account for all of the E2 land, updated unit rates and updated discount rate using the Office of Environment and Heritage (OEH) Total Fund Deposit worksheet which calculates the Present Value of establishing and maintaining the land. As a result, the monetary contribution increased from \$370,000 to \$476,025 and this was agreed to by the applicant.

The applicant then submitted a Letter of Offer to enter into a Planning Agreement and a Draft Planning Agreement and Explanatory Note were prepared on this basis.

On 21 November 2018, the DA was withdrawn by the applicant and the Draft Planning Agreement was put on hold while the applicant prepared a revised development application for lodgement.

DA-2020/1245 - Under Assessment

On 5 November 2020, DA-2020/1245 was lodged for the "Demolition of existing dwelling house, tree removal, four (4) lot Torrens Title subdivision creating three (3) public reserves and a residue lot, Community Title subdivision of the residue lot to create 30 rural-residential lots and one (1) community lot". The DA was accompanied by a request to enter into a Planning Agreement, including the Draft Planning Agreement and Explanatory Note previously prepared.

The development application includes an associated draft Planning Agreement and in accordance with Sections 2.17 to 2.20 of the *Environmental Planning and Assessment Act 1979* (Act), the Wollongong Local Planning Panel (WLPP) is the consent authority. If Council endorses this report and provide 'in principle' support for a Planning Agreement, it will give the WLPP certainty in terms of consent requirements should the Development Application be approved.

The applicant has addressed previous raised fragmentation concerns by proposing an additional land dedication which will provide a linkage between the two areas to the south east of the site. This has resulted in a small increase to the land area proposed to be dedicated to council.



PROPOSAL

A Planning Agreement is a voluntary arrangement between a developer and Council to be used for or applied towards the provision of public infrastructure or another public purpose.

On 13 May 2019, the applicant provided a Letter of Offer to enter into a Planning Agreement under Section 7.4 of the Act under which, the developer has proposed to dedicate 7.7363 hectares of environmentally sensitive land and provide a monetary contribution of \$476,025 toward the ongoing cost of maintaining the land.

On 5 November 2020, the applicant submitted a development application (DA-2020/1245) including a draft planning agreement. The draft Planning Agreement process is being progressed separately but concurrently to the DA assessment. The draft Planning Agreement has been reviewed and updated to reflect the current development application. The next step in the process is for Council to endorse the draft Planning Agreement and for the documents to be exhibited for community comment.

The offer is considered reasonable as it will secure the environmentally sensitive land in Council's ownership and provide ongoing funding for Council to maintain the land. It is considered that the Planning Agreement will result in a positive outcome for Council and the community.

CONSULTATION AND COMMUNICATION

The terms of the draft Planning Agreement have been reviewed by Council's Natural Areas Team and Legal Counsel. If Council endorses the recommendations of this report the draft Planning Agreement (Attachment 2) and Explanatory Note (Attachment 3) will be exhibited for community input for 42 days, which is an extended period from the required 28 days due to the Christmas-New Year holiday period.

PLANNING AND POLICY IMPACT

The draft Planning Agreement has been negotiated and prepared in accordance with Council's Planning Agreements Policy (2018), Sections 7.4 to 7.10 of the Act and Clauses 25B – 25E of the *Environmental Planning and Assessment Regulation 2000*.

This report contributes to the delivery of Our Wollongong 2028 Goal 1 – 'We value and protect our natural environment. It also delivers on core business activities as detailed in the Land Use Planning Service Plan 2020-21.

RISK MANAGEMENT

The proposed Planning Agreement provides a formal instrument to manage and mitigate any risks associated with the developer dedicating the land to council and ensures a funding source for the ongoing maintenance. The land dedication and monetary contribution will be required to be provided prior to the issue of a subdivision certificate for the development. The Planning Agreement also provides the appropriate legal mechanism for the developer to fulfill the outstanding requirements from the Planning Proposal resolutions.

FINANCIAL IMPLICATIONS

The Planning Agreement will ensure that an upfront monetary contribution is paid to Council prior to the issue of a Subdivision Certificate. The funds collected will be held in a restricted asset account and invested in accordance with Council's Investment Policy. The funds will be allocated toward the maintenance costs as part of the Annual Budget preparation.

CONCLUSION

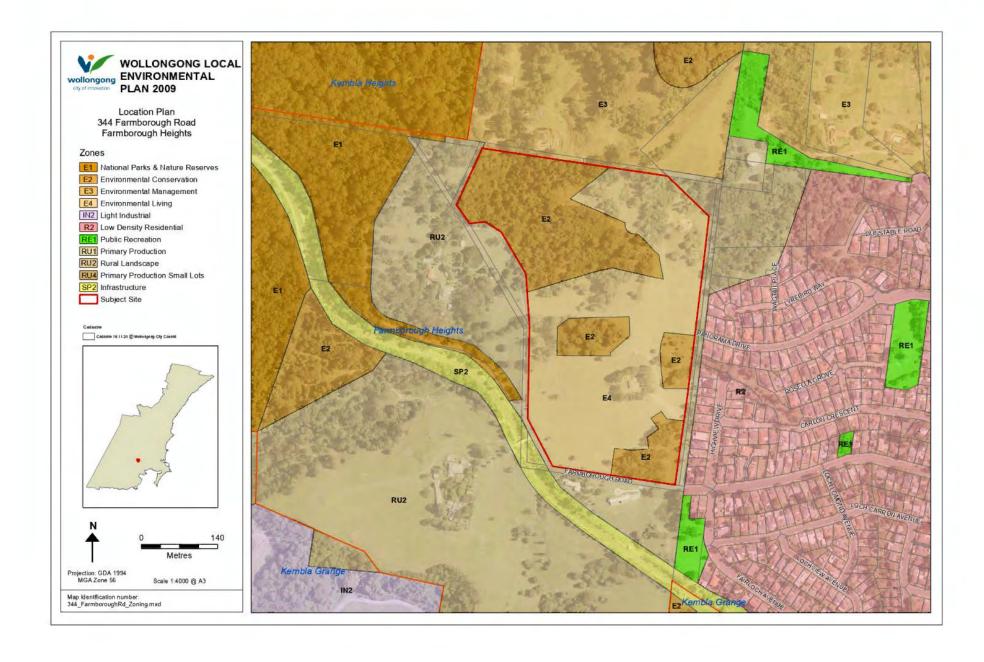
Hanlyn Pty Ltd has requested that Council enter into a Planning Agreement to facilitate the dedication of environmentally sensitive land to Council together with a monetary contribution toward the ongoing maintenance costs. It is considered that this will provide positive outcomes to the community.

It is recommended that Council endorse the Draft Planning Agreement and Explanatory Note for exhibition to enable community comments. If there are no major issues raised during the exhibition



period, it is proposed that delegation be issued to the General Manager to determine, finalise and execute the Planning Agreement, including making minor changes.









DRAFT PLANNING AGREEMENT

Wollongong City Council

and

Hanlyn Pty Ltd



WOLLONGONG CITY COUNCIL 41 Burelli Street, Wollongong NSW 2500 Locked Bag 8821, Wollongong DC NSW 2500 Tel: 02 4227 7111

Fax: 02 4227 7111

Fax: 02 4227 7277

Web: <u>www.wollongong.nsw.gov.au</u>

ABN: 63 139 525 939 – GST Registered





DATE [DATE]

PARTIES WOLLONGONG CITY COUNCIL (ABN 63 139 525 939) of 41 Burelli

Street, Wollongong in the State of New South Wales (Council)

HANLYN PTY LTD (ABN 16 152 003 104) of 70 Kenny Street,

Wollongong in the State of New South Wales (Developer)

BACKGROUND

1 The Developer is the registered proprietor of the Land.

2 The Developer has made a Development Application with Council.

3 The Developer has offered to provide the Contributions if the Development is undertaken.

OPERATIVE PROVISIONS

1 DEFINITIONS

The following definitions apply unless the context otherwise requires:

Act means the Environmental Planning and Assessment Act 1979 (NSW).

Acquisition Act means the Land Acquisition (Just Terms Compensation) Act 1991 (NSW).

Assign as the context requires refers to any assignment, sale, transfer,

disposition, declaration of trust over or other assignment of a legal and/or

beneficial interest.

Authority means (as appropriate) any:

1 federal, state or local government;

2 department of any federal, state or local government;

3 any court or administrative tribunal; or

4 statutory corporation or regulatory body.

Claim against any person any allegation, action, demand, cause of action, suit, proceeding, judgement, debt, damage, loss, cost, expense or liability

howsoever arising and whether present or future, fixed or unascertained, actual or contingent whether at law, in equity, under statute or otherwise.

Complete, Completed, Completion

means completed in accordance with the requirements of this document.

Contributions means the dedication of the Designated Lands by the Developer and the

making of the Monetary Contributions in accordance with this document.

Council means Wollongong City Council.

Designated Land means that part of the Land identified on the plan at Schedule 2 to this

document, and identified as "Proposed Public Reserve" on that plan.

Developer means Hanlyn Pty Ltd.





Development

means the subdivision of the Land into four torrens title lots, including three public reserves and one community title lot that will create 30 rural-residential community title lots, and associated works.

Development Application

has the same meaning as in the Act.

Development Consent

has the same meaning as in the Act.

Encumbrance

means an interest or power.

- · reserved in or over an interest in any asset;
- created or otherwise arising in or over any interest in any asset under any mortgage, charge (whether fixed or floating), pledge, lien, hypothecation, title retention, conditional sale agreement, hire or hire purchase agreement, option, restriction as to transfer, use or possession, easement, subordination to any right of any other person and any other encumbrance or security interest, trust or bill of sale; or
- by way of security for the payment of a debt or other monetary obligation or the performance of any obligation.

EPA

means the NSW Environment Protection Authority.

Event of Default

means the occurrence of either of the following:

- (a) an Insolvency Event occurs in respect of the Developer; or
- (b) subject to the provisions of this document, a breach of clauses 5.1, 5.2, 6.1, 6.2 of this document where that breach has not been rectified within 14 days after notice in writing from Council to do so

GST Law

means A New Tax System (Goods and Services Tax) Act 1999 (Commonwealth) and any other Act or regulation relating to the imposition or administration of the goods and services tax.

Insolvency Event

means the happening of any of these events:

- (a) a body corporate is an insolvent under administration (as defined in the Corporations Act 2001);
- (b) a body corporate has a controller (as defined in the Corporations Act 2001) appointed, is under administration or wound up or has a receiver appointed, and, in each case, the appointment is not revoked or discharged within 5 Business Days;
- (c) a body corporate is subject to any arrangement, assignment, moratorium or composition, protected from creditors under any statute or dissolved (in each case other than to carry out a reconstruction or amalgamation while solvent on terms approved by Council);
- (d) an application or order has been made (and, in the case of an application, it is not stayed, withdrawn or dismissed within 30 days), resolution passed, proposal put forward, or any other action taken, in each case in connection with that body corporate, which results in the appointment of a liquidator or provisional liquidator in respect of a body corporate;
- (e) as a result of the operation of section 459F(1) of the Corporations Act 2001 a body corporate is taken to have failed to comply with a statutory demand; or
- a body corporate takes any step to obtain protection or is granted protection from its creditors, under any applicable legislation or an





administrator is appointed to a body corporate.

Land means the whole of the land contained in Lot 101 DP 825516, known as

344 Farmborough Road, Farmborough Heights, as shown at Appendix A.

Law means all legislation, regulations, by-laws, common law and other binding

order made by any Authority.

Monetary Contributions means the monetary contribution set out in Schedule 3.

Planning Legislation means the Act, the Local Government Act 1993 (NSW) and the Roads Act

1993 (NSW).

Residential Lot means a single lot created on the registration of a plan of subdivision as

part of the Development intended to not be further subdivided and to be used for the purpose of the construction of one (1) or more residential

dwellings.

Subdivision Certificate means a subdivision certificate as defined in section 6.4(d)) of the Act.

2 INTERPRETATIONS

The following rules of interpretation apply unless the context requires otherwise:

clauses, annexures and schedules

a clause, annexure or schedule is a reference to a clause in, or annexure

or schedule to, this document.

reference to statutes a statute, ordinance, code or other law includes regulations and other

instruments under it and consolidations, amendments, re-enactments or

replacements of any of them.

singular includes

plural

the singular includes the plural and vice versa.

person the word 'person' includes an individual, a firm, a body corporate, a

partnership, joint venture, an unincorporated body or association or any

government agency.

executors, administrators, successors a particular person includes a reference to the person's executors, administrators, successors, substitutes (including persons taking by

novation) and assigns.

dollars Australian dollars, dollars, \$ or A\$ is a reference to the lawful currency of

Australia.

calculation of time if a period of time dates from a given day or the day of an act or event, it is

to be calculated exclusive of that day.

reference to a day a day is to be interpreted as the period of time commencing at midnight

and ending 24 hours later.

reference to a group

of persons

a group of persons or things is a reference to any two or more of them

jointly and to each of them individually.

meaning not limited the words 'include', 'including', 'for example' or 'such as' are not used as,

nor are they to be interpreted as, words of limitation, and, when introducing an example, do not limit the meaning of the words to which the

example relates to that example or examples of a similar kind.





next day if an act under this document to be done by a party on or by a given day is

done after 4.30pm on that day, it is taken to be done on the next day.

next Business Day if an event must occur on a stipulated day which is not a Business Day

then the stipulated day will be taken to be the next Business Day.

Business Day means any day that is not a Saturday, Sunday, gazetted public holiday or

bank holiday in Sydney, and concludes at 5pm on that day.

time of day time is a reference to Sydney time.

headings headings (including those in brackets at the beginning of paragraphs) are

for convenience only and do not affect the interpretation of this document.

agreement a reference to any agreement, Agreement or instrument includes the

same as varied, supplemented, novated or replaced from time to time.

Gender a reference to one gender extends and applies to the other.

3 DEFINITIONS

3.1 Planning Agreement

This document is a planning agreement:

i Within the meaning set out in section 7.4 of the Act; and

ii Governed by Subdivision 2 of Division 7.1 of Part 7 of the Act.

3.2 Application

This document applies to both the Land and the Development.

3.3 Operation of document

- i Subject to paragraph (ii), this document operates from the date it is executed by both parties.
- ii Clause 6 of this Agreement will only operate if and when Development Consent is granted to the Development.

4 APPLICATION OF SECTION 7.11, SECTION 7.12 AND SECTION 7.24

4.1 Application

This document does not exclude the application of section 7.11, section 7.12 or section 7.24 of the Act to the Development.

4.2 Consideration of Benefits

Section 7.11(6) of the Act does not apply to the Contributions that are to be carried out or provided pursuant to this document.

5 REGISTRATION OF THIS DOCUMENT

5.1 Registration

This document must be registered on the title of the Land pursuant to section 7.6 of the Act.

5.2 Obligations of the Developer

The Developer must

i do all things necessary to facilitate the registration of this document to occur within 30 days of the execution of this document, including but not limited to obtaining the consent of any mortgagee registered on the title of the Land; and





- ii pay any reasonable costs incurred by Council in undertaking that registration; and
- iii provide Council with a copy of the relevant folio within 10 Business Days of registration of this document.

5.3 Removal from Title of the Land

- i Council will do all things necessary to allow the Developer to remove the registration of this document from the title of the Land, or any part of the Land, where the Developer has:
 - a provided all Monetary Confributions; and
 - b Dedicated the Designated Land.
- ii The Developer must pay any reasonable costs incurred by Council in undertaking that discharge.

6 PROVISION OF CONTRIBUTIONS

6.1 Designated Land

- i The Developer must dedicate the Designated Land to Council:
 - a free of any trusts, estates, interests, covenants and Encumbrances;
 - b as part of the subdivision of the Land; and
 - c at no cost to Council.
- ii The Developer must meet all costs associated with the dedication of the Designated Land in accordance with paragraph (i), including any costs incurred by Council in relation to that dedication.
- iii Council must do all things reasonably necessary to enable the Developer to comply with paragraph (i).

6.2 Monetary Contributions

- i The Developer must make the Monetary Contributions to Council in accordance with Schedule 3.
- Where Schedule 3 establishes the payment of the Monetary Contribution to Council, the Developer agrees to make that Monetary Contribution prior to seeking or procuring the grant of any Subdivision Certificate in relation to the Development.

6.3 Indexation

i The amount of the Monetary Contribution will be indexed in accordance with the following formula:

$$A = B \times (C/D)$$

where:

A = the indexed amount;

B = the relevant amount as set out in Schedule 3 of this agreement;

C = the Index at the time of payment; and

D = the Index at the date the Planning Agreement is executed.

If A is less than B then the amount of the relevant amount will not change.

- ii For the purposes of paragraph (i):
 - a the Monetary Contribution is indexed as at the date it is paid; and
 - b the Index means the Consumer Price Index (All Groups) for Sydney or such other index which replaces it from time to time.





7 WARRANTIES AND INDEMNITIES

7.1 Warranties

The Developer warrants to Council that:

- it is able to fully comply with its obligations under this document;
- ii it has full capacity to enter into this document; and
- iii there is no legal impediment to it entering into this document, or performing the obligations imposed under it.

7.2 Indemnity

The Developer indemnifies Council in respect of any Claim that may arise as a result of the conduct of the Works, but only to the extent that any such Claim does not arise as a result of the negligent acts or omissions of Council.

8 CONTAMINATION

8.1 Definitions

For the purpose of this clause:

Contamination:

means any material, gas, substance, liquid, chemical or biological mineral or other physical matter which would, if present on the Land:

- result in an Authority issuing a notice, direction or order under an Environmental Law; or
- which would constitute a violation of any Environmental Law.

Contaminated:

means subject to Contamination.

Environmental Law:

means all planning, environmental or pollution laws and any regulations, orders, directions, ordinances or requirements, permissions, permits, licences issued under those laws or instruments.

8.2 Warranty and Indemnity

The Developer warrants that:

- i as far as it is aware, and other than as disclosed in writing to Council prior to the formation of this document, the Designated Land is not Contaminated; and
- in relation to any notices or orders issued pursuant to the Contaminated Land Management Act 1997, and the requirements of the EPA and any other relevant Authority, the Developer indemnifies and must keep indemnified Council against all liability for and associated with all Contamination present in, on or under the Designated Land as at the date of dedication or transfer of the Designated Land to Council in accordance with this document.

8.3 Survival of the clause

This clause 8 shall survive the determination or termination of this document.

9 DETERMINATION OF THIS DOCUMENT

9.1 Determination

This document will determine upon the Developer satisfying all of its obligations under the document.

9.2 Effect of Determination

Upon the determination of this document Council will do all things necessary to allow the Developer to remove this document from the title of the whole or any parf of the Land as quickly as possible.





10 SECURITY

10.1 Prohibition

Neither party may Assign their rights under this document without the prior written consent of the other party.

10.2 Assignment of Land

The Developer must not Assign its interest in the Land, other than a single residential lot approved pursuant to a Development Consent and created by the registration of a plan of subdivision, unless:

- i Council consents to the Assignment; and
- ii the proposed assignee enters into an agreement to the satisfaction of Council under which the assignee agrees to be bound by the terms of this document with respect to the relevant part of the Land being Assigned.

10.3 Compulsory Acquisition of the Designated Land

- i The Developer consents to the compulsory acquisition of the Designated Land:
 - a in accordance with the Acquisition Act, and
 - b on the terms set out in this clause 10.
- ii Council may only acquire the Designated Land compulsorily in accordance with the Acquisition Act if the Developer has committed an Event of Default with respect to the dedication of that land under this document.
- iii If Council acquires the Designated Land compulsorily in accordance with the Acquisition Act:
 - a the Developer agrees that the compensation payable to it on account of that acquisition under the Acquisition Act is \$1.00; and
 - b Council must complete that acquisition within twelve (12) months of the relevant Event of Default.
- The parties agree that the provisions of this clause 10 are an agreement with respect to the compulsory acquisition of the Designated Land for the purpose of section 30 of the Acquisition Act.

11 DISPUTE RESOLUTION

11.1 Notice of dispute

- i If a dispute between the parties arises in connection with this document or its subject matter (Dispute), then either party (First Party) must give to the other (Second Party) a notice which:
 - a is in writing;
 - b adequately identifies and provides details of the Dispute;
 - c stipulates what the First Party believes will resolve the Dispute; and
 - d designates its representative (Representative) with the necessary authority to negotiate and resolve the Dispute.
- The Second Party must, within five (5) Business Days of service of the notice of dispute, provide a notice to the First Party designating as its representative a person with the necessary authority to negotiate and settle the Dispute (the representatives designated by the parties being together, the Representatives).

11.2 Conduct pending resolution

The parties must continue to perform their respective obligations under this document if there is a Dispute but will not be required to complete the matter the subject of the Dispute, unless the appropriate party indemnifies the other parties against costs, damages and all losses





suffered in completing the disputed matter if the Dispute is not resolved in favour of the indemnifying party.

11.3 Further steps required before proceedings

Subject to clause 11.7 and except as otherwise expressly provided in this document, any Dispute must, as a condition precedent to the commencement of litigation or mediation under clause 11.5, first be referred to the Representatives. The Representatives must endeavour to resolve the dispute within five (5) Business Days of the date a notice under clause 11.1 is served.

11.4 Disputes for mediation

If the Representatives have not been able to resolve the Dispute, then the parties must agree within five (5) Business Days to refer the matter to mediation under clause 11.5.

11.5 Disputes for mediation

- If the parties agree in accordance with clause 11.4 to refer the Dispute to mediation, the mediation must be conducted by a mediator agreed by the parties and, if the parties cannot agree within five (5) Business Days, then by a mediator appointed by the President of the Law Society of New South Wales for the time being
- If the mediation referred to in paragraph (i) has not resulted in settlement of the Dispute and has been terminated, the parties may agree to have the matter determined by expert determination under clause 11.6.

11.6 Other courses of action

If the mediation referred to in clause 11.5 has not resulted in settlement of the dispute and the mediation has been terminated then either party may take whatever course of action it deems appropriate for the purpose of resolving the Dispute.

11.7 Remedies available under the Act

This clause 11 does not operate to limit the availability of any remedies available to Council under sections 9.45 and 9.46 and Division 9.6 of the Act.

11.8 Urgent relief

This clause 11 does not prevent a party from seeking urgent injunctive or declaratory relief concerning any matter arising out of this document.

12 POSITION OF COUNCIL

12.1 Consent Authority

The parties acknowledge that Council is a consent authority with statutory rights and obligations pursuant to the terms of the Planning Legislation.

Document does not Fetter Discretion

This document is not intended to operate to fetter:

- the power of Council to make any Law; or
- the exercise by Council of any statutory power or discretion (Discretion).

12.3 Severance of Provisions

- No provision of this document is intended to, or does, constitute any unlawful fetter on any Discretion. If, contrary to the operation of this clause, any provision of this document is held by a court of competent jurisdiction to constitute an unlawful fetter on any Discretion, the parties agree:
 - they will take all practical steps, including the execution of any further documents, to ensure the objective of this clause 12 is substantially satisfied;
 - in the event that paragraph (a) cannot be achieved without giving rise to an unlawful fetter on a Discretion, the relevant provision is to be severed and the remainder of this document has full lorce and effect; and





- c to endeavour to satisfy the common objectives of the parties on relation to the provision of this document which is held to be an unlawful fetter to the extent that it is possible having regard to the relevant court judgment.
- Where the Law permits Council to contract out of a provision of that Law or gives Council power to exercise a Discretion, then if Council has in this document contracted out of a provision or exercised a Discretion under this document, then to the extent of this document is not to be taken to be inconsistent with the Law.

12.4 No Obligations

Nothing in this document will be deemed to impose any obligation on Council to exercise any of its functions under the Act in relation to the Development Consent, the Land or the Development in a certain manner.

13 CONFIDENTIALITY

13.1 Document not Confidential

The terms of this document are not confidential and this document may be treated as a public document and exhibited or reported without restriction by any party.

14 GST

14.1 Definitions

Words used in this clause that are defined in the GST Legislation have the meaning given in that legislation.

14.2 Intention of the parties

Without limiting any other provision of this clause 13, the parties intend that:

- i Divisions 81 and 82 of the GST Legislation apply to the supplies made under and in respect of this document; and
- ii no additional amounts will be payable on account of GST and no tax invoices will be exchanged between the parties.

14.3 Reimbursement

Any payment or reimbursement required to be made under this document that is calculated by reference to a cost, expense, or other amount paid or incurred will be limited to the total cost, expense or amount less the amount of any input tax credit to which any entity is entitled for the acquisition to which the cost, expense or amount relates.

14.4 Consideration GST exclusive

Unless otherwise expressly stated, all prices or other sums payable or consideration to be provided under this document are GST Exclusive. Any consideration that is specified to be inclusive of GST must not be taken into account in calculating the GST payable in relation to a supply for the purposes of this clause 14.

14.5 Additional amounts for GST

Subject to clause 14.7, if GST becomes payable on any supply made by a party (Supplier) under or in connection with this document:

- i any party (Recipient) that is required to provide consideration to the Supplier for that supply must pay an additional amount to the Supplier equal to the amount of the GST payable on that supply (GST Amount);
- ii the GST Amount is payable at the same time as any other consideration is to be first provided for that supply; and
- the Supplier must provide a tax invoice to the Recipient for that supply, no later than the time at which the GST Amount for that supply is to be paid.





14.6 Variation

- i If the GST Amount properly payable in relation to a supply (as determined in accordance with clauses 14.5 and 14.7), varies from the additional amount paid by the Recipient under clause 14.5, then the Supplier will provide a corresponding refund or credit to, or will be entitled to receive the amount of that variation from, the Recipient. Any payment, credit or refund under this clause 14.6 is deemed to be a payment, credit or refund of the GST Amount payable under clause 14.5.
- The Supplier must issue an adjustment note to the Recipient in respect of any adjustment event occurring in relation to a supply made under or in connection with this document as soon as reasonably practicable after the Supplier becomes aware of the adjustment event.

14.7 Non-monetary consideration

- iii To the extent that the consideration provided for the Supplier's taxable supply to which clause 14.5 applies is a taxable supply made by the Recipient (the Recipient Supply), the GST Amount that would otherwise be payable by the Recipient to the Supplier in accordance with clause 14.5 shall be reduced by the amount of GST payable by the Recipient on the Recipient Supply.
- iv The Recipient must issue to the Supplier an invoice for any Recipient Supply on or before the time at which the Recipient must pay the GST Amount in accordance with clause 14.5 (or the time at which such GST Amount would have been payable in accordance with clause 14.5 but for the operation of clause 14.7(i)).

14.8 No merger

This clause will not merge on completion or termination of this document.

15 LEGAL COSTS

Each party must pay their own legal costs and disbursements with respect to the preparation, negotiation, formation and implementation of this document.

16 ADMINISTRATIVE PROVISIONS

16.1 Notices

- i Any notice, consent or other communication under this document must be in writing and signed by or on behalf of the person giving it, addressed to the person to whom it is to be given and:
 - a delivered to that person's address;
 - b sent by pre-paid mail to that person's address; or
 - c sent by email to that person's email address.
- A notice given to a person in accordance with this clause is treated as having been given and received:
 - a if delivered to a person's address, on the day of delivery if a Business Day, otherwise on the next Business Day;
 - b if sent by pre-paid mail, on the third Business Day after posting; and
 - c if sent by email to a person's email address and a conformation of receipt can be retrieved, on the day it was sent if a Business Day, otherwise on the next Business Day.
- iii For the purpose of this clause the address of a person is the address set out in this document or another address of which that person may from time to time give notice to each other person.





16.2 Entire Agreement

This document is the entire agreement of the parties on the subject matter. All representations, communications and prior agreements in relation to the subject matter are merged in and superseded by this document.

16.3 Waiver

The non-exercise of or delay in exercising any power or right of a party does not operate as a waiver of that power or right, nor does any single exercise of a power or right preclude any other or further exercise of it or the exercise of any other power or right. A power or right may only be waived in writing, signed by the parties to be bound by the waiver.

16.4 Counterparts

This document may be executed in any number of counterparts and all of those counterparts taken together constitute one and the same instrument.

16.5 Unenforceability

Any provision of this document which is invalid or unenforceable in any jurisdiction is to be read down for the purposes of that jurisdiction, if possible, so as to be valid or enforceable, and is otherwise capable of being severed to the extent of the invalidity or enforceability, without affecting the remaining provisions of this document or affecting the validity or enforceability of that provision in any other jurisdiction.

16.6 Power of Attorney

Each attorney who executes this document on behalf of a party declares that the attorney has no notice of:

- i the revocation or suspension of the power of attorney by the grantor; or
- ii the death of the grantor.

16.7 Governing Law

The law in force in the State of New South Wales governs this document. The parties:

- i submit to the exclusive jurisdiction of the courts of New South Wales and any courts that may hear appeal from those courts in respect of any proceedings in connection with this document; and
- ii may not seek to have any proceedings removed from the jurisdiction of New South Wales on the grounds of *forum non conveniens*.





EXECUTED AS AN AGREEMENT

EXECUTED by and on behalf of **WOLLONGONG CITY COUNCIL (ABN 63 139 525 939)** by its Authorised Officer:

Signature of Authorised Person	Signature of Witness				
[Print] Name of Authorised Officer	[Print] Name of Witness				
Office Held	Date				
Date					
EXECUTED by HANLYN PTY LTD (ABN 16 152 Corporations Act 2001 by authority of its directors.	2 003 104 in accordance with section 127(1) of the				
Director Signature	Director / Secretary Signature				
[Print] Name of Director	[Print] Name of Director / Secretary				
Date	Date				
Signature of Witness	Signature of Witness				
[Print] Name of Witness	[Print] Name of Witness				





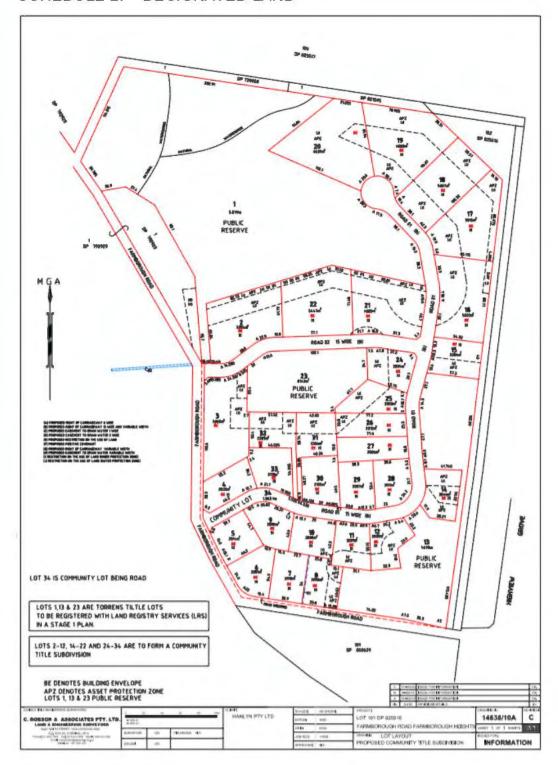
SCHEDULE 1: REQUIREMENTS UNDER SECTION 7.4 OF THE ACT

REQUIREMENT UNDER THE ACT	THIS PLANNING AGREEMENT
Planning instrument and/or Development Application – (Section 7.4(1))	
The Developer has:	
 (a) sought a change to an environmental planning instrument. 	(a) No.
(b) made, or proposes to make, a Development Application.	(b) Yes.
 (c) entered into an agreement with, or is otherwise associated with, a person, to whom paragraph (a) or (b) applies. 	(c) No.
Description of land to which this agreement applies – (Section 7.4(3)(a))	Lot 101 DP 825516, known as 344 Farmborough Road, Farmborough Heights
Description of the development to which this agreement applies – (Section 7.4(3)(b))	Subdivision of land into four torrens title lots including three public reserves and one community title lot that will create 30 rural residential community title lots.
Application of section 7.11 of the Act – (Section 7.4(3)(d))	Refer to clause 4.1 of the Planning Agreement.
Applicability of section 7.12 of the Act – (Section 7.4(3)(d))	Refer to clause 4.1 of the Planning Agreement.
Applicability of section 7.24 of the Act – (Section 7.4(3)(d))	Refer to clause 4.1 of the Planning Agreement.
Consideration of benefits under this agreement if section 7.4(3)(e))	Refer to clause 4.2 of the Planning Agreement.
Mechanism for Dispute resolution – (Section 7.4(3)(f))	Refer to clause 11 of the Planning Agreement.
Enforcement of this agreement (Section 7.4(3)(g))	Refer to clauses 5 of the Planning Agreement.
No obligation to grant consent or exercise functions – (Section 7.4(3)(9))	Refer to clause 12 of the Planning Agreement.





SCHEDULE 2: DESIGNATED LAND







SCHEDULE 3: MONETARY CONTRIBUTIONS

Table 1 Monetary Contributions

The Developer must pay the Monetary Contribution in accordance with this clause.

The Monelary Contributions payable are based on the following provisions:

Base contribution amount*	Timing				
\$476,025.00	Prior to the issue of a Subdivision Certificate for the Development.				

^{*} The base contribution rate is subject to indexation in accordance with clause 6.3.





APPENDIX A LAND



Explanatory Note - Planning Agreement: 344 Farmborough Road, Farmborough Heights

Introduction

The purpose of this explanatory note is to provide a plain English summary that helps the community understand how the proposed planning agreement (the **Planning Agreement**) will be of public benefit, and why it is acceptable and in the planning interest. The explanatory note is made available as part of the public exhibition, where the public can read the Planning Agreement and make comments on it. It is not a plain English version of the Planning Agreement.

Clause 25E of the *Environmental Planning and Assessment Regulation* 2000 (the **Regulation**) is a guideline for how explanatory notes must be written. It requires all those wanting to enter into the planning agreement to prepare the explanatory note together. Council and the Developer prepared this explanatory note together.

The Environmental Planning and Assessment Act 1979 (the Act) is the NSW law that must be followed when preparing a Planning Agreement. The section of the Act that relates to planning agreements is Part 7 > Division 7.1 > Subdivision 2 > Sections 7.4 to 7.10. This Planning Agreement was prepared in line with the Act and the Regulation.

Parties to the Planning Agreement

The parties (people and organisations) to this Planning Agreement are:

- 1. Wollongong City Council ABN 38 755 709 681 (the Council); and
- 2. Hanyln Pty Ltd ABN 16 152 003 104 (the Developer).

Description of the Subject Land

The Planning Agreement applies to this land:

 Lot 101 DP 825516 known as 344 Farmborough Road, Farmborough Heights NSW 2526 (Subject Land).

Description of Proposed Development

The developer wants to split up the land (subdivide it) into four lots. One of these lots will be further split (subdivided) 30 Community Title residential lots. The other three lots are zoned E2 and will be dedicated to Council as public reserves. The Developer has lodged Development Application DA-2020/1245 with Council (**Proposed Development**).

Summary of objectives, nature and effect of the proposed Planning Agreement

The Planning Agreement will require the Developer to dedicate 7.7363 hectares of land to Council (Proposed lots 1, 13, and 23) and to pay a monetary contribution of \$476,025 for the ongoing maintenance of the land that will be handed to Council.

The land and the money, together with the low density residential development, allows the legal and financial mechanisms to ensure the long term conservation of the natural areas and the rehabilitate the riparian and habitat corridor in the north west, and the endangered ecological community in the south east of the site.

Assessment of the Merits of the Planning Agreement

Wollongong City Council and the Developer both agree the land and funds will have a positive public impact in the area.

The Planning Purpose of the Planning Agreement

The Planning Agreement has the following public purpose:

the conservation or enhancement of the natural environment.



This refers to section 7.4(2)f of the Act. The Planning Agreement will enable land and money to be paid to Wollongong City Council before a subdivision certificate is issued. The money collected will be held in a restricted account and be used for the maintenance of the land in the future.

How the Planning Agreement promotes the public interest and objects of the Act. The Planning Agreement promotes the objects (aims) of the Act by encouraging 'the orderly and economic use and development of land'. This refers to section 1.3(c) of the Act. It means the development will happen in an appropriate location and the land will be developed in a way that fits with other development in the area. Land that is important for its environmental value will be protected and Council has enough money to maintain the land.



File: CST-080.04.012 Doc: IC20/619

ITEM 10

ADOPTION AND GAZETTAL OF THE LAKE ILLAWARRA COASTAL MANAGEMENT PROGRAM

On 6 April 2020, Wollongong City Council endorsed the Lake Illawarra Coastal Management Program (CMP) for submission to the NSW Minister for Local Government for certification under the *NSW Coastal Management Act 2016* (CM Act). This was complemented by a concurrent endorsement from Shellharbour City Council on 28 April 2020.

In August 2020, the NSW Department of Planning, Industry and Environment (DPIE) advised Council that several minor amendments were required to be made to the Lake Illawarra CMP for it to be certified by the Minister for Local Government. These changes were reviewed and the Lake Illawarra CMP was resubmitted to the Minister on 18 September 2020.

The Lake Illawarra CMP was certified by the Minister for Local Government, the Hon Shelley Hancock MP on 9 November 2020. For the Lake Illawarra CMP to take effect, the CM Act requires that it be adopted by both Councils and published in the NSW Government Gazette. This report recommends that Council take these further steps to complete the making of the Lake Illawarra CMP. A similar report is expected to be presented to Shellharbour City Council on 15 December 2020.

RECOMMENDATION

- 1 The certified Lake Illawarra Coastal Management Program be adopted (Attachments 1).
- A Notice advising adoption and gazettal of the Lake Illawarra Coastal Management Program, be endorsed and published in the NSW Gazette (Attachment 3).

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

- 1 Certified Lake Illawarra Coastal Management Program
- 2 Letter from the Minister regarding Certification of the Lake Illawarra CMP
- 3 Gazettal and Commencement of a Coastal Management Program (CMP)

BACKGROUND

Following abolishment of the Lake Illawarra Authority in 2014, Wollongong City Council and Shellharbour City Council began working together on the development of a strategic management plan for Lake Illawarra. Development of the plan commenced in accordance with the relevant legislation at the time which required preparation of a Coastal Zone Management Plan. In 2016, the NSW Government released a new coastal management framework; repealing the *Coastal Protection Act 1979* and passing the CM Act. The new legislation required the development of a CMP, which identifies coastal management issues, actions to address the issues and provides a business plan for all proposed actions.

A Project Management Team with representatives from Wollongong City Council, Shellharbour City Council and the NSW DPIE has overseen the preparation of the Lake Illawarra CMP, with advice from the Lake Illawarra Estuary Management Committee (LIEMC). The LIEMC includes elected representatives from both Wollongong and Shellharbour City Councils, community and Aboriginal community representatives, independent scientific advisors and various State Agency representatives.

Overview of the Lake Illawarra CMP and Supporting Documents

The certified Lake Illawarra CMP (Attachment 1) has been developed over the last five years with the input from a vast array of stakeholders. It facilitates the coordinated and strategic management of Lake



Illawarra by all responsible stakeholders. The certified CMP aims to maintain and improve Lake Illawarra's ecological, social, and economic value over the long term.

The certified CMP includes a program of 39 actions under nine management strategies to be implemented over the next 10 years. These actions include planning and governance, physical works, investigations and monitoring and education initiatives that target the threats to the Lake's ecological and cultural values. These actions have been prioritised based upon the level of risk.

The certified CMP identifies a range of organisations directly responsible for implementation, including Wollongong City Council and Shellharbour City Council as well as State Government agencies such as Crown Lands and Property NSW. Each agency has made the commitment to consider the actions in their forward planning and budgeting processes.

The development of the certified Lake Illawarra CMP was informed by several supporting documents including the:

- Lake Illawarra Information Synthesis Report, and
- Lake Illawarra Community Uses, Values, Threats and Opportunities Report

The Certification Process and Gazettal

The draft Lake Illawarra CMP was placed on public exhibition for a six-week period from 31 July to 11 September 2019. Subsequently, the draft Lake Illawarra CMP was updated in response to the issues raised by the community and other stakeholders. At its meeting on 6 April 2020 Council considered a report on the draft Lake Illawarra CMP, submissions in reply report and certification and resolved (in part) that:

The draft Lake Illawarra Coastal Management Program, as attached to this report, be adopted and submitted to the NSW Government for certification.

Shellharbour City Council resolved similarly at their meeting on 28 April 2020.

Following these endorsements, the draft Lake Illawarra CMP and all supporting documents were sent as a package to the Minister for Local Government, the Hon Shelley Hancock MP (the Minister), on 6 May 2020 for consideration for certification. This was done in accordance with the CM Act and the accompanying Coastal Management Manual.

The Minister acknowledged receipt of the draft Lake Illawarra CMP package on 5 June 2020. Her letter congratulated Wollongong and Shellharbour City Councils on being the first to submit a CMP prepared under the new Coastal Management Framework.

The results of the CMP certification assessment, conducted by NSW DPIE acting as the Minister's delegate, were provided to Council on 17 August 2020. The assessment determined that several amendments to the Lake Illawarra CMP were required to be made before it could meet the mandatory requirements for certification. These amendments include:

- Adjustment of Action EC1 to remove the implementation of management solutions resulting from the
 options study until exact solutions are known and agreed upon by all Local and State Government
 Agency stakeholders. Once agencies agree on preferred management options this action will be
 updated to include the implementation of preferred options. This will require the CMP to be amended
 and resubmitted for certification.
- Additional information included in Action RA6 'Upon completion of the RA6 investigation, this CMP may need to be amended to include any recommended actions to undertake dredging at identified locations. Resubmission and recertification of the CMP would be required before any dredging could occur.'
- Some additional text within Chapter 1 of the CMP to be added and/or changed to meet the mandatory requirements for certification.



The LIEMC were briefed on the changes and recommended that the CMP be amended as per the advice of the Minister's delegate and an information note be sent to Councillors to inform them of the process. An information note was sent to Councillors at both Wollongong and Shellharbour City Councils. The required changes were incorporated into an updated draft Lake Illawarra CMP which was submitted to the Minister on 18 September 2020.

The updated Lake Illawarra CMP was certified by the Minister on 9 November 2020. In a letter received from the Minister for Local Government (Attachment 2), the Lake Illawarra CMP is acknowledged as the first CMP in the State to be submitted for certification in the State under the CM Act, and is also the first CMP to be certified for an estuary as well as the first CMP to be submitted and certified as a joint project between two Councils.

PROPOSAL

For the Lake Illawarra CMP to take effect, section 17(3) of the CM Act requires that the certified Lake Illawarra CMP be adopted by the relevant Councils and published in the NSW Government Gazette.

A draft notice has been prepared for Council's endorsement (Attachment 3). The draft notice has been reviewed by NSW DPIE for compliance with legislative requirements.

A similar report is expected to be presented to Shellharbour City Council on 15 December 2020, noting that their concurrence is required for gazettal.

It is recommended that Council adopt the certified Lake Illawarra CMP and endorse the publication of the certified Lake Illawarra CMP in the NSW Government Gazette.

It is noted that the supporting documents that informed preparation of the CMP continue to be important reference documents to guide interpretation and implementation of the program.

CONSULTATION AND COMMUNICATION

Public Exhibition

The draft Lake Illawarra CMP and supporting documents were placed on public exhibition for a six-week period from 31 July to 11 September 2019. The draft Lake Illawarra CMP was available on both Wollongong City Council and Shellharbour City Council's websites and in all libraries. Other consultation and engagement activities included two community information drop-in sessions and presentations by Council staff to several Neighbourhood Forums and Committees. The draft Lake Illawarra CMP exhibition process was also promoted via TV news reports on WIN TV and ABC, on Local ABC radio and in print via the Illawarra Mercury and the Advertiser as well as both council's social media platforms.

As a result of the exhibition process, 209 submissions were received from the community and 11 from NSW Government Agencies or other organisations. A petition with 190 signatures was also received answering the following question in the affirmative 'Do you object to dredging of the Lake's bays not being included in the LICMP?'

In response to this exhibition process a number of amendments were made to the draft Lake Illawarra CMP previously considered and supported by Council.

Agency support

Prior to the draft Lake Illawarra CMP being submitted for certification, formal letters of support were received from all stakeholders identified as either a responsible or supporting Agency within the CMP. These letters of support are a requirement under the CM Act and were included in the certification submission.

Lake Illawarra EMC

At its meeting on 26 February 2020, the LIEMC unanimously resolved (in part) to:



Recommend that Wollongong City Council and Shellharbour City Council endorse the draft Lake Illawarra CMP be submitted to the Minister for Local Government The Hon. Shelley Hancock MP to consider it for certification.

At its meeting on 19 August 2020, the LIEMC was briefed on the changes to the Lake Illawarra CMP required by the Minister, by the DPIE-EES representative. The LIEMC agreed that the changes requested by the Minister's delegate were minor and resolved to:

Adopt the recommendation to amend the plan (CMP) at the request (of the Ministers Delegate) – and that we understand those amendments are minor.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal 'We value and protect our environment'. It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Operational Plan Actions
1.1.2 Manage and effectively improve the cleanliness, health and biodiversity of creeks, lakes, waterways and oceans	1.1.2.1 Protect and conserve the health and biodiversity of our waterways and coast	Prepare and implement priority actions of the Coastal Management Plan for Lake Illawarra

Ecological Sustainability

A strategic approach to the long-term management of Lake Illawarra is a prudent investment in the ecological sustainability of this important natural resource. When finalised, the Lake Illawarra CMP will aim to ensure that threats to the health and viability of the Lake are managed appropriately through the delivery of effective and targeted actions. It is crucial that the development and corresponding impacts to the Lake and its surrounds are planned and managed to sustain the Lake for future generations to value and enjoy.

RISK MANAGEMENT

Should the certified Lake Illawarra CMP not be gazetted, the risks to Council and the community include:

- Councils and agencies will be ineligible to apply for government grants for infrastructure and environmental improvement projects
- The uncoordinated management of Lake infrastructure and environmental assets
- Reduced estuary health, leading to loss of ecological value, recreational amenity and commercial opportunity (eg fishing and tourism)

Following gazettal and finalisation of the Lake Illawarra CMP, there will be a level of community and external stakeholder expectation regarding the delivery of actions within the Lake Illawarra CMP that will need to be managed.

FINANCIAL IMPLICATIONS

Implementation of the Lake Illawarra CMP will have financial implications for both councils and other responsible agencies. A certified CMP allows councils to access 2:1 funding from the NSW Government's Coastal Management Grants Program to implement actions. Four grant applications to implement five actions in the Lake Illawarra CMP have already been submitted as a part of the 2020 NSW Coast and Estuary Grants program. These applications were all for joint projects between the two councils.

Delivery of the certified Lake Illawarra CMP is estimated to cost \$36,340,000 over 10 years. This does not account for all staff time and commitment. Costing for implementation of the certified Lake Illawarra CMP is outlined in Table 1 below:



Table 1. Projected costing for Implementation of the certified Lake Illawarra CMP, whole of CMP compared to Wollongong Council responsibility.

Timeframe	Projected cost for CMP implementation across all stakeholders	Indicative contribution by Wollongong Council for CMP implementation		
Year 1	\$6,933,000	\$1,800,000		
Years 2 – 5	\$14,587,000	\$7,500,000		
Years 6 – 10	\$14,820,000	\$8,100,000		
Total cost	\$36,340,000	\$17,400,000		

The amendments to the adopted CMP required by NSW DPIE for certification have resulted in a \$37M reduction in the overall program cost. The reduction is due to the following:

- removal of \$27.5M under Action EC1 for implementation of management solutions resulting from the entrance options study until exact solutions are known and agreed upon by all Local and State Government Agency stakeholders
- removal of \$10M under Action EC3 to replace failed revetment wall on the northern foreshore
- introduction of \$0.5M under Action EC3 to repair and make safe failing sections of protection works on the northern foreshore

As a result of these changes, the indicative contribution by Wollongong City Council for CMP implementation is reduced by \$13.7M. It should be noted that the indicative cost to Council does not appear in the certified CMP as a commitment. Whilst some of the project cost will be funded from Council's existing budgets, the potential contribution towards unfunded projects is subject to future budget processes and grant applications.

CONCLUSION

Lake Illawarra is a highly valued natural resource, providing an ecological, social, economic and cultural service to the Illawarra region. In order to address threats to the health and viability of the Lake, provide appropriate protection and guide effective long-term coordinated management, Wollongong and Shellharbour City Councils have been working in partnership with other government agencies and key stakeholders to develop a CMP for Lake Illawarra.

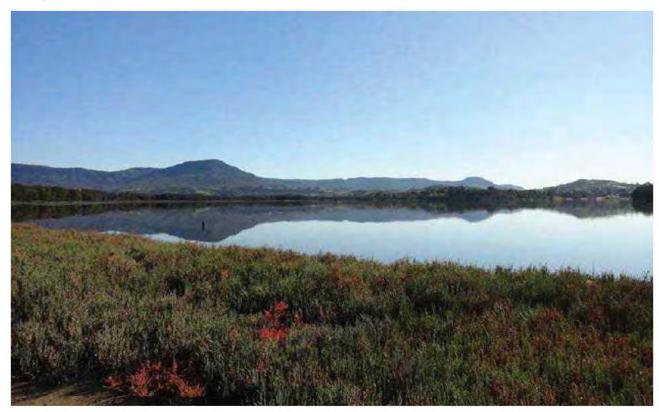
The Lake Illawarra CMP was certified on 9 November 2020 by the Minister for Local Government, the Hon Shelley Hancock MP, recognising that it has been prepared in accordance with the relevant legislative requirements.

In order to finalise and give legal effect to the certified Lake Illawarra CMP Wollongong and Shellharbour City Councils are required to adopt the document and publish a notice in the NSW Government Gazette. This report recommends that Council take these further steps to complete making of the Lake Illawarra CMP.



Lake Illawarra Coastal Management Program 2020 - 2030

September 2020

















Lake Illawarra Coastal Management Program (2020-2030)

Prepared for: Wollongong City Council and Shellharbour City Council

Prepared by: BMT Commercial Australia Pty Ltd

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Disclaimer:

Wollongong City and Shellharbour City Councils have prepared this document with financial assistance from the NSW Government through its Estuary Management Program. This document does not necessarily represent the opinions of the NSW Government or the Department of Planning, Industry and Environment.



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Lake Illawarra Coastal Management Program (2020-2030)

Acknowledgement to Country

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Acknowledgement to Country

Wollongong City and Shellharbour City Councils would like to show their respect and acknowledge the traditional owners of the Land, of Elders past and present, and extend that respect to other Aboriginal and Torres Strait Islander people.





Lake Illawarra Coastal Management Program (2020-2030)

Acknowledgement

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Acknowledgement

The preparation of the CMP was overseen by a Project Management Team (PMT) consisting of Kristy Blackburn (Chair) (WCC and SCC), Philomena Gangaiya (WCC), Andrew Lee (SCC) and Danny Wiecek (DPIE - Coasts & Estuaries). Past PMT members are Tuesday Heather (SCC) and Andrew Williams (SCC/DPIE- Coasts & Estuaries). The PMT was supported by staff across Wollongong and Shellharbour Councils, in particular Jessica Faustini (WCC) and members of the Lake Illawarra Estuary Management Committee (LIEMC).





Lake Illawarra Coastal Management Program (2020-2030)

Glossary of Terms

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Glossary of Terms

Bacteriological	The science and study of bacteria (single-celled microorganisms which can live as independent organisms or, dependently, as parasites).
Biodiversity	The variety of wildlife (both plants and animals) and habitats.
Brackish water	Water with higher salinity than fresh water and lower than seawater.
Breakwater(s)	A man-made structure built offshore to protect coastal areas such as harbours, anchorage etc. from offshore waves.
Climate change	The long-term change (decades or longer) in pattern of weather, and related changes in oceans, sea level, land surfaces and ice sheets.
Contaminant	Substances or groups of substances that are toxic, likely to bio-accumulate and/or give cause for concern.
Dredging	An underwater excavation activity inlended to remove sediments and debris. Offen used to keep navigable pathways within waterways.
Ebb tide delta	Deposit of marine sediment (usually sand) at the seaward outlet of a tidal creek by ebbing (outgoing) tidal currents.
Ecosystem	A community of living organisms and the surrounding nonliving environment interacting as a system.
Entrance management	Includes artificial opening of entrances, managing the configuration, height or location of the beach to enable entrance opening at a level lower than the natural range.
Entrance training	Deployment of man-made structures designed to constrain river discharges to a desired location.
Erosion	The removal of land by natural forces such as waves, tidal currents and / or littoral currents.
Estuarine macrophytes	Vegetation that can grow emergent, submerged or floating within the water of estuarine environments e.g. saltmarsh, mangroves and seagrass.
Estuary	The section of a river affected by tidal activity where fresh water from the river mixes with salt water from the ocean.
Flood tide delta	Deposit of marine sediment (usually sand) within a coastal embayment that has formed at the landward side of a tidal inlet by rising (or flood) tida currents.
Foreshore	The section of the shore between the low and high tidal limits.
Geomorphology	A branch of physical geography encompassing the formation of the earth's surface, distribution of land, water etc.
Groundwater	Water that is located beneath the earth's surface accumulated from rain, rivers and marine water that penetrates the ground through soils and rocks where it is then stored.
Inundation (estuarine)	Rising waters caused by a combination of catchment flood waters (from rainfall) and oceanic waters (from tides and high sea levels that occur during storms).
Littoral current	A current flowing parallel to and near the shore, usually generated by breaking waves at the shoreline. Also known as longshore currents.
Littoral transport	Transportation of non-cohesive sediments (usually sand) along the shore by littoral or longshore currents. Also termed longshore sediment transport.





Lake Illawarra Coastal Management Program (2020-2030)
Glossary of Terms

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Marine debris	Solid man-made material which is disposed of directly or indirectly into the marine environment.
Marine pest	Introduced (or non-native) plant, animal and other kingdoms that have (or could have) a detrimental impact on the marine environment.
Midden	Aboriginal place of significance where debris from eating shellfish and other food has accumulated over time. Often found on headlands, beaches and dunes, around estuaries, swamps and along the banks of rivers, creeks and lakes.
Native Title	Native Title or native title rights and interests means the communal, group or individual rights and interests of Aboriginal peoples or Torres Strait Islanders in relation to land or waters, where the rights and interests are possessed under the traditional laws and customs observed by the Aboriginal peoples or Torres Strait Islanders, and the Aboriginal peoples or Torres Strait Islanders, by those laws and customs, have a connection with the land or waters; and the rights and interests are recognised by the common law of Australia (s. 223(1) Native Title Act 1993 (Cth)).
Ocean waves	Waves occurring in the ocean that have been generated from wind blowing over the ocean surface over long distances (known as the fetch). Swell or incident waves on the coast typically have a wave period of 8 to 10 seconds, with large storm waves having periods of 12 seconds or greater.
Physico-chemical	Relating to physics and chemistry, or physical chemistry
Wind waves	While most waves are generated by wind, the term "wind waves" is associated with small, short period (3-5 second) waves that are generated locally within a small fetch. Wind waves can be generated on smaller water bodies such as lakes, lagoons, or tidal inlets.
Riparian vegetation	Vegetation located along the banks of a body of water, usually rivers.
Scour	Localised loss of soil often present around a foundation element.
Sea level rise	A long-term increase in mean sea level, usually associated with climate change and increase in temperature in particular.
Sedimentation	The settling of particles (e.g. sand or mud) out of the water column onto the bed of a waterbody.
Sediment cores	A cylindrical sample of soil for tests and examination. Sediment cores are retrieved by sampling soil deposits using a long narrow metal tube.
Siltation	The process by which water becomes dirty and/or polluted as a result of fine mineral particles being suspended in the water.
Stakeholders	Persons or organisations with an interest or concern in a given matter.
Surface water	Natural water sources found on the earth's surface such as rivers, wetlands, oceans and lakes.
Terrestrial pests	Introduced (or non-native) plant, animal and other kingdoms that have (or could have) a detrimental impact on the terrestrial environment.
Tidal currents	Currents caused by the incoming (flood) or outgoing (ebb) tide (see Tide). Tidal currents are typically the main current within estuaries, particularly in the entrance area where tidal currents transport marine sediments (sand).
Tide	The periodic rise and fall of the water of oceans, seas, bays, etc., caused mainly by the gravitational interactions between the Earth, Moon and Sun.
Tributary	A stream or river that flows into a larger stream or lake.
Wetland	Areas of land that are partly saturated by water, including marshes, swamps etc.





Lake Illawarra Coastal Management Program (2020-2030)

Executive Summary

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Executive Summary

Lake Illawarra and its catchment span both the Wollongong and Shellharbour Local Government Areas. The Lake has a complex management history. Prior to 1988 the Lake was managed by WCC and SCC and other agencies, however in response to concerns over the declining health and environmental condition of the Lake, the Lake Illawarra Authority (LIA) was formed by the NSW Government to take over management of the Lake. The LIA undertook numerous foreshore rehabilitation projects, algal harvesting, bank stabilisation and the construction of several gross pollutant traps and artificial wetlands around the Lake. Most notably the LIA constructed the entrance breakwaters to keep the Lake continuously open to the ocean. The LIA worked collaboratively with WCC and SCC in delivering environmental and infrastructure initiatives until 2014 when it was disbanded. Wollongong City Council (WCC) and Shellharbour City Council (SCC), with support from State Agencies such as the Department of Planning, Industry and Environment (DPIE) – Environment and Energy Services, and DPIE – Crown Lands have resumed management of the Lake since 2014.

Lake Illawarra is a highly valued natural resource within the Illawarra region, and is immensely valuable from an ecological, social, cultural and economic perspective. The Lake provides habitat for tringing protected communities such as coastal saltmarsh, swamp oak floodplain forest, littoral rainforest and extensive areas of seagrass. Saltmarsh, seagrass and mangroves provide essential habitat, lood supply and nutrient cycling. This in turn supports fish assemblages and wildlife, contributes to good water quality and provides scenic qualities. It is highly valued and heavily utilised by the community, particularly for recreation such as fishing, sailboarding, boating, swimming, kayaking, and picnics, cycling and walking along the foreshores. The Lake also contains areas of cultural significance from both the long history of Aboriginal use of the estuary as well as non-indigenous development and use of the Lake over the last 100 years. Economically, the Lake supports tourism industries relating to its recreational opportunities as well as the commercial fishing industry.

Balancing the existing modified environment with the community's aspirations for use and enjoyment of the Lake is extremely complex given the many threats and challenges facing the Lake. These threats and challenges include water pollution, increasing residential development pressures, past and present industrial uses in the catchment, major geomorphic, hydrodynamic and ecological changes to the Lake resulting from the entrance breakwater construction, loss of habitat, climate change, degraded infrastructure, as well as the political, financial, resourcing, and social challenges that spring from management across multiple agencies.

The Lake Illawarra Coastal Management Program facilitates the coordinated and strategic management of the Lake by all responsible stakeholders. The CMP aims to provide the strategic direction and specific actions to address threats to the Lake to maintain and improve its ecological, social and economic value with the view to achieve ecological sustainability for Lake Illawarra over the long term. It is a program of physical works, monitoring and investigations, and planning and education initiatives that target the threats to the Lake's ecological and cultural values and includes actions directly aimed at improving recreational opportunities for the public.

This CMP outlines nine management strategies chosen to address each threat, or group of threats and gives effect to specific actions to mitigate the threats and challenges identified for the Lake. These actions are to be implemented over the next 5 to 10 years and were prioritised based upon the level of risk. The CMP includes 39 actions selected for implementation under the following nine strategies:

Improve Water Quality (9 actions),





Lake Illawarra Coastal Management Program (2020-2030) Executive Summary

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- Improve Planning & Management Arrangements for the Lake (4 actions),
- Manage Changes to the Entrance Channel (5 actions),
- Protect and Rehabilitate Riparian and Estuarine Vegetation (5 actions),
- Maintain and Improve Recreation and Amenity (6 actions),
- Protect and Promote Cultural Heritage (1 action),
- Manage Foreshore and Bank Erosion (3 actions),
- Prepare for Inundation Risks (5 actions); and
- Protect and Manage Key Fauna (1 action).

Of the 39 management actions WCC is listed as responsible for 37 and supporting for 1, and SCC is responsible for 38 actions and supporting for 1. Management actions may utilise a variety of implementation mechanisms that can act at different levels or on different aspects of the problem. These include planning and development controls, physical works, rehabilitation works, education and awareness programs, and monitoring programs, data collection and assessments.

The CMP is an operational document for this community to take action to manage, preserve, improve, promote and rehabilitate our Lake. Preserving and restoring the water quality and environmental habitats of Lake Illawarra is vital to the culture and economy of the local community, with benefits flowing on to the entire state of NSW.

Delivery of the Lake Illawarra CMP is estimated to cost \$36,340,000 over 10 years.. Based upon the timeframes for actions and estimated costings, \$6,933,000 is required in Year 1 to implement specified actions. A forecast \$14,087,000 is estimated across Year 2 to 5 (inclusive), with a final \$14,820,000 required over Years 6 to 10 for the plan. WCC and SCC, as well as state agencies and other stakeholders are responsible for funding and/or implementing the actions. The existing budgets of the Council may fund some or part of the actions, particularly in the CMP's first year until grant funding applications can be made. The Lake Illawarra CMP strategies and actions align with the goals, objectives and strategies of the Wollongong and Shellharbour Community Strategic Plans. It should be noted that several actions scheduled for year one are already in the process of being implemented.

Once the program is certified, WCC and SCC will be responsible for facilitating through budgetary processes the implementation of the plan, using both specific staff resources and using existing elements of the IP&R Framework of both councils to undertake, track and measure the success of actions in the CMP.

The Lake Illawarra CMP requires evaluation and reporting regarding the success of its implementation, and the success of actions in reducing the threats and maintaining the values of Lake Illawarra. This CMP is to be the first of many iterations of a coastal program of works to manage Lake Illawarra, such plans, and the studies that underpin them, should be revised at least every 10 years.





Lake Illawarra Coastal Management Program (2020-2030)
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1 Introduction and Strategic Context

1.1 Purpose of the Lake Illawarra Coastal Management Program

Wollongong City and Shellharbour City Councils (WCC and SCC) with the assistance of the NSW Department of Planning, Industry and Environment (DPIE) resolved to prepare this Lake Illawarra Coastal Management Program (CMP), to provide the strategic direction and specific actions to address the threats to the Lake and to maintain the ecological, social and economic values of the Lake. The overall intent of the CMP is to work towards achieving ecological sustainability for Lake Illawarra over the long term.

The Lake Illawarra CMP has been prepared in accordance with the mandatory requirements for CMPs specified in the Coastal Management Act 2016 (the CM Act) and accompanying NSW Coastal Management Manual (OEH, 2018).

This CMP outlines the strategic aims for managing the Lake and identifies specific actions to mitigate the threats and issues identified for the Lake that are to be implemented over the next 5 to 10 years. Clear details for how actions will be implemented, funded, monitored, and reviewed are given in this CMP. The CMP is an operational document for the community and government to take action to manage, preserve, improve, promote and rehabilitate our Lake.

1.2 Introduction to Lake Illawarra

Lake Illawarra (the Lake) is a large estuary system located approximately 80km south of Sydney and 10km south of Wollongong, shown in Figure 1-1 and Figure 1-2. The Lake catchment covers an approximate area of 240 km², with a lake surface area of around 35 km² and an average depth of 2.1 m (OEH, 2012). The Lake is a highly modified wave dominated barrier estuary with a shallow flat-bottomed bed.

The Lake and its catchment span both the Wollongong and Shellharbour Local Government Areas (LGAs) (refer to Figure 1-1). Predominantly the Lake is co-managed by Wollongong City Council (WCC) and Shellharbour City Council (SCC), with support from State agencies such as DPIE – Environment, Energy and Science: Coasts and Estuaries (DPIE - Coasts & Estuaries), and DPIE – Crown Lands. Most notably, DPIE – Crown Lands now manages the Lake Illawarra entrance management works.

The Lake is a highly valued natural resource within the Illawarra region, and is immensely valuable from an ecological, social and economic perspective. Lake Illawarra is considered one of the more complex estuary systems on the NSW south coast in terms of balancing the existing modified environment with the community's aspirations for use and enjoyment of the Lake, past and present industrial uses in the catchment, and increasing residential development pressures. Management of the Lake across the two councils and various agencies further increases the political, financial, resourcing, social and other challenges of managing this important Lake.

In its previously natural condition, the entrance was typically narrow, shoaled and intermittently closed, opening in response to elevated water levels following rainfall events. Between 2000 and 2007, in conjunction with channel dredging and the implementation of training walls, the entrance breakwaters were constructed to keep the Lake continuously open to the ocean. The entrance





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breakwaters have resulted in major geomorphic, hydrodynamic and ecological changes to the Lake. Lake Illawarra supports numerous protected species and endangered ecological communities, including a number of migratory bird species. The gently sloping foreshores provide habitat for extensive areas of coastal saltmarsh, while the shallow subtidal areas support extensive seagrass.

The Lake is also highly valued and heavily utilised by the community, particularly for recreation such as fishing, sailboarding, boating, swimming, kayaking, and picnics, cycling and walking along the foreshores. Economically, the Lake supports tourism industries relating to its recreational opportunities. There is a locally significant commercial fishing effort in Lake Illawarra with the overall catch now dominated by sea mullet, blue swimmer crab, dusky flathead and, up until recently, school prawns.

The Lake contains areas of cultural significance from both the long history of Aboriginal use of the estuary, and non-indigenous development and use of the Lake over the last 100 years. The Lake provided more than just a food source for the Aboriginal people of the Illawarra region. The Traditional occupants of the land of the Illawarra region, the Yuin people not only utilised the natural environment for survival and protection, but also had and still have a strong spiritual connection to the Lake and the surrounding land. The significance of this site to the Yuin people stretches for thousands of years into the past, and its importance to the Aboriginal community continues today.

The pressures on the natural resources of Lake Illawarra are significant and include both natural coastal hazards as well as those brought about by human use of the foreshore and catchment. Population growth and growing residential development needs, tourism and recreational activities as well as climate change impacts all place pressure on the Lake.

1.3 Area Covered by this CMP

This CMP covers the entire Lake Illawarra estuary and catchment as it affects the estuary, with a focus on the tidal part of the Lake, as shown in Figure 1-1. That is the CMP focuses on:

- the tributaries to the Lake (including Macquarie Rivulet, Mullet, Brooks, Duck and Horsley Creeks and other smaller creeks) up to and immediately beyond their tidal limit;
- downstream to the entrance channel (including the entrance training works and extending out to the ebb tide delta); and
- all foreshore (and backshore) areas of the Lake.

While the study area has a focus on the tidal part of the Lake, the influence of the wider catchment areas insofar as activities that pose a high threat to the estuary system (see Figure 1-1 and Figure 1-2) are considered. For example, a major threat to the health of the Lake is urban development of the catchment. Therefore, consideration of managing the impacts from this development is critical to this CMP and is why the broader catchment and all fributaries (above the tidal limits) are also included in study area. It should be noted that not all threats across the entire catchment are considered (e.g. weeds in bushland at the back of the catchment), but only those with a more direct and significant consequence on estuary health. The CMP applies only to the Lake Illawarra catchment area that forms part of both the Shellharbour and Wollongong LGAs.





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Lake Illawarra is a listed estuary in Schedule 1 to the CM Act. As the estuary extends across two LGAs, it is recommended and indeed preferable that a CMP, which governs the estuary's management, is prepared jointly by both local councils, as is the case for this Lake Illawarra CMP.

1.3.1 Coastal Management Areas in the CMP Area

This CMP is made in relation to that part of the coastal zone shown in Figure 1-3 (reproduced from mapping by DPIE – PA in 2017) and currently encompasses the following three of the four coastal management areas:

- Coastal wetlands and littoral rainforest area;
- Coastal environment area; and
- Coastal use area.

The CMP does not include a coastal vulnerability area as this is not currently mapped, and at this stage, the councils have no intent to map one. Detailed description and the management objectives for each coastal management area as taken from the CM Act are provided in Appendix A.

It should be noted that development for the purpose of environmental works, undertaken by or on behalf of public authorities, on land identified as "coastal wetlands" or "littoral rainforest" within the Coastal Wetlands and Littoral Rainforests Area Map may be carried out without further development consent if they are consistent with this CMP.

1.3.1.1 Coastal Vulnerability Area

While there is not currently mapping of the coastal vulnerability area in NSW under the CM SEPP, including for Lake Illawarra, it is recognised that Lake Illawarra is subject to coastal hazards and that the scope of this CMP also covers managing coastal vulnerability. Lake Illawarra is subject to coastal hazards including foreshore erosion, inundation due to catchment rainfall and/or elevated ocean water levels (also termed coastal inundation), and ongoing changes in mean and tidal water levels due to entrance opening and sea level rise (also termed tidal inundation).

Inundation relating to catchment rainfall coincident with storm event elevated ocean water levels is already managed through the NSW floodplain risk management framework and is therefore not repeated by this CMP. Existing actions in place to manage flooding include the preparation of Flood Studies and Floodplain Risk Management Plans for the Lake (refer Section 1.9) and major tributaries, and clauses in the Local Environmental Plans (LEPs) and planning provisions in the Development Control Plans (DCPs) of Shellharbour and Wollongong LGAs.

While it is not the intent of this CMP to pursue a planning proposal to adopt a coastal vulnerability area at this time, it is noted that suitable mapping is presently available to do so. This mapping will be used to inform land use planning for the Lake. Cardno (2010, 2012) modelled coastal inundation due to storm event elevated ocean water levels without catchment rainfall at present and at 2050 and 2100 including sea level rise. The inundation mapping provided by Cardno (2012) represents the water level during periodic ocean storm events, which is then applied around the foreshore using a simple water height approximation (or 'bath tub') approach. The Cardno (2012) modelling is discussed and mapping provided in Appendix Section A.1.2.





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On behalf of WCC, SCC and DPIE, the University of Wollongong completed mapping of the tidal inundation hazard in Lake Illawarra that is projected to occur due to both the increasing tidal range in the Lake since permanent opening of the entrance, and sea level rise. Kumbier et al (2019) investigated the mean high water spring (MHWS) and high high water solstice spring (HHWSS) tidal water levels at present, 2040, 2070 and 2100. Discussion and model output from the tidal inundation assessment by Kumbier et al (2019) is provided in the *Lake Illawarra Information Synthesis Report* (BMT, 2020a). The tidal inundation modelling was used to assess the risks from tidal inundation and then incorporate risk assessment findings into the threat assessment that supports this CMP, and to develop and augment management actions in this CMP to treat inundation risks. Further details regarding the tidal inundation risk assessment are contained in Appendix C of the *Community Uses*, *Values, Threats and Opportunities: Lake Illawarra* Report (BMT, 2020b).

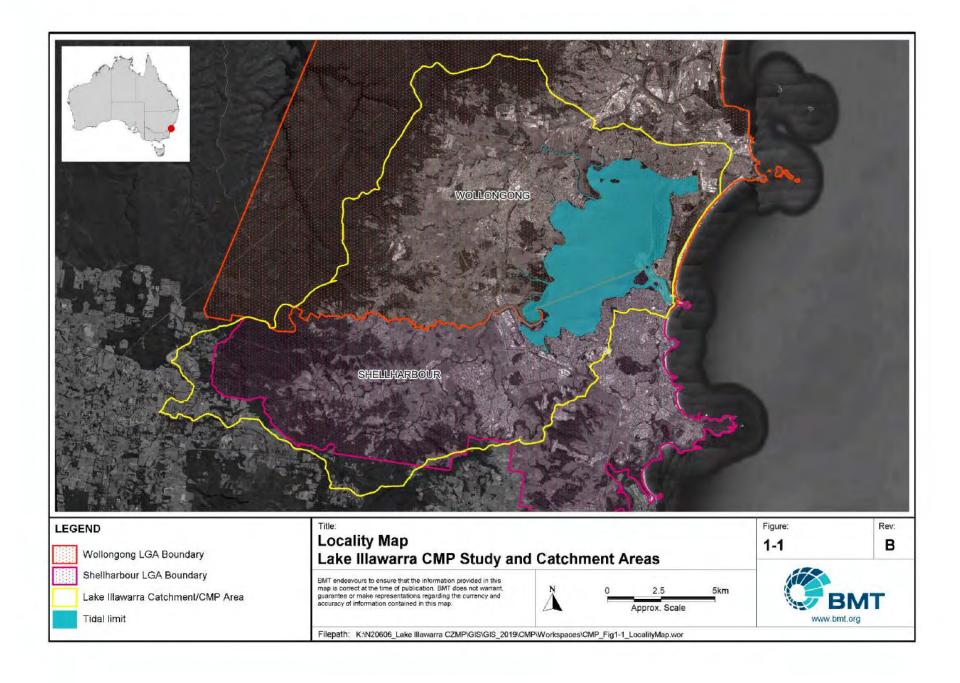
As noted above, this CMP also covers managing coastal vulnerability, and Lake Illawarra is subject to a range of coastal hazards including foreshore erosion, coastal inundation and tidal inundation. Actions are included in this CMP to address coastal hazards, including the assessment of coastal hazards for development and future planning, as summarised in Table 1-1 below.

Table 1-1 CMP Actions to address Coastal Hazards and Coastal Vulnerability

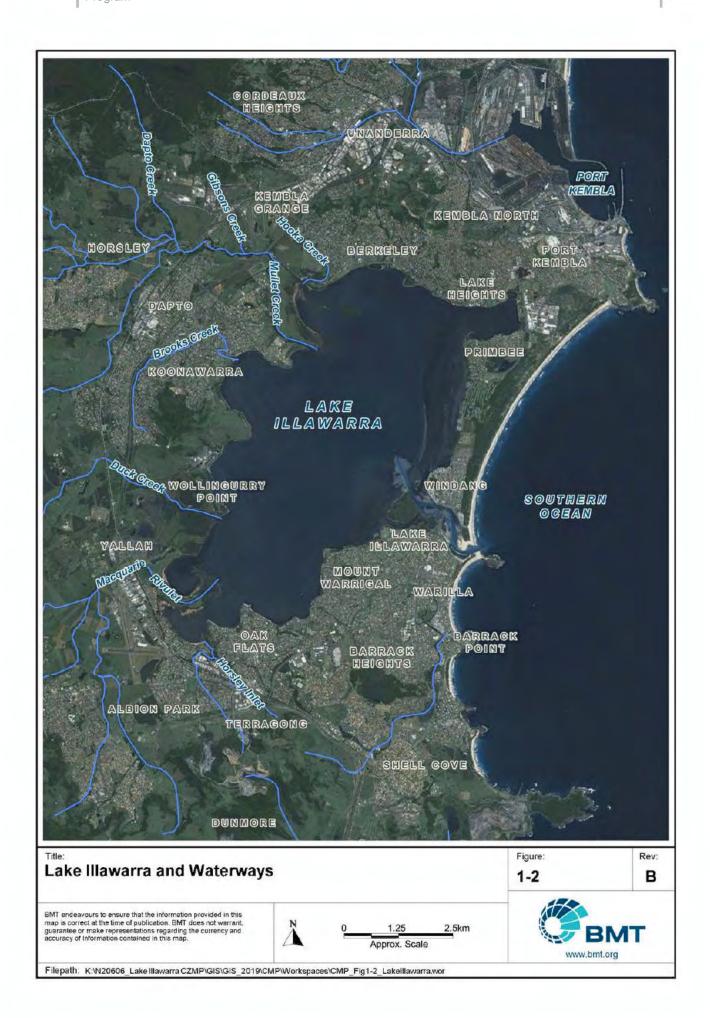
Action ID	Action Label / Descriptor	Coastal Hazard(s) Addressed
PM1	Commence integration of key objectives and strategies from the CMP into relevant planning and policy documents of both Councils. This action provides for updates to LEPs, DCPs to manage various coastal hazards.	Foreshore Erosion Coastal Inundation Tidal Inundation
РМ4	Establish a Lake Illawarra Asset Management Working Group, which will include: providing a forum for exchange of information relating to inundation risk, particularly for forward planning of asset replacement and renewal in areas at risk of tidal or storm event inundation.	Coastal Inundation Tidal Inundation
EC1	Investigate and Finalise Options to Manage Erosion and Accretion Changes in the Entrance Channel	Foreshore Erosion: Entrance Channel
EC2	Undertake small scale works (e.g. beach scraping, re-shaping etc) to maintain swimming areas.	Foreshore Erosion: Entrance Channel
EC3	Undertake emergency works or small scale no-regrets actions as required to mitigate known risks to property and public safety	Foreshore Erosion: Entrance Channel
EC4	Monitor changes to the entrance channel.	Foreshore Erosion: Entrance Channel
EC5	Monitor and maintain existing entrance channel infrastructure, with any works to be informed by EC1-EC2 and EC4.	Foreshore Erosion: Entrance Channel
EV1	Rehabilitate vegetation and manage public access along foreshores and banks of the Lake, its tidal tributaries, islands and broader low-lying areas.	Foreshore / bank erosion
EV2	Undertake targeted action to control damage to foreshore vegetation, including seagrasses	Foreshore / bank erosion
FB1	Undertake a bank condition assessment and determine and implement erosion control measures	Foreshore / bank erosion
FB2	Implement Environmentally Friendly Seawall Guidelines or similar for new and upgraded foreshore protection works	Foreshore / bank erosion
IR1	Update Asset Management Plans for all publicly owned and managed assets to clearly identify asset at risk from inundation over future timeframes, including tidal inundation	Coastal Inundation Tidal Inundation
IR2	Prepare a whole of Lake Foreshore Adaptation Plan for public (community and environmental) lands	Coastal Inundation Tidal Inundation
IR3	Incorporate tidal inundation mapping into strategic land use planning documents	Tidal Inundation
IR4	Undertake water level and condition monitoring for all lake inundation events	Coastal Inundation Tidal Inundation
IR5	Investigate novel solutions to manage inundation risks to assets such as stormwater, sewer, and water, cycleways, roads and bridges, etc	Coastal Inundation Tidal Inundation



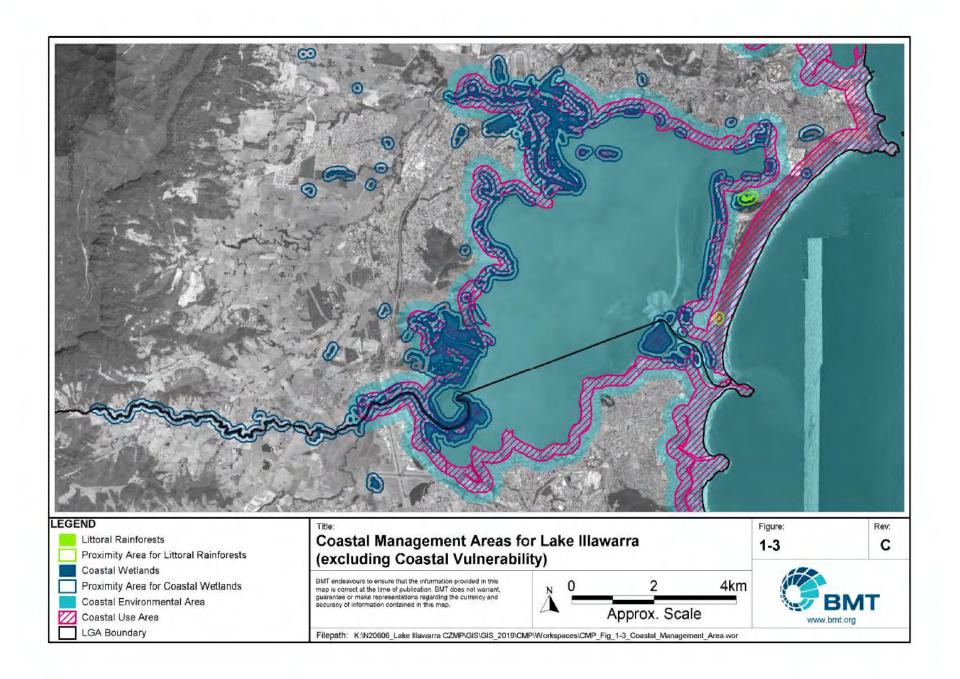














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1.4 Who is the CMP for?

While the estuary and its catchment extend over two separate LGAs, the natural processes occurring within the estuary, their associated values, threats and opportunities are largely cross-jurisdictional. The estuary and its catchment are a holistic system and need to be managed as such by all stakeholders responsible for the Lake, and its catchment insofar as it affects the Lake. The CMP is a guiding document for those involved in managing the Lake, and who are variously responsible for implementing the actions in this CMP for the benefit of the community and the environment.

The majority of the actions are the responsibility of WCC and SCC. For WCC and SCC, issues and associated management responses are likely to be similar across both LGAs, meaning that there are significant advantages to managing the estuary in a coordinated and integrated manner. Pooled funds and resources are also likely to be more efficiently used, without the need for duplication. Both councils agreed to collaborate in preparing this CMP with support from DPIE - Coasts & Estuaries, and this CMP aims to provide the judicious management of the Lake and its surrounds into the future.

DPIE - Coasts & Estuaries is also a key stakeholder, having contributed financial and technical support to developing this CMP, and can assist with funding many CMP actions through the NSW Coastal and Estuary Grants Program.

DPIE – Crown Lands is another key stakeholder as, under the Crown Land Management Act 2016, they own and/or manage: submerged Crown land within the Lake waterbody, Crown reserves land on parts of the foreshore and some associated infrastructure; and is either a 'responsible' or 'supporting' agency for some actions within the plan.

A range of other stakeholders have responsibilities in this plan, ranging from directly implementing actions, to providing financial, technical or other support to this CMP, including: the NSW Marine Estate Management Authority (MEMA), DPIE Regions, Industry, Agriculture and Resources – Fisheries (DPI Fisheries), DPIE – Planning and Assessment (DPIE – PA), Transport for NSW(TfNSW), DPIE – National Parks and Wildlife Service (NPWS), Sydney Water Corporation (Sydney Water), Illawarra Local Aboriginal Land Council (ILALC), as well as developers, tourism operators, recreational fishers, residents, visitors and the broader public.

1.4.1 Land Tenure and Ownership

Between 1988 and 2014, the Lake Illawarra Authority (LIA) had primary responsibility for managing the Lake, including most of its assets, and sections of foreshore and public lands in conjunction with WCC and SCC. Through joint funding arrangements from the State Government and Councils, the LIA delivered significant asset improvements to all foreshore lands around the Lake.

When the LIA was disbanded, LIA land and assets were transferred back to the State Government (various agencies, predominantly DPIE – Crown Lands) and to the local Councils (Wollongong and Shellharbour). The remainder of the Lake foreshore is privately owned and managed. The enfrance islands are either managed by WCC or SCC, and Hooka and Gooseberry Islands are managed by NPWS. The change in ownership and management arrangements, from one overarching management body to several, means that a well-considered and supported CMP is vital to achieve effective and coordinated management responses for the Lake. Management Sfrategy 4.2 "Improve





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Planning and Management Arrangements for the Lake" outlines several actions which aim to achieve such coordination.

Each council, as well as DPIE, has responsibilities in relation to native title, Aboriginal Land Claims and the management of Crown Lands under the following pieces of legislation: Native Title Act 1993 (Cth), Native Title (NSW) Act 1994, Crown Land Management Act 2016 and Aboriginal Land Rights Act 1983. The registered Native Title Claim (NC2017/003 South Coast People) covers the entire CMP study area. No determinations regarding the Claim have been made to date. In the event that a CMP activity or works are scheduled to take place on a Crown reserve, advice on compliance under these acts will need to be obtained from a Native Title Manager. It is noted that relevant authorisations and appropriate tenure arrangements may need to be obtained for actions on public land under the Crown Land Management Act 2016.

1.5 Coastal Strategy Statement and Objectives

This CMP sets the long-term strategy for the coordinated management of Lake Illawarra. In particular, the CMP aims to:

- protect and enhance the natural processes and environmental values of Lake Illawarra including natural character, scenic value, biological diversity and ecosystem integrity and resilience,
- support the social and cultural values of the coastal zone and maintain public access, amenity, use and safety,
- encourage and promote plans and strategies to improve the resilience of the Lake to the impacts
 of an uncertain climate future including impacts of climate change,
- ensure co-ordination of the policies and activities of WCC and SCC and public authorities relating to Lake Illawarra and to facilitate integration, and
- support public participation and greater public awareness, education and understanding of Lake processes and management actions.

1.5.1 Objectives

In accordance with the CM Act, this CMP shall give effect to the management objectives for the four coastal management areas that exist within Lake Illawarra and its catchment. The coastal zone is defined in the CM Act as comprising four coastal management areas. The CM Act provides the definition and objectives for each of the management areas. The State Environmental Planning Policy (Coastal Management) 2018 (CM SEPP) provides development controls for each of the management areas, and statewide mapping of the areas. The four coastal management areas as defined by the CM Act are, in order of priority:

- coastal wetlands and littoral rainforest area;
- coastal vulnerability area (not yet mapped);
- coastal environment area; and
- coastal use area.



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These new definitions of coastal zones have been adopted by the NSW Government to enable targeted management of the diverse environments occurring throughout the coast. The overall aim of this approach is to balance social, economic and environmental interests by promoting a coordinated approach to coastal management (DPE, 2016).

Through the implementation of the actions in this CMP, it is intended that threats to Lake Illawarra will be eliminated, reduced, mitigated or otherwise managed to a tolerable level; and that the values of the Lake will be preserved and enhanced. It is expected that the management objectives identified in the CM Act for the coastal management areas will be achieved by addressing the threats and values identified for Lake Illawarra. The values and threats identified for Lake Illawarra are detailed in Sections 2.3 and 2.4 respectively.

The CM Act states under Part 1, Section 3 "the objects of this Act are to manage the coastal environment of New South Wales in a manner consistent with the principles of ecologically sustainable development for the social, cultural and economic well-being of the people of the State". It also sets out 13 objects of the CM Act that must be considered and promoted when preparing a CMP. The 13 objects of the CM Act and the objectives of the lour coastal management areas have been incorporated in this CMP, and can be found in the sections outlined in Table 1-2.

Table 1-2 Objects of the CM Act and Objectives of the four Coastal Management Areas and their Consideration within this CMP

CM Act Section 3	Objects of the CM Act	Action section in this CMP
(a)	to protect and enhance natural coastal processes and coastal environmental values including natural character, scenic value, biological diversity and ecosystem integrity and resilience.	4
(b)	to support the social and cultural values of the coastal zone and maintain public access, amenity, use and safety.	4.2, 4.5
(c)	to acknowledge Aboriginal peoples' spiritual, social, customary and economic use of the coastal zone.	4.6
(d)	to recognise the coastal zone as a vital economic zone and to support sustainable coastal economies.	4
(e)	to facilitate ecologically sustainable development in the coastal zone and promote sustainable land use planning decision-making.	4.2, 4.8
(f)	to mitigate current and future risks from coastal hazards, taking into account the effects of climate change.	4.3, 4.7, 4.8
(g)	to recognise that the local and regional scale effects of coastal processes, and the inherently ambulatory and dynamic nature of the shoreline, may result in the loss of coastal land to the sea (including estuaries and other arms of the sea), and to manage coastal use and development accordingly.	4.3, 4.7, 4.8
(h)	to promote integrated and co-ordinated coastal planning, management and reporting.	4
(i)	to encourage and promote plans and strategies to improve the resilience of coastal assets to the impacts of an uncertain climate future including impacts of extreme storm events.	4.8





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(j)	to ensure co-ordination of the policies and activities of government and public authorities relating to the coastal zone and to facilitate the proper integration of their management activities.	4.2
(k)	to support public participation in coastal management and planning and greater public awareness, education and understanding of coastal processes and management actions.	4
(1)	to facilitate the identification of land in the coastal zone for acquisition by public or local authorities in order to promote the protection, enhancement, maintenance and restoration of the environment of the coastal zone.	4.5, 4.8
(m)	lo support the objects of the Marine Estate Management Act 2014.	4
CM Act Section 6(2)	Management Objectives of the Coastal Wetlands and Littoral Rainforests Area	Action section in this CMP
(a)	to protect coastal wetlands and littoral rainforests in their natural state, including their biological diversity and ecosystem integrity	4.4
(b)	to promote the rehabilitation and restoration of degraded coastal wetlands and littoral rainforests	4.4
(c)	to improve the resilience of coastal wetlands and littoral rainforests to the impacts of climate change, including opportunities for migration	4.4
(d)	to support the social and cultural values of coastal wetlands and littoral raintorests	4.4
(e)	to promote the objectives of State policies and programs for wetlands or littoral rainforest management	4.4
CM Act Section 7(2)	Management Objectives of the Coastal Vulnerability Area	Action section in this CMP
(a)	to ensure public safety and prevent risks to human life	2, 4.1, 4.8
(b)	to mitigate current and future risk from coastal hazards by taking into account the effects of coastal processes and climate change	2, 4.1, 4.8
(c)	lo maintain the presence of beaches, dunes and the natural features of foreshores, taking into account the beach system operating at the relevant place	2, 4.4, 4.5, 4.1
(d)	to maintain public access, amenity and use of beaches and foreshores	2, 4.5
(e)	to encourage land use that reduces exposure to risks from coastal hazards, including through siting, design, construction and operational decisions	2, 4.2
(f)	to adopt coastal management strategies that reduce exposure to coastal hazards: (i) in the first instance and wherever possible, by restoring or enhancing natural defences including coastal dunes, vegetation and wetlands, and if that is not sufficient, by taking other action to reduce exposure to those coastal hazards	2, 4.2, 4.3, 4.4, 4.7, 4.8





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	if taking that other action to reduce exposure to coastal hazards:	
(g)	to avoid significant degradation of biological diversity and ecosystem integrity, and to avoid significant degradation of or disruption to ecological, biophysical, geological and geomorphological coastal processes, and to avoid significant degradation of or disruption to beach and foreshore amenity and social and cultural values, and	2, 4
	(iv) (iv) to avoid adverse impacts on adjoining land, resources or assets, and to provide for the restoration of a beach, or land adjacent to the beach, if any increased erosion of the beach or adjacent land is caused by actions to reduce exposure to coastal hazards	
(h)	to prioritise actions that support the continued functionality of essential infrastructure during and immediately after a coastal hazard emergency	4
(i)	to improve the resilience of coastal development and communities by improving adaptive capacity and reducing reliance on emergency responses	2, 4.2, 4.3, 4.4, 4.7, 4.8
CM Act Section 8(2)	Management Objectives of the Coastal Environment Area	Action section in this CMP
(a)	to protect and enhance the coastal environmental values and natural processes of coastal waters, estuaries, coastal lakes and coastal lagoons, and enhance natural character, scenic value, biological diversity and ecosystem integrity	4.1, 4.2, 4.4
(b)	to reduce threats to and improve the resilience of coastal waters, estuaries, coastal lakes and coastal lagoons, including in response to climate change	
(c)	to maintain and improve water quality and estuary health	4.1, 4.2, 4.4
(d)	to support the social and cultural values of coastal waters, estuaries, coastal lakes and coastal lagoons	4.6
(e)	to maintain the presence of beaches, dunes and the natural features of foreshores, taking into account the beach system operating at the relevant place	4.2, 4.3, 4.4
(f)	to maintain and, where practicable, improve public access, amenity and use of beaches, foreshores, headlands and rock platforms	4.5
CM Act Section 9(2)	Management Objectives of the Coastal Use Area	Action section in this CMP
	to protect and enhance the scenic, social and cultural values of the coast by ensuring that:	
(a)	the type, bulk, scale and size of development is appropriate for the location and natural scenic quality of the coast, and	4





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	(ii)	adverse impacts of development on cultural and built environment heritage are avoided or mitigated, and	
	(iii)	urban design, including water sensitive urban design, is supported and incorporated into development activities, and	
	(iv)	(iv) adequate public open space is provided, including for recreational activities and associated infrastructure, and	
	the use of	the surf zone is considered	
(b)	to accomr	nodate both urbanised and natural stretches of coastline	4

1.6 Timeframes Covered by this CMP

This CMP has been prepared for a 10-year period from 2020 to 2030. However, the CMP considers a range of timeframes and planning horizons both in completing the risk assessment for known threats to the Lake, and in terms of the management actions to address these threats both now and into the future. For certain threats that we know are likely to change over time, the following future timeframes were considered:

- 2040-2050, where 20 years from present (i.e. 2040) is a regularly applied "short(er)" planning timeframe, and 2050 is and was a commonly applied timeframe for strategic planning purposes;
- 2070-2100+, where 50 years from present (i.e. 2070) is a regularly applied planning timeframe,
 2100 is and was a commonly applied timeframe for strategic planning purposes, and consideration of timeframes beyond 2100 is also given because processes such as sea level rise will continue for many hundreds of years regardless of climate change mitigation actions.

Coastal vulnerability assessments such as storm event coastal inundation and tidal inundation were based on deterministic models with set timeframes, specifically:

- Present, 2050 and 2100 timeframes were investigated for coastal inundation modelling for storm events (ocean water levels) by Cardno (2010, 2012); and
- Present, 2040, 2070 and 2100 timeframes were investigated for tidal inundation modelling by University of Wollongong (Kumbier et al, 2019).

The level of risk to built and natural assets due to coastal and tidal inundation have been investigated for existing and future timetrames, and the existing and future risk levels were then used to develop the management actions detailed in this CMP (refer Section 2.4).

In all cases, management actions were developed as a priority for threats considered to be high or very high at the present timeframe, as explained in Section 3. Management actions were also developed for future high and very high threats where the future threat is well accepted and requires planning intervention now in order to adequately manage the future threat. This is particularly the case for climate change related risks. For example, planning to enable migration of species with sea level rise into currently suitable / available land areas needs to commence now to secure these suitable land areas into the future





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1.7 The Coastal Management Process in NSW

In 2016, the NSW Government passed the *Coastal Management Act 2016* (CM Act), which repeals the *Coastal Protection Act 1979*. The Act became operational in April 2018 along with several other components of the NSW Governments new Coastal Management Framework. This framework also includes the State Environmental Planning Policy (Coastal Management) 2018 (CM SEPP), and a Coastal Management Manual (OEH, 2018). The new Coastal Management Framework is outlined in Figure 1-4.

A CMP is a strategic and operational document that may be prepared under the CM Act for managing a part of the coastal zone. As noted in Section 1.5.1, the coastal zone is now defined as comprising four coastal management areas (namely coastal wetlands and littoral rainforest, vulnerability, environment, and use, in order of priority). A CMP must identify the area covered by the program, and what coastal management areas are covered within that area, such as described for Lake Illawarra in Section 1.3

A CMP must meet the mandatory requirements as set out in the CM Act, and any further requirements specified in the Coastal Management Manual (OEH, 2018).and CM SEPP. The CM Act stales that a CMP must:

- identify the coastal management issues affecting the areas to which the program is to apply;
- identify the actions required to address those coastal management issues in an integrated and strategic manner;
- identify how and when those actions are to be implemented, including those to be implemented
 by local councils under Chapter 13 of the Local Government Act 1993 (that is, through the
 councils' IP&R Frameworks), those to be implemented under environmental planning instruments
 and development control plans under the Environmental Planning and Assessment Act 1979 and
 those to be implemented by public authorities (other than the local council);
- identify the costs of those actions, proposed cost-sharing arrangements and other viable funding mechanisms for those actions to ensure the delivery of those actions is consistent with the timing for their implementation under the CMP; and
- include a coastal zone emergency action subplan if the council's LGA contains land identified within the coastal vulnerability area, and if beach erosion, coastal inundation or cliff instability is occurring on that land.

This CMP contains the above mandatory requirements and has also been prepared in accordance with the Coastal Management Manual (OEH, 2018). How this CMP meets the mandatory requirements of the CM Act and Coastal Management Manual (OEH, 2018) is detailed in Table A-2, Appendix A. Consultation with DPIE - Coasts & Estuaries has been undertaken throughout the preparation of the CMP to ensure the CMP meets the requirements of the Coastal Management Manual (OEH, 2018).

The Coastal Management Manual (OEH, 2018) specifies 5 stages of preparation of a CMP. Figure 1-5 below briefly explains these stages and highlights how the companion documents developed as part of preparing the Lake Illawarra CMP are aligned with this 5 stage process.





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1.7.1 State and Regional Policies, Plans and Legislation Relevant to the CMP

Details of all plans, policies and legislation that has been considered in preparing the management actions for this CMP are outlined in Appendices A, B and C of the supporting document *Lake Illawarra Information Synthesis Report* (BMT, 2020a).

These state and regional plans and policies, as well as key legislation, were reviewed to ensure the CMP objectives and actions are consistent with the intent of these plans, policies and legislation. In addition, relevant actions and objectives of state and regional plans, including plans of management and local and regional environmental plans and strategies, were reviewed and where relevant supported through similar management actions in the CMP, or acknowledged as being implemented already.

The legislation and policies governing the management of Lake Illawarra and its catchment are complex. Legislation pertaining to the management of Lake Illawarra aims to ensure present actions, procedures, and changes to the Lake's management are in line with values that will aid its health into the future. A comprehensive overview of legislation relating to the management of Lake Illawarra was conducted as part of the Lake Illawarra Information Synthesis Report (BMT, 2020a).

Each piece of legislation covers a specific aspect of managing the Lake's environment. Each legislation is administered by a specific state agency. The agencies are also responsible for preparing policies, management rules and compliance action under their legislation. As an example, an object of the *Fisheries Management Act 1994* is to conserve fish stocks and key fish habitat. DPI Fisheries achieves this through establishing rules around fishing activity, policies to protect fish habitat and conducting compliance action in respect of these rules.





Lake Illawarra Coastal Management Program (2020-2030)

Introduction and Strategic Context

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NSW Coastal Management Framework

Environmental Planning & Assessment Act 1979 (EP&A Act)

ts the principal legislation regulating land use in NSW, which provides for environmental planning instruments, which establish development controls

The EP&A Act also includes provides for the determination of development applications, and includes enforcement and compliance powers in respect of unauthorised development.

Section 9.1 Directions (Coastal Management)

Applies to planning authorities preparing Planning Proposals under section 9.1 of the EP&A Act.

Planning Proposals can be amended in conjunction with preparation and implementation of CMPs.

Proposed land use changes must be consistent with the CM Act and CM SEPP

Coastal Management Act 2016 (CM Act)

Sets the State framework and objects for managing the NSW coastal zone, which is now defined as comprising four coastal management areas (CMAs).

Establishes the NSW Coastal Council, to provide independent advice to the Minister.

Sets the minimum requirements for preparing and implementing a Coastal Management Program (CMP).

State Environmental Planning Policy (Coastal Management) 2018 (CM SEPP)

Identifies and maps the coastal zone, comprised of the following four CMAs: Coastal Wetlands and Littoral Rainforest Area (CWLRA), Coastal Vulnerability Area (CVA); Coastal Environment Area (CEA); and Coastal Use Area (CUA);

Sets development controls for each four CMA, as defined by the CM Act.

Marine Estate Management Act 2017 (MEM Act)

Brings a closer link between marine estate and coastal management. The marine estate is define to include all features of the coastal zone (including estuaries). An object of the CM Act is to support the objectives of the MEM Act.

Marine Estate Management Strategy (2018)

Details how the Marine Estate Management Authority (MEMA) will achieve its vision for the NSW marine estate over the next 10 years.

The Strategy is underpinned by an evidence based statewide NSW marine estate Threat And Risk Assessment (TARA), completed by MEMA.

NSW Coastal Management Manual 2018 (the Manual)

Provides guidance to local councils on preparing CMPs.

Part A outlines the mandatory requirements in the CM Act, and the essential elements councils are required to follow in preparing a CMP.

Part B describes the process for completing each of the five stages of preparing a CMP in detail.

Coastal and Estuary Grants Program

Provides financial and technical support to local governments assisting in management of the coastal zone.

Assistance provided for both coastal and estuary planning; and implementing works (identified within a certified CMP)

Coastal Management Programs (CMPs)

Set the long-term strategy for coordinated management of the coast, with focus on achieving the objects of the CM Act. CMPs are prepared by local councils in consultation with their communities and relevant public authorities.

CMPs are implemented by councils through their Integrated Planning & Reporting (IP&R) framework.

Figure 1-4 NSW Coastal Management Framework





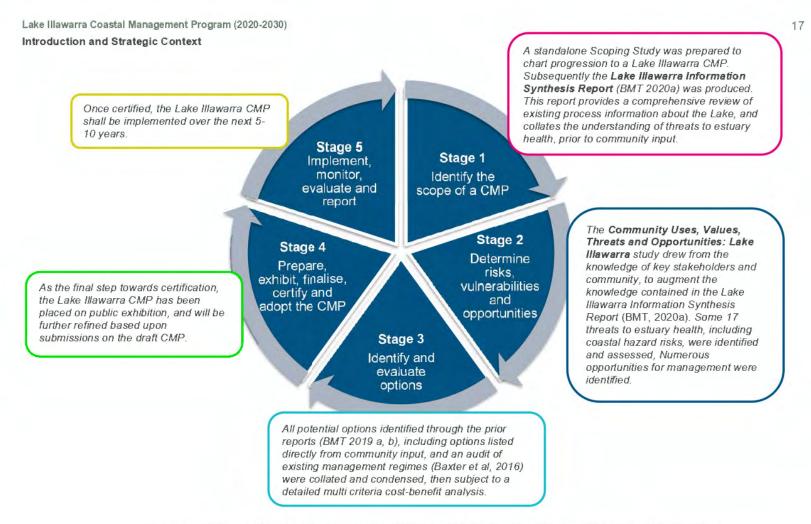


Figure 1-5 Alignment between the 5 Stage Process for CMPs and Lake Illawarra CMP and companion documents





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1.7.2 Integration with the Marine Estate Management Strategy

To reduce social conflict and improve effective management of coastal and marine resources beyond existing marine parks, the NSW Government introduced the *Marine Estate Management Act 2014* (Beeton et. al. 2012). The Act provides for strategic and integrated management of the whole marine estate. The marine estate includes all marine waters, estuaries and coastal areas, as well as the State's six marine parks.

The NSW Government also established a new advisory Marine Estate Management Authority (MEMA). MEMA has undertaken a statewide Threat and Risk Assessment (TARA) to consider and prioritise the social, economic and environmental threats to community benefits of the marine estate. The Marine Estate Management Strategy has been prepared to allow a holistic approach to dealing with the cumulative threats to the marine estate. The nine management initiatives in this plan correspond to the cumulative threat categories identified through the statewide TARA process.

Consistency between the Marine Estate Management strategy and CMPs is an essential element listed in the Coastal Management Manual (OEH, 2018). A cross reference between the Priority Regional Threats for the Central Region and the threats identified for Lake Illawarra is included as an appendix in the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b). Management measures identified within the Marine Estate Management Strategy that address key threats to Lake Illawarra have been incorporated within this CMP.

Although the statewide MEMA threat and risk assessment was undertaken at a much broader scale than Lake Illawarra, information from the MEMA background reports has been integrated into the Lake Illawarra Information Synthesis Report (BMT, 2020a) and the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b).

1.7.3 Coastal Zone Emergency Action Sub-Plan

In accordance with section 15(1)(e) of the CM Act, councils only need to prepare an Emergency Action Sub-Plan where there is a mapped coastal vulnerability area under the CM SEPP. Currently there is no mapping of the coastal vulnerability area in NSW under the CM SEPP.

Regardless, and as noted above, inundation relating to catchment rainfall coincident with storm event elevated ocean water levels is already managed through the NSW floodplain risk management framework. Emergency elements of the coastal inundation risk are also already managed through existing emergency action planning processes across both Councils in relation to the floodplain risk management plan, as follows:

- Lake Illawarra Floodplain Risk Management Plan (Cardno, 2012)
- Illawarra Flood Emergency Sub Plan (NSW SES, 2017)
- Illawarra South Coast Regional Emergency Management Plan (Illawarra South Coast Regional Management Committee, 2019)
- Illawarra Local Emergency Management Plan (Illawarra Local Emergency Management Committee, 2017)





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In relation to other elements that comprise coastal vulnerability or hazard under the CM Act, tidal inundation risks and foreshore erosion risks (including within the entrance channel) are not considered to be of a nature requiring emergency actions, because these hazards tend to progress slowly over time rather than only in relation to storm events. Therefore, no additional actions to those already outlined for flood risk in existing processes are considered necessary to address the other elements comprising coastal vulnerability and risk in Lake Illawarra with regards to emergency response.

Rationale for not mapping a coastal vulnerability area as part of this CMP is included in Section 1.7.4 below.

1.7.4 Proposed Amendments to Coastal Management Areas

(Recommended changes to the relevant planning controls, including proposed maps)

This CMP does not propose any amendments to the existing mapping of coastal management areas currently gazetted with the CM SEPP. Suitable mapping does exist to prepare a coastal vulnerability area for the Lake, however both WCC and SCC have considered and decided not to pursue the option of a Planning Proposal to gazette a coastal vulnerability area for Lake Illawarra at this time.

No Coastal Vulnerability Area map has yet been adopted under the CM SEPP. Consequently, the relevant development controls applying specifically to development on land within the coastal vulnerability area in clause 12 of the Coastal Management SEPP are not yet active for any local government area (NSW Government, 2019).

However, despite this, clause 15 of the Coastal Management SEPP requires all consent authorities, in the context of considering proposed development in the coastal zone generally, to be satisfied that the proposed development is not likely to cause increased risk of coastal hazards on that land or other land (NSW Government, 2019). Clause 15 applies to development within the entire coastal zone and relates to any of the seven types of coastal hazard identified under the CM Act. Clause 15 states that "development consent must not be granted to development on land within the coastal zone unless the consent authority is satisfied that the proposed development is not likely to cause increased risk of coastal hazards on that land or other land".

When assessing proposed development on land within the coastal zone, including where there may be a risk of a current or future coastal hazard, councils and other consent authorities must consider any relevant Coastal Management Program that has been certified by the Minister (NSW Government, 2019). The NSW Government (2019) states that when assessing the risk of a current or future coastal hazard, councils and other consent authorities have discretion to consider:

- Any relevant floodplain risk management plans or estuary management plans prepared by or on behalf of a council or public authority that take into account tidal inundation in combination with catchment flooding;
- Coastal hazards identified in a relevant environmental planning instrument or development control
 plan;





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- Relevant coastal hazard, risk and vulnerability studies prepared by an appropriately qualified expert;
- Historic data, such as past storm event data and impacts, that identify risk exposure of coastal land (such as shoreline recession, coastal inundation, or geomorphic trends);
- Relevant scientific modelling (such as relating to sea level rise and climate variability);
- Relevant advice in the NSW Coastal Management Manual and associated Toolkit; and
- Any other relevant information.

The existing coastal inundation (storm event) and tidal inundation modelling and mapping, and other relevant estuary hazard information certainly fits the above specifications. Therefore, this existing information is suitable to guide proponents in preparing development applications and to guide the councils in providing consent or conditions regarding the potential coastal risk to proposed developments.

1.8 Integrating the CMP with Each Council's IP&R Framework

A mandatory requirement for this CMP under the CM Act is to establish the links and alignment between management strategies in the CMP and objectives and strategies in the Community Strategic Plan (CSP) of both WCC and SCC.

The Integrated Planning and Reporting (IP&R) framework is a legislative requirement for Councils under the *Local Government Act 1993*. IP&R considers the longer term future of an area and is based around a CSP which reflects the community's aspirations and needs for the future. Section 8C of the *Local Government Act 1993* outlines the principles that apply to the development of the FP&R framework by councils.

The IP&R framework consists of four layers of plans:

- the Community Strategic Plan,
- the Resourcing Strategy is a 10-year plan describing the resources a council will use to achieve the objectives and sfrategies detailed in its CSP,
- the Delivery Program is a four-year program outlining the commitments and key partnerships required and measures to monitor success in achieving the Strategies, and
- the Operational Plan outlines in more detail the individual Actions that Council will undertake in a financial year in order to meet the commitments made in the Delivery Program.

In accordance with the CM Act, this CMP needs to align with the IP&R Framework of both WCC and SCC. This aims to mainstream coastal management into councils' overall service delivery and asset management responsibilities. It is also likely that integrating actions from the CMP into the service delivery and asset management processes of the Councils will improve implementation of CMPs.

Generally, the operational plan and delivery program will be updated on a yearly basis (as the delivery program is a rolling four-year program), and it is at this stage that actions from the CMP can and should be incorporated into these documents.





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The alignment between this CMP and the strategies and objectives in the CSPs of both SCC and WCC are detailed in Table 6-1. This will assist with the process of incorporating CMP actions into the Councils' delivery programs and operational plans.

1.9 Supporting Documents for this CMP

This CMP is supported by two companion documents.

- The Lake Illawarra Information Synthesis Report (BMT, 2020a) which collates and reviews a wide range of data, reports, plans and policies from over the past decade or more. Topics reviewed included: physical setting, geomorphology, entrance management works, hydrodynamics, water quality, estuarine ecology, catchment influences, estuary health, community and cultural values, and climate change impacts. Existing and planned controls that apply to the Lake were also reviewed. Information gaps with respect to the estuary environment and management were identified, and a preliminary list of key values and threats was also prepared for the report.
- A Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b) compiled the community consultation activities, information and outcomes undertaken as part of the CMP process, in addition to outlining the uses, values, threats and risks associated with the Lake. A detailed risk assessment was completed as part of this report which identified the threats listed with accompanying risk rating.

The above documents do not form part of the CMP but provide supporting information to the CMP.

A number of previous studies have supported the preparation of this CMP, in addition to the above companion documents. These studies are listed below for reference.

- Lake Illawarra Coastal Zone Management Study (incomplete Draft, LIA 2013), from which substantial information and mapping for issues, threats and management actions has been drawn info this CMP.
- Lake Illawarra Coastal Risk Assessment (BMT WBM, 2013), provides details regarding actions to address of coastal inundation to Lake Illawarra within the Shellharbour LGA.
- Wollongong Coastal Zone Management Plan: Management Study (BMT WBM, 2017) provides
 details regarding actions to address of coastal inundation to Lake Illawarra within the Wollongong
 LGA.
- Shellharbour Coastal Zone Management Plan Final Draft (BMT WBM, 2016), which details coastal management actions for the open coastal zone including Warilla Beach and Windang Island
- Lake Illawarra Floodplain Risk Management Plan (Cardno, 2012) and associated documents (flood study and floodplain risk management study), which provide details regarding flooding and inundation relating to catchment rainfall, with and without elevated ocean levels, and actions to manage flooding risks in Lake Illawarra, and which were used to derive flood planning levels and planning provisions in the LEPs and DCPs of WCC and SCC.





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 Lake Illawarra Estuary Management Study and Strategic Plan (WBM Oceanics, 2006), which formed the precursor to this CMP and the 2013 draft CZMP document.

1.10 Consultation During Development of the CMP

Consultation with councils, public authorities and the community have been undertaken in accordance with a communication and engagement strategy prepared for this project. The strategy and the outcomes of the consultation undertaken to date were documented in the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b). This has included consultation with the councils, state agencies and other stakeholders. A list of the identified target stakeholders for this CMP is provided in Table 1-3.

Table 1-3 Target Stakeholders

Category	Stakeholders
Key Council Staff from WCC and SCC	 Engineers Infrastructure Planning Parks Environment Senior Management Councillors Asset Managers Service Managers Cultural Heritage Officers
State Government and other agencies and businesses	 DPIE - Coasts & Estuaries TfNSW DPIE Regions, Industry, Agriculture and Resources – South Coast Local Land Services (LLS) DPIE – Crown Lands DPI Fisheries Sydney Water Endeavour Energy Energy Australia University of Wollongong DPIE – PA Illawarra Local Aboriginal Lands Council NSW Commercial Fishers Tourism operators Illawarra Business Chamber Golf Club/ Yacht Club/ Bowls Club Aishs Seafood Futureworld Eco - Technology Centre
Community Groups	Aboriginal Knowledge Holders and Traditional Custodians Land care / coast care/ bushcare groups/ bush restoration teams





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Category	Stakeholders	
	Rowing/ Sailing/ Yacht/ Canoe/ Dragon Boat/ Motor Boat Clubs	
	Recreational Fishing Clubs and Recreational Fishing Alliance of NSW	
	Conservation Volunteers Australia	
	Landcare Illawarra	
	Neighbourhood Forums	
	Scout Groups	
	Save the Lake	
	Seabird Rescue	
	APRA – Caravan park residents association	
	Shellharbour City Council Aboriginal Advisory Committee	
	 Wollongong City Council Aboriginal Reference Group 	
Residents	Foreshore landholders (1500) including caravan park residents.	
	Wider Catchment (90,000)	
	Visitors	
	Aboriginal Community	

1.10.1 Community Support

The actions and strategies in the CMP have been developed to target the threats identified and to preserve the values of the Lake. Community consultation undertaken for this CMP, detailed in the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b), indicated the following aspects to be most valued about Lake Illawarra (with over 70% of respondents valuing these aspects), shown in Figure 1-6:

- Water quality, which was the most valued aspect of the Lake:
- Views / How the Lake Looks:
- Native Wildlife:
- Access to Lake Foreshore:
- Recreational Facilities: and
- Healthy Vegetation in the Lake.

The highest threats identified during the preparation of this CMP (and described in more detail in Section 2.4, and the *Community Uses, Values, Threats and Opportunities: Lake Illawarra* study (BMT, 2020b) were:

- Water pollution,
- Catchment development, and
- Entrance channel changes.

Opportunities for action identified by the community were also directly utilised in developing all actions in the CMP. The CMP will be placed on public exhibition to further demonstrate the community's acceptance for actions in the CMP.



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See section 2.3 for how threats were identified

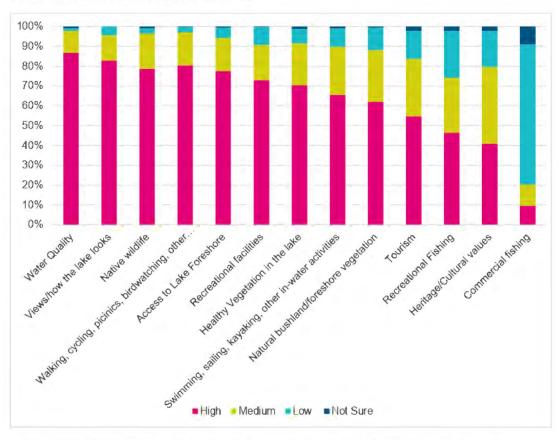


Figure 1-6 Community and Stakeholder Perception of Values Associated with the Lake





Lake Illawarra Coastal Management Program (2020-2030)

Lake Illawarra's Processes, Values and Threats

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2 Lake Illawarra's Processes, Values and Threats

2.1 Chapter Overview

This chapter provides a summary of the Lake Illawarra Information Synthesis Report (BMT, 2020a) and the Community Uses, Values, Threats and Opportunities: Lake Illawarra sludy (BMT, 2020b) that were produced as supporting documentation for this CMP. The objectives of this CMP have a strong focus on ecological health, as this underpins the social, public amenity, and economic values associated with the Lake. The summary of estuary processes below demonstrates the valuable environmental aspects of the Lake, that support its recreational, cultural and economic values.

2.2 Summary of Estuary Processes and Other Influences on Lake Illawarra

2.2.1 Physical character

Lake Illawarra is a large, shallow coastal lake, and is classified as a wave dominated barrier estuary system. From east to west, the Lake is situated between the wide, long coastal barrier system of Windang Peninsular that extends from Windang to Port Kembla (Perkins Beach) and largely impounds the estuary from the ocean; and the steep western backdrop of the Illawarra Escarpment. The Lake is fringed by low lying land, with extensive tidal flats on its eastern margin as part of Windang Peninsular and where Macquarie Rivulet and Mullet Creek flow into the estuary along its western margin.

The main waterbody of the Lake is elongated in a general southwest - northeast direction. It has a surface area of around 35 km² and an average and maximum water depth of 2.1 and 3.2 m respectively (LIA 2013; Sloss, 2005). The average Lake water level is around 0.2 m above sea level (OEH, 2012). The Lake Illawarra catchment covers an area of 240 km² (OEH, 2012). The current land uses across the catchment are illustrated in Figure 2-1. Other characteristics of the catchment are summarised in Section 2.2.6, with further details in the Lake Illawarra Information Synthesis Report (BMT, 2020a).

A number of major watercourses, small creeks and drainage lines drain into the Lake, with the five major tributaries being: Macquarie Rivulet; Mullet Creek; Brooks Creek; Duck Creek; and Horsley Creek

The Lake is now permanently open to the sea via an artificially trained entrance channel between twin breakwaters, with the entrance channel positioned between Windang Island and Windang Beach. Prior to construction of the artificially trained entrance, Lake Illawarra was classified as an Intermittently Closed and Open Lake and Lagoon (ICOLL), with the entrance channel shifting from south to north around Windang Island.

2.2.1.1 Ambulatory nature of shorelines

The ambulatory and dynamic nature of the shoreline and how it may affect the study area has been considered in the CMP through using the understanding of coastal processes to inform management response. For example, the entrance channel shoreline is in a state of change as a result of the





Lake Illawarra Coastal Management Program (2020-2030)

Lake Illawarra's Processes, Values and Threats

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permanent entrance opening and a consideration of this aspect has resulted in this being identified as a high risk, with management actions to reduce this risk outlined.

2.2.2 History of Management of Lake Illawarra

During the 1980s, a combination of high catchment sediment and nutrient loads, climate variations (i.e. drought periods) and natural processes resulted in poor water quality, algal blooms, seagrass dieback and significant community concern regarding the Lake's management and health. In response to the declining health and environmental condition of the Lake, the LIA was formed by the NSW Government in 1988, previously the Lake was managed by WCC, SCC and other agencies. Over the next 20+ years, the LIA managed Lake Illawarra and undertook numerous foreshore rehabilitation projects as well as algal harvesting, bank stabilisation and the construction of several gross pollutant traps and artificial wetlands around the Lake. The LIA worked collaboratively with WCC and SCC in delivering environmental and intrastructure initiatives.

Sediment and nutrient loads into the Lake continued to increase in line with ongoing development in the catchment, reducing the Lake's water quality. In an attempt to manage poor water quality by increasing tidal flushing, the Lake was substantially modified by the staged construction of a permanent trained entrance, which was completed under the LIA between 2000 and 2007. It was also intended that a permanently trained entrance would bring other social and environmental benefits, particularly building from improved water quality.

The LIA was disbanded in July 2014 and its responsibilities transferred to WCC, SCC, DPIE – Crown Lands, and Property NSW.

Foreshore land around the Lake is variously under the ownership and management of WCC, SCC, DPIE - Crown Lands, Property NSW or private landholders (including industry such as EnergyAustralia who own the foreshore land of Tallawarra Power Station).

Berkeley Nature Reserve (BNR) lies within Lake Illawarra and is actively managed by the NSW National Parks and Wildlife Service (NPWS). BNR comprises two small islands: Gooseberry Island (6.1 ha) & Hooka Island (2.0ha). The boundary of BNR extends down to the mean high water mark of each island. BNR is of international and national significance for its biological values, and regional significance for its cultural heritage and landscape values.

In 2005, a book titled "Lake Illawarra – An Ongoing History" was prepared by Joseph Davis for the LIA. This book contains a wealth of information and history regarding the Lake and should be referred to for further history of the Lake.

2.2.3 Entrance Channel Dynamics

The permanent opening of Lake Illawarra to the ocean has resulted in significant geomorphic, hydrodynamic and ecological changes. Lake water levels are permanently influenced by the diurnal cycle of ocean tides (MHL, 2013), and Lake waters are now permanently saline. The hydraulic efficiency of the entrance tidal inlet has increased significantly in association with the increased tidal prism within the Lake (MHL, 2013). Tidal range in the Lake is increasing at approximately 8mm/year, resulting in increased tidal scour (MHL, 2013).





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The increased hydraulic capacity of the entrance channel has caused the migration of shoals and tidal channels, resulting in changed patterns in scour, erosion and sedimentation. The substantial impacts throughout the entrance channel are summarised below.

Significant amounts of sediment have been scoured from within the entrance channel since 2007. The marine flood tidal delta at the western end of the channel has grown significantly, extending westwards into the Lake's central mud basin (Baxter and Daly, 2010; MHL, 2013). MHL (2013) measured a net annual westward movement of marine sand into the Lake of approximately 1000 m³/year (MHL, 2013). Bathymetry changes between 2008 and 2016 also illustrate accretion of the ebb tide delta seaward of the breakwaters (BMT, 2020a).

East of Windang Bridge, the channel has migrated northwards, with significant scouring and deepening of the channel occurring along its northern margin along the Windang foreshore, and deposition and shoaling along the southern margin of the channel. The entrance scouring and erosion has significantly undermined assets along the Windang foreshore, including the boardwalk (which has partly been removed and other sections recently closed off), boat ramp, power supply infrastructure, sections of footpath, lighting and other park infrastructure, pylons supporting the northern portion of Windang Bridge, areas of Aboriginal Cultural significance, shorebird habitat and open public space. The three groynes and a section of rock revetment have experienced significant scour at their ends and toe.

Entrance shoaling and sediment deposition along the southern margin of the channel has resulted in reduced amenity and functioning of the swimming areas near the secondary tidal channel adjacent to Reddall Reserve, with the swimming area frequently chocked with sediment. Nesting habitat for shorebirds has also been affected.

West of Windang Bridge, local erosion has also occurred within the channels and on the western side of Bevans and Cudgeree Islands (MHL, 2013). Foreshore erosion is also occurring along Picnic Islands, as well as significant movement of shoals either side of Windang bridge and along the Windang foreshore west of the bridge, due to ongoing channel adjustments. Secondary tidal channels have developed north east of Berrageree Island around Bevans Island, and along Cudgeree Bay east of Cudgeree Island. In contrast, sedimentation is occurring in the popular swimming area on the western side of Berageree Island, which has caused community concern.

Substantial losses of seagrass have been observed throughout the entrance channel due to the expansion of the flood tide delta and scouring of shoals.

Such morphological changes will continue over the next 100 years or more as the entrance channel equilibrates to the new hydraulic regime.

2.2.4 Water Quality

Different aspects of water quality are important for each of the different uses and ecosystem functions relevant to Lake Illawarra. Recreational activities (such as swimming) require water that is not contaminated by human specific bacteria, viruses and other disease or infection causing pathogens, and chemical contaminants. For ecosystem function and estuary health, water quality indicators are related fo turbidity, chlorophyll a and nutrients, although even in a completely pristine state, these





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indicators would be highly variable, fluctuating in response to natural events such as high rainfall runoff and winds. Water quality to support estuary health is directly impacted by chemical contaminants and increased sediment and nutrient loads from catchment development (in terms of both the development process and the ongoing land use that contributes to poor water quality and increased quantity), stormwater, groundwater contamination, litter and marine debris, illegal vehicle access to foreshore areas, sewage overflows, residential land uses, industrial land uses and discharges, agriculture, foreshore development, tree removal and park management practices.

In the past, the condition of the Lake was considered poor, with mass algal blooms frequently occurring (WCC, 2015). Based on monitoring since the entrance was permanently opened, WCC (2018) has found seasonal variability of water quality indicators such as chlorophyll-a, orthophosphorus and dissolved oxygen, and variability in water quality and estuary health indicators across the Lake. The data shows consistency in the water quality of the Lake across the moniforing program's duration despite seasonal extremes and anomalies (WCC, 2018a).

Prior to entrance opening, the north-eastern and south-western sections of the Lake consistently experienced significant nutrient enrichment when compared fo the middle reaches, entrance, and main body of the Lake (LIA, 2006 and WCC, 2018a). Since entrance opening, this trend has continued as these regions are more enclosed and have lower rates of tidal flushing, allowing accumulated nutrients to remain, rather than be flushed out to sea with the tide, demonstrating that catchment impacts have a major influence on water quality in the Lake.

2.2.5 Ecology

The Lake contains extensive areas of protected communities such as coastal saltmarsh, swamp oak floodplain forest, littoral rainforest and extensive areas of seagrass. The three main communities of estuarine vegetation that occur in the Lake (saltmarsh, seagrass and mangroves) provide essential habitat, food supply and nutrient cycling. Valued commercial and recreational fish species (e.g. bream, flathead, blue swimmer crabs and prawns) within Lake Illawarra have been found to derive most of their nutrients from seagrass and saltmarsh habitats, the percentage contribution of each habitat type to the diet of these species varies across different locations in the lake (Gaston et al., 2019). This in turn supports fish assemblages and wildlife, contributes to good water quality and provides scenic qualities. A number of protected species rely on the Lake, such as Black Necked Storks and Pied Oystercatchers.

Estuarine vegetation is highly variable around the Lake and over time. Estuarine vegetation has been removed for land reclamation and foreshore development, with works including bridge construction, open water reclamation, shoreline hardening, and dredging undertaken in and around Lake Illawarra over the past 100 years, by both public and private land managers. Grazing animals, 4WDs and other vehicles, BMX and other bikes, informal walking tracks, and mowing and other inappropriate park management practices have and continue to impact upon fringing estuarine vegetation and riparian vegetation further upstream in the tributary creeks.

These pressures occur in addition to the permanent entrance opening and sea level rise. In response to the permanent opening of the Lake, areas of mangrove are reported to have been increasing, with signs that some of the newly established saltmarsh areas could be outcompeted by mangroves





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(Baxter and Daly, 2010; Williams and Wiecek, 2017). However, the driving factor for a potential loss of saltmarsh over time is likely to be the increasing tidal range due to the permanent opening. This change in tidal range has and will be enhanced by sea level rise over time, with further impacts upon saltmarsh and mangroves to be expected.

Seagrass is particularly important for supporting fish within the Lake, as it provides a lood source and shelter for different fish during different stages of their life cycles. Within the Lake, seagrass can and has been impacted by boating activities, particularly from anchors and moorings. Seagrass is protected under Part 7 Division 4 of the *Fisheries Management Act 1994* (FM Act). The FM Act sets out provisions to protect marine vegetation (mangroves, seagrass and seaweeds whether alive or dead) from 'harm'. 'Harm' under the FM Act means gather, cut, pull up, desfroy, poison, dig up, remove, injure, prevent light from reaching or otherwise harm the marine vegetation.

Since the permanent opening of the Lake, there is also evidence that seagrasses on the flood tide delta entering the Lake are being smothered by sand (e.g. see Wiecek et al., 2016). Seagrass is also being lost in other areas due to increased flow velocities and scour, most notably, along the channel margins that are experiencing scour. While it is understood that seagrass can naturally vary in distribution throughout the Lake, reducing human impacts will assist in nurturing seagrasses to thrive in the Lake.

Reduced estuarine vegetation combined with poor water quality will directly impact on native fauna of the Lake, including fish.

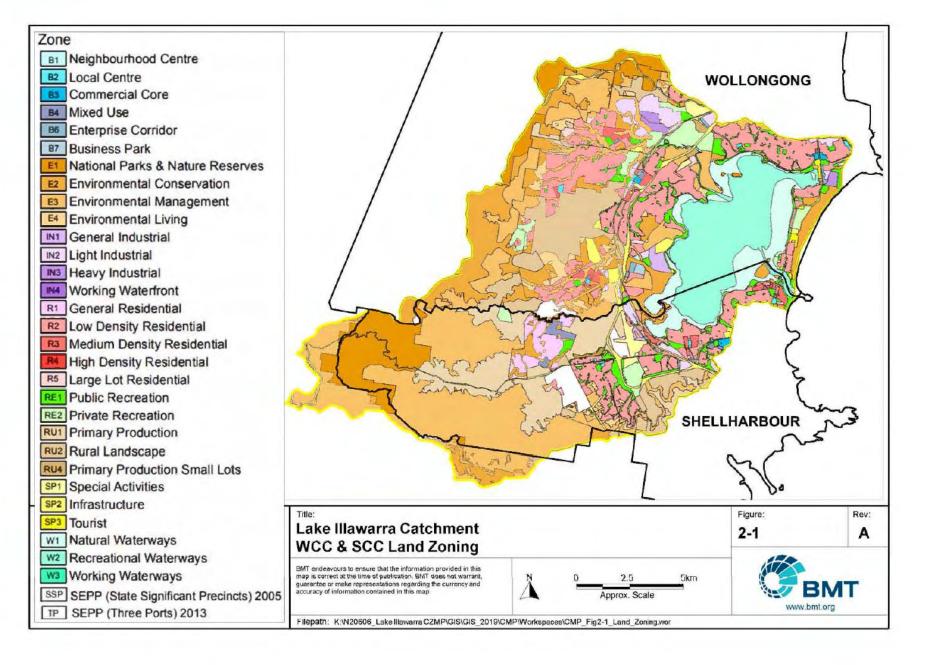
2.2.6 Influence of Population, and Growth and Changing Demographics

Today the catchment is about 60% cleared land, including urban, industrial and rural land uses, see Figure 2-1. The urban population in both Wollongong and Shellharbour has and is continuing to grow.

A large portion of the Lake's western catchment is planned to be converted to residential land. The Calderwood development in the Shellharbour LGA has already significantly advanced in the five years since October 2013. Another major development is in West Dapto, which proposes to add about 19,500 households to the catchment over the next 50 years (WCC, 2018b). The Illawarra Shoalhaven Regional Plan (DPE, 2015) states that by 2036 the population of the Illawarra-Shoalhaven region is forecast to increase by 60,400 people from 2016, taking the total population to 463,150. West Dapto has a projected population increase of almost 60,000 once fully developed. Forecast for population growth in SCC is an increase in 17,000 people between 2016 and 2036 mainly driven by development of greenfield sites in the Lake catchment. Overall, the WCC population is forecast to increase by 43,604 people between 2016 and 2036, equivalent to approximately 20% growth across the period.









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Ongoing catchment development is being felt in the Lake as poor water quality (through increased pollutant loads and water quantities both during and after development) (WCC, 2018a). The increased population in the region will also result in an increase in demands for recreational and potentially commercial usage of the Lake. This may have implications on overall estuary health and issues such as recreational opportunities, access and amenity, bank erosion, damage to ecological habitats, and private encroachments onto public land, particularly public foreshores.

Past industrial land uses have left a legacy of contamination, which through groundwater and surface water runoft can transport contaminated water and sediments into the Lake. The Lake is frequently utilised for recreational activities such as fishing, sailboarding, boating, swimming and picnics. There are some 75,000 recreational fishers in the Illawarra, many of whom utilise Lake Illawarra (West et al., 2015). Boat ramps, jetties, wharves and picnic facilities support these uses in the Lake, as well as the associated commercial industries of tourism and fishing. There is a significant general commercial fishing effort in Lake Illawarra with the overall catch dominated by sea mullet, blue swimmer crab, dusky flathead and, until recently, school prawns.

The Lake contains areas of cultural significance, from both the long history of Aboriginal use of the estuary, and non-indigenous development and use of the Lake over the last 100 years.

2.2.7 Climate Change

Climate change poses a significant threat to the NSW Marine Estate, including the Lake Illawarra estuary system. As previously noted, it is recognised that Lake Illawarra is subject to coastal hazards including storm inundation and tidal inundation. Climate change, particularly sea level rise, will escalate the threat presented by inundation.

Sea level rise will result in an increase in the Lake's water level as the Lake is hydraulically connected with the ocean through the permanently open entrance. When combined with tides, this may result in the foreshores of the Lake and tributaries becoming inundated on a frequent basis with the daily tidal cycle. That is, for some areas the frequency of inundation will increase over time. For example, areas affected by a king high tide once a year at present may be affected by such water levels several times a year, perhaps even daily, in future. Hydrodynamic modelling of tidal inundation was recently completed by Kumbier et al (2019) that considered the combined impact of sea level rise and the ongoing increase in the Lake's tidal range that is occurring as a result of permanent entrance opening. The model outputs were incorporated into the risk assessment conducted in the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b) for this CMP and summarised in Section 2.4.

A higher lake water level due to sea level rise also exacerbated storm event based inundation during rainfall and or ocean water level events. Coastal inundation mapping was completed on the WCC side of the Lake by Cardno (2010) using a hydrodynamic approach. For the entire Lake, Cardno (2012) completed coastal inundation mapping including current and future conditions with sea level rise using a simple water height approximation (or 'bath tub') approach. Further discussion of these hazards is provided in the Lake Illawarra Information Synthesis Report (BMT, 2020a).



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2.3 Estuary Values of Lake Illawarra

A comprehensive account of Lake Illawarra's uses and values was developed from the combination of output of surveys and discussions with the community with the existing scientific information for the Lake (e.g. such as the values and benefits of the Lake described in BMT WBM, 2015), and which was detailed in the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b). Values identified for Lake Illawarra are summarised in Table 2-1 below.

It should be noted that recreational hand gathering of cockles has been increasing in Lake Illawarra over recent years, especially over the summer of 2018 to 2019. While recreational hand gathering was not identified as a threat at the time the Lake Illawarra Information Synthesis Report (BMT, 2020a) and Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b) were initially prepared, given the recent exponential increase in hand gathering effort and local community concern over this activity, actions to align and assist with DPI Fisheries management of this matter have been included in this CMP.

Tourism is a key value in the Lake. Tourism values are underpinned by the environmental health and recreational opportunities offered by the Lake. The CMP is focussed on maintaining or improving environmental health and recreational amenity, and in this manner, can support a healthy tourism industry in the Lake. This CMP offers support to the other mechanisms of the Councils and State Government exist to develop and promote tourism.

Table 2-1 Community Values associated with Lake Illawarra (from the Community & Stakeholder Survey)

Value	Key points	Highly Valued
Water quality	Good water quality is highly valued because it underpins all natural processes and human uses in the Lake.	89%
Views / How the Lake Looks	Views of the water and a natural vegetation backdrop undoubtedly contribute to the Lake's high aesthetic value, although community opinion varies as to the ratio of vegetation to waterway in views.	81%
Native wildlife	Native wildlife is supported by a healthy lake ecosystem and catchment habitats and supports the biodiversity and productivity of the Lake. The community values native wildlife for birdwatching, nature conservation and its aesthetic value.	80%
Access to Lake Foreshore	8 boat ramps, 13+ jetties/wharves, and foreshore access supports in-water activities (see below). Foreshore parks/reserves support foreshore activities (see below).	78%
Recreational Facilities	As above, plus picnic, shelter and playground facilities, the bicycle shared pathway, and walking tracks. Some infrastructure is aging and doesn't meet peak demand.	73%
Healthy Vegetation in the Lake	Saltmarsh, seagrass and more recently mangroves provide essential habitat, food supply and nutrient cycling. This in turn supports fish abundance, wildlife and good water quality, which also supports scenic and recreational values.	71%
Foreshore Activities	Popular activities include walking, bike riding, picnics, barbeques, bird watching, bushwalking, bush regeneration, and are supported by Access to the Lake Foreshore and Recreational Facilities (see above).	69%
In-water Activities	Popular activities include swimming, kayaking, sailing, boating, as supported by Access to the Lake Foreshore and Recreational Facilities (see above).	65%
Natural bushland / Foreshore vegetation	Riparian vegetation and catchment bushland support wildlife, as well as filtering water of nutrients and pollutants before it enters the creeks and Lake. The community appreciates the natural beauty provided by riparian vegetation, with a small segment noting foreshore trees impede their views.	64%





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Value	Key points	Highly Valued*						
Tourism	An exact dollar value on the contribution of Lake Illawarra to the tourism economy is not possible, however, the natural and recreational values noted above for the Lake contribute directly to attracting visitors to the local area.							
Recreational Fishing	This popular activity includes boat based and shore based line and trap fishing, and hand gathering.	45%						
Heritage / Cultural Values	Lake Illawarra remains strongly significant in Aboriginal culture. It supported established campsites of the Yuin people and a diverse and sustainable source of food and fresh water for some 20,000 years prior to European settlement. 'Official' European settlement of the Illawarra region commenced in 1816. It has profoundly impacted the Lake: positively toward the way we value the Lake today; and negatively due to the displacement of the Aboriginal people from their land and waterways, introduction of foreign plants and animals, land clearing for dairy and cattle farming, cedar cutting, and landscape changes from coal mining.	40%						
Commercial Fishing	Commercial fishing contributes ~ \$1M annually at first point of sale, plus further lifecycle economic value. It is permitted under an "Estuary General" licence covering Wollongong to Ulladulla. Commercial fishers primarily use mesh and haul netting and crab traps, and dominantly catch sea mullet, blue swimmer crab and dusky flathead.	8%						

^{*} Refers to the percentage of respondents who classified the value as "high" in surveys conducted for this project and documented in Appendix C of the Community Uses, Values, Threats and Opportunities: Lake Illawarra Report (BMT, 2020b).

2.4 Threats Identified for Lake Illawarra

(A snapshot of issues affecting the areas to which the CMP applies)

Threats relate to activities that directly or indirectly impact upon the values and benefits associated with the Lake Illawarra estuary. Threat is often characterised by a reference to potential events and consequences, or a combination of these (ISO 31000:2009). In the context of this study, a threat may include a driver (issue, activity or process) that results in a detrimental impact(s) or consequences(s) to the values or benefits of the study area. For example, stormwater runoft (driver) may result in a detrimental impact to water quality (value). In the context of this CMP, the threats directly relate to the issues as per the terminology of the CM Act and the Coastal Management Manual (OEH, 2018).

The Lake Illawarra catchment is in a period of significant land use change, with new residential developments underway. This is in parallel to the ecosystem response to permanent changes to the entrance condition and tidal hydraulics of this already highly dynamic lake system. It is also a period of transition in governance in response to the disbanding of the LIA and transition to management by SCC, WCC, and the state government (DPIE – Crown Lands, Property NSW) with respect to the entrance management works and foreshore lands. Considerable effort has been expended by the former LIA, SCC, WCC and DPIE and other researchers to identify, document and manage the environmental, social and economic values and issues associated with Lake Illawarra.

Through the course of preparing the Lake Illawarra Information Synthesis Report (BMT, 2020a) and Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b), a list of threats to the condition and values of Lake Illawarra were identified. Refer to Section 5 of BMT (2020a) for further details on threats. The threats were then assessed through a threat rating process that considered the frequency of the threats, and the environmental, social and/or economic





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consequences of the threats across both present day and future timeframes (refer BMT (2020b) for further details on the threat rating process).

How the level of threat may change over time due to such influences as population growth, urban development and climate change has also been assessed for the medium term (2040-2050, or 20-30 years from present) and long term (2070-2100+, or 50-100 years from present), as explained in Table 2-2. Furthermore, coastal vulnerability assessments such as storm event coastal inundation and tidal inundation were based on deterministic models with set timeframes. Specifically, present, 2050 and 2100 timeframes were investigated for coastal inundation modelling for storm events (ocean water levels) by Cardno (2010, 2012); and present (2016), 2040, 2070 and 2100 timeframes were investigated for tidal inundation modelling by University of Wollongong (Kumbier et al, 2019).

Some threats can be expected to escalate over time, particularly where the threat is affected by urban development, geomorphic changes and climate change. Other threats may remain similar over time. Understanding how the threats will change over time is important in designing management actions for the next 10 years of the CMP and determining and then managing the long term intent for the Lake.

For the purposes of this CMP, current and future threats with potentially high consequence but with a very low probability of occurring within the study region were not included for assessment (e.g. tsunami). For this CMP threat assessment events with a probability of out to 1% AEP (1 in 100 years) were determined to be a sufficient extent for consideration.

It is also recognised that a disengaged community can threaten the success of implementing the CMP and managing the Lake. Many actions in the CMP to treat the direct threats involve education and involvement of the local community, and this is in recognition of the importance of the community to the success of implementing the CMP and managing the Lake.

The final prioritised list of threats and their level of present and future threat is provided in Table 2-2. The development of objectives and management actions for this CMP has focused on the treatment (reduction, elimination, mitigation) of these priority threats. Furthermore, Section 4 outlines the actions fo address the issues (termed "threats" for the purpose of this CMP) in accordance with Section 15 (1) (b) of the CM Act and associated wording of the Coastal Management Manual (OEH, 2018).





Lake Illawarra's Processes, Values and Threats

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Table 2-2 Identified Threats Impacting Lake Illawarra

	Ť	hreat Ratir	g						
Threat	Present Day	Future: 2040- 2050	Future: 2070- 2100+	Brief Description					
Water pollution	Very High	Very High	Very High	Water quality conditions in estuaries fluctuate as a function of natural processes and human pressures. Water quality in Lake Illawarra is influenced by: urban runoff that discharges into creeks and stormwater outlets connected to the Lake; groundwater flow (in some cases contaminated); tidal exchange with the ocean; mixing of salt, fresh and brackish water; and contamination from sediments. Considering the current rate of urban development, future population growth plans and the increase in tourist visitation forecast for the Lake Illawarra region, it is anticipated that water pollution will continue to be a high threat into the future. Key drivers such as catchment pollution, stormwater runoff and sewage overflows will persist and increase in severity with regional growth if not adequately managed.					
Catchment development	Very High	Very High	Very High	Catchment development results in the mechanical disturbance of undeveloped land in addition to an increase in impervious surfaces. This in turn may reduce water quality, increase water quantity, disturb and fragment habitats and increase the demands on community spaces and facilities. Further substantial development is planned for the Lake Illawarra catchment. When forecast population growth and urban development plans for the region are considered, and then combined with climate change, catchment development is likely to remain a very high threat over the medium to long term if adequate management action is not taken.					





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	т	hreat Ratin	g	Brief Description				
Threat	Present Day	Future: 2040- 2050	Future: 2070- 2100+					
Changes due to Entrance Channel opening	Very High	Very High	Very High	Entrance training works to keep the Lake permanently open to the ocean has caused significant geomorphic, hydrodynamic and ecological changes to the Lake. The water level of the Lake has dropped but the tidal range has been increasing, and this is expected to continue as the entrance channel continues to evolve (scour and migrate) in response to the increasing tidal velocities in the channel from a permanently open entrance. The East Coast Low event in June 2016 caused erosion to occur from floodwaters, locally generated wind waves, tidal current and swell wave action within the entrance. In addition to the 2016 storm, the Lake margins in and around the entrance channel continue to respond to the changing tidal regime (increased tidal prism and velocities) introduced through the entrance training works. Areas within the entrance channel continue to erode and at an increasing rate. This has already impacted the boardwalk, Windang Bridge, areas of Aboriginal Cultural significance, shorebird habitat, open public space and other assets within the entrance channel. Other areas within the entrance channel have experienced accretion (e.g. flood tide delta, swimming areas) and have required dredging in the past to maintain both navigation and recreational amenity. Channel migration causing erosion and accretion may impact upon navigation and will require monitoring and management. Sea level rise will exacerbate the threats associated with entrance channel opening. As the Lake is hydraulically connected with the ocean, sea level rise will directly increase the mean lake water level. The combination of sea level rise and ongoing increase in the tidal range of the Lake will result in low lying foreshores becoming permanently inundated by the end of the century and beyond.				
Loss of estuarine vegetation	High	High	High	Estuarine vegetation such as saltmarsh, mangroves and seagrass communities provide habitat and food for a range of fish species, birds, mammals, insects and invertebrates. Lake Illawarra has extensive areas of vegetation considered to be of significant natural value that in turn support the biodiversity and productivity of the Lake. If not managed, increased catchment development and population will continue to place pressure on estuarine vegetation through clearing for development and recreation. The increasing tidal range within the Lake as a result of the permanent opening will place additional stress on estuarine vegetation over time. Increased water temperatures due to climate change could exacerbate this threat by enhancing conditions for weed infestation.				
Wetland degradation	High	High	High	Coastal wetlands occur in specific environmental niches and are sensitive to water quality change and mechanical disturbance. At Lake Illawarra, some areas of wetland that have high ecological potential are being degraded by human activities. If not adequately managed, this threat is likely to increase in the future due to the increased population forecasts and urban development for the region.				





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	1	hreat Ratir	ıg					
Threat	Present Day Future: Future: 2040- 2070-2050 2100+			Brief Description				
Litter, plastics and marine debris	High	High	High	This includes rubbish and litter reaching the Lake through stormwater, direct dumping and fishing waste. Long term pollution from degraded plastic results in possible toxic chemical pollution, and the increasing presence of plastic micro beads and disintegrating synthetic fibres compounds this threat. Plastics in these forms can significantly negatively impact on fish and other marine animals. It is anticipated that the threat of litter, plastics and marine debris will present the same level of threat across the short, medium and long term future timeframes. Management actions and education will improve some of the general population's behaviours regarding littering however this improvement is likely to be offset by the notable population increase expected in the Illawarra region.				
Contaminated sediments	High	High	High	Contaminated sediments are known to occur within Lake Illawarra, with particularly high concentrations being measured in sediments amongst some saltmarsh areas due to adjacent historical land uses, and generally within the tributaries as a result of urban developments. Contaminated sediments can release pollutants into the water column and degrade water quality. Generally, the contaminants are a threat to lake ecology through bioaccumulation in fish and other species, which in turn poses a threat to human health. Where sediments remain undisturbed and continue to be overlain by new, clean sediments, the threats from the contamination would progressively reduce. Conversely, if sediments are scoured during flood events or through dredging, contaminants could be released. Until an appropriate method to rehabilitate contaminants from sediments is implemented, they will continue to present the threat of releasing pollutants into the Lake into the future. Therefore, the threat from contaminated sediments has been assumed to remain high into the future.				
Inappropriate / degraded / insufficient infrastructure	High	High		There is a range of coastal infrastructure within and around the Lake that have been constructed both historically and recently to improve amenity, access and other human use aspects of the Lake. There remains uncertainty about who owns and is responsible for the management and upkeep of infrastructure and this exacerbates this threat. In addition, inappropriate infrastructure occurs and is most prevalent within the entrance channel. As sea level rise and climate change impacts are observed, changes in estuary water levels and associated tidal regimes will continue to put existing infrastructure at threat. Ongoing urban development and population growth will increase usage and demands for infrastructure into the future. Therefore, the threat of inappropriate, degraded and insufficient infrastructure will continue to be high.				





Lake Illawarra Coastal Management Program (2020-2030)

	1	hreat Ratin	ng	Brief Description				
Threat	Present Day	Future: 2040- 2050	Future: 2070- 2100+					
Loss of tangible and intangible cultural heritage	High	High	High	This threat relates to known and unknown sites and places as well as less tangible aspects such as cultural fishing, cultural resource use, places, stories and traditions. Concerns have been raised around the costs of licences and regulations associated with access and restrictive catch, a lack of open space adjacent to the Lake available for cultural activities and loss of tangible cultural heritage due to factors such as coastal development and rising sea levels. Aboriginal cultural heritage sites and places will continue to be impacted into the future due to permanent entrance opening and sea level rise that will endanger sites in low lying areas. For this reason, this threat has been assumed to remain high into the future. Ongoing urban development will also place pressure on these sites, although existing regulatory requirements are				
				intended to prevent or mitigate impacts from development on Aboriginal cultural heritage.				
Foreshore development encroaching public land	Medium	High	Very High	Residential areas fringe a large proportion of the Lake's boundary, however areas of public land (Crown land or Council land) usually separate private land from the Lake's foreshore. In some places, private landholders seek to extend their land holdings across the foreshore with action such as mowing, signs and small scale illegal foreshore development (e.g. BBQ areas) on public land. Tidal inundation will continue to squeeze private and public foreshores, and in some areas public foreshore may be lost. This is expected to increase the threats of foreshore development encroaching on public lands, as toreshore lands are reduced and as residents attempt to mitigate unstoppable inundation impacts. Therefore, the threat is expected to increase over time.				
Loss of riparian habitat	Medium	High	Very High	Riparian vegetation around the Lake has a range of aesthetic and ecological values. Changes to the extent and condition of various estuarine vegetation communities can occur in response to the health and physical condition of the Lake. Sea level rise and tidal inundation will exacerbate pressures on riparian habitats in locations where they cannot migrate in response to inundation, and this may result in a loss of habitat over time. Therefore, the threat of loss of riparian habitats is expected to increase into the future.				
Foreshore and bank erosion	Medium	High	High	Erosion threatens a number of foreshore areas across the Lake and embankment areas of inflowing waterways. There are several processes that drive erosion around the Lake margin, including loss of riparian vegetation, mechanical disturbance, stormwater discharge, floodwaters, local wind wave action, tidal currents and ocean swell wave penetrating the entrance channel. Sea level rise, increasing stormwater discharge and changes to the tides and storm swells are likely to escalate the frequency of bank and foreshore erosion. The threat rating for this threat is expected to increase to High across the next 20, 50 and 100 years.				





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	1	Threat Ratir	ng					
Threat	Present 2040- 20		Future: 2070- 2100+	Brief Description				
Climate change	Medium	High	High	Climate change and rising sea level will impact the water level within the Lake. This threatening process will potentially increase the loss of saltmarsh areas, the occurrence and levels of inundation of public and built assets and cultural heritage items/places. The threat of climate change will progressively increase in threat rating and severity across the next century. Climate change impacts particularly sea level rise will be linked with several other threats over the 20, 50 and 100 year timeframes including coastal and tidal inundation, foreshore erosion and loss of riparian vegetation.				
Park management practices impacting adjacent natural areas	Medium	Medium	Medium	Council Park managers responsible for maintaining the foreshore areas can sometimes have impacts on sensitive areas such as sallmarsh through mowing practices. Increased tourism and population growth in the region will result in added pressure to maintain foreshore areas to a high standard. However, the threat rating for this threat is expected to remain the same (or potentially decrease if adequate management actions and staff training is implemented).				
Commercial fishing	Medium	Medium	Medium	Commercial fishing is managed by DPI, and changes to local fishing regulations are beyond the scope of the CMP. There are community concerns regarding the perceived impact on the Lake from commercial fishing, which is in contrast to the known community benefits to the local region from commercial fishing, such as the supply of locally sourced seafood and bait and provision and upkeep of infrastructure (e.g. jetties) by the fishing industry. Regional population growth and increased tourist visitation to the Illawarra region will continue to increase the demands on local commercial fishing, although suitable management measures such as the Fishery Management Strategy are in place to manage this and maintain suitable productivity and protection levels. Therefore, the threat level is expected to remain at medium over time.				
Inefficient/ Incorrect Lake management	Medium	Medium	Medium	In July 2014, the Lake Illawarra Authority (whom previously managed the Lake) was disbanded and responsibilities transferred to various state agencies as well as WCC\SCC. Recently the LIEMC was established as a collaborative effort between councils. This ongoing transition of responsibilities poses a threat to longer term Lake management. This threat will continue at the same level of threat (Medium) until the transition of Lake management is finalised. The CMP is an important tool for providing integrated management of the estuary in line with current and future values and needs and will assist with consistent Lake management.				
Introduced species	Low	Medium	Medium	Plant and animal (plus fungi) species that are not native to Australia are referred to as introduced species. Since European settlement the Lake Illawarra ecosystem has had to compete with a range of introduced animals and plants. The threat of invasive species is likely to increase to a threat rating of Medium over the medium to long term. As climate change impacts put added pressure on ecological communities and native species, the prevalence of introduced species in the Lake and catchment could increase. This is because native species may be weakened by climate change, allowing for better adapted invasive species to dominate.				





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3 Selecting Management Actions

3.1 Management Strategies

To better direct management attention towards addressing the identified threats to Lake Illawarra, a set of management strategies were compiled. A total of nine management strategies were identified, and prioritised based upon the threat rating for the threats directly addressed by each strategy, as in Table 3-1 (although it is noted that many of the strategies indirectly address many of the threats). That is, Table 3-1 only illustrates where a management strategy most directly addresses a threat. The aim of this approach to developing the strategies was to identify one management strategy for each threat, or group of threats where the management approach would be similar.

A full analysis of how individual actions beneath each strategy directly and indirectly address the threats is provided in the *Lake Illawarra CMP Management Actions Assessment* (BMT, 2020c).

3.2 Developing Management Actions

A total of 212 potential actions were compiled directly from the audit of the previous management plans for the Lake by Baxter et al (2016), recommendations developed during the *Lake Illawarra Information Synthesis Report* (BMT, 2020a), and from community and agency input listed in the *Community Uses, Values, Threats and Opportunities: Lake Illawarra* study (BMT, 2020b).

To implement each broad management strategy, a subset of specific management actions was developed using the pool of potential actions identified as outlined above. Management actions may be designed to reduce the likely occurrence or frequency of a threat, the consequence of a threat or both. The actions may also treat more than one threat, directly or indirectly. The management actions also include monitoring and other data collection actions, which may substantially improve approaches to management in the future by providing better information about the occurrence/frequency and / or consequence of key threats.

There are many aspects of the management of Lake Illawarra that can be targeted through the coastal management framework and there are some aspects that are beyond the reach of this process. Development of management actions was focused on those mechanisms that are available through the CMP process.

In general, management actions may utilise a variety of implementation mechanisms that can act at different levels or on different aspects of the problem. The different types of management actions include:

- Planning and development controls;
- Physical works, such as foreshore protection structures, amenity facilities etc;
- Rehabilitation works;
- Education and awareness programs, and;
- Monitoring programs, data collection and assessments.



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The list of potential actions was initially assessed by determining which of the nine management strategies each action fell within. The actions within each strategy were then distilled by grouping the same or similar actions or compiling actions with the same or similar intent. Those actions that could not be grouped were either retained as stand-alone actions or were directly culled through a coarse cost benefit assessment.

This process left a total of 41 management actions for detailed multi-criteria analysis to further refine the actions, as explained in Section 3.3. The *Lake Illawarra CMP Management Actions Assessment* (BMT, 2020c) contains the full list of 212 potential actions, the strategy categorisation, and the action each has been rolled up in to, or otherwise, the outcome of the coarse cost benefit filter.

Table 3-1 Management Strategies and Threats Addressed in Prioritised Order

			iago.			_											
Threats	Water pollution	Catchment development	Changes due to Entrance Channel Opening	Loss of estuarine vegetation	Wetland degradation	Litter, plastics and marine debris	Contaminated sediments	Inappropriate / degraded / insufficient infrastructure	Loss of tangible and intangible cultural heritage	Foreshore development encroaching public land	Loss of riparian habitat	Foreshore and bank erosion	Climate change	Park management practices impacting adjacent natural areas	Commercial fishing	Inefficient Lake Management	Introduced species
Management	> =	> 0	> 0		0			-	_	Medium	Medium	Medium	Medium	Medium	Medium	Medium	
Strategies	Very	Very	Very	High	High	High	High	High	High	Mec	Mec	Mec	Mec	Mec	Mec	Mec	Low
Improve Water Quality																	
Improve Planning & Management Arrangements for the Lake																	
Manage Changes to the Entrance Channel																П	
Protect and Rehabilitate Estuarine and Riparian Vegetation																	
Maintain and Improve Recreation and Amenity																	
Protect and Promote Cultural Heritage																	
Manage Foreshore and Bank Erosion																	
Prepare for Inundation Risks							j										
Protect and Manage Key Fauna																	





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3.3 Multi-Criteria Cost Benefit Analysis

A total of 41 actions were subject to a multi-criteria cost benefit analysis, after which, 36 actions were initially selected for implementation.

The multi-criteria cost benefit analysis involved two components, the outputs from which were combined to determine if the action should be implemented in the CMP. The components were:

- Assessment of the ability of the action to mitigate the threats to the estuary, producing a threat mitigation score (see Section 3.3.1), and
- A cost benefit analysis considering seven criteria (see Section 3.3.2), then
- Scores from the above two components were combined to take advantage of actions with high threat mitigation scores and / or high cost benefit analysis scores within the practical financial capabilities of the councils (see Section 3.3.3).

Each step of the multi-criteria assessment is explained in the following sections.

3.3.1 Threat Mitigation Assessment

The potential merit of each action was assessed by determining the influence of the action in mitigating the identified threats to Lake Illawarra. This involved considering the direct or indirect impact of the action on each threat identified for the Lake. The direct or indirect influence could be positive or negative and was scored as according to Table 3-2.

The influence of each of the 41 actions on mitigating all 17 threats was scored. The scores were then weighted according to the threat level of each threat, as follows:

- Very high threats were given a weighting of 4,
- High a weighting of 3,
- Medium a weighting of 2, and
- Low a weighting of 1.

Each influence score was multiplied by the weighting for that threat, then added to give a cumulative Threat Mitigation Score.

To explain the threat mitigation scoring process, the scoring for Action EV1 "Rehabilitate vegetation along lake foreshores and creek banks" is provided as an example in Table 3-3.

Threat mitigation scores (TMS) for the 41 actions ranged from 59 (Action PM2 "Provide ongoing coordinated management of the Lake") to -12 (Action RA5 "Undertake dredging of bays within the Lake"). The threat mitigation score provided a clear picture of the likely influence of the various actions on the priority threats, prior to further cost benefit analysis. The influence scores and cumulative threat mitigation score given to each action is provided in *Lake Illawarra CMP Management Actions Assessment* (BMT, 2020c), noting that because this analysis was undertaken prior to Public Exhibition, the action numbers may not align with those in this CMP document.



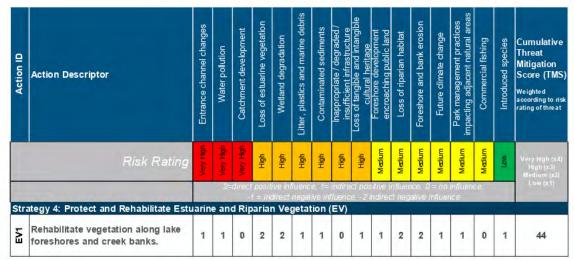


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Table 3-2 Threat Mitigation Potential

Influence	Score
Direct positive	2
Indirect positive	1
No influence	0
Indirect negative	-1
Direct negative	-2

Table 3-3 Example Threat Mitigation Score Process



3.3.2 Cost Benefit Analysis

Each of the 41 actions were then assessed for costs and benefits against seven different criteria, namely:

- Capital Cost to implement the action initially, with values generally set around the levels at which
 Councils would need different tendering procedures and approvals before proceeding;
- Ongoing Costs per annum, with cut off values generally a quarter to a half of that of the capital
 cost to implement;
- Effectiveness, being the ability of the action to reduce the threat for which the action has been
 designed or targeted, or otherwise, the provision of important data or knowledge about the target
 threat by the action;
- Community Acceptability, which is based upon general feedback from this locality and other
 coastal areas regarding the action or type of action;
- Reversible / Adaptable in the Future, being the ability for the action to be modified or removed
 in future, should the situation change, and an alternative approach be required. This is particularly





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important where influences such as ongoing channel dynamics and climate change may modify the issues or threats and how they can be managed in future.

- Legal / Approval Risk, to highlight the legislative and approval requirements (or impediments)
 to implementing an action within the current legal framework; and
- Technical Viability, to highlight where certain actions may or may not be technically feasible or would require significant engineering (or other) investigations and construction / implementation capabilities.

Scoring for the cost benefit analysis followed a "traffic light" colour system, whereby for each action, the criterion was assessed as either:

- GO, with a score of 1
- SLOW, and proceed with caution, with a score of 0; or
- STOP, with a score of -1.

The "traffic light" rating system for the criteria in the cost-benefit analysis is outlined in Table 3-4. Each of the criterion were given equal weighting. The total score for each action was therefore based on a direct addition of scores against each criterion. Scores for the actions ranged from:

- 7 (WQ1, WQ6, PM4, CH1, FB3, IR1, IR2, IR4, IR5, MF1, see full descriptions in Chapter 4), to
- 1 (EV6, RA5, both of which did not pass the selection process, see the Lake Illawarra CMP Management Actions Assessment (BMT, 2020c)).

The outcomes of the cost benefit analysis for each action against each criterion is provided in the Lake Illawarra CMP Management Actions Assessment (BMT, 2020c).

Table 3-4 Cost Benefit Analysis Criteria and Scoring System

Outcome	Capital Costs	Ongoing Costs per	Effectiveness	Community Acceptability	Reversible / Adaptable Future	Legal / Approval Risk	Technical Viability
STOP	Very expensive (>\$300,000)	Very expensive (>\$150,000 p.a.)	Option is unlikely to be effective / substantially reduce targeted threats	Unlikely to be acceptable to community and politically unpalatable; Extensive community education, endorsement by Minister(s) and Council required	Option is irreversible once implemented; Option limits alternatives options in the future	Will require an EIS and/or Govl. program to implement; There is a residual risk that approval will not be obtainable for the proposed works / strategy	Is unlikely to be technically viable without substantial engineering (or other) design investigation and capabilities for implementation
sLow	Moderately expensive (\$100,000 - \$300,000)	Moderately expensive (\$25,000 - \$150,000 p.a.)	Option will not necessarily reduce targeted threat(s) but will provide important knowledge / data about the threat OR Option will bring a minor reduction in the targeted threat(s)	Would be palatable to some, not others (~50/50 response); Briefing to Councillors, GM and community education required	Option is reversible or adaptable, but at considerable cost / effort	Will require Govt approvals to be implemented, or assistance through existing Govt program;	Is likely to be technically viable at the site, but would require further investigations to clarify
GO	Limited cost (<\$100,000)	Limited cost (<\$25,000 p.a.)	Option will be very effective in eliminating / reducing / remediating its target threat(s)	Is very politically palatable, acceptable to community; Minimal education required	Option can be easily adapted for future circumstances or should impacts not occur, option would not negatively impact future generations	No or minimal government approvals required to implement	Is technically viable at the site / location





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3.3.3 Overall outcome

The threat mitigation score provided an indication of an action's ability to mitigate more than one threat, directly or indirectly. However, this score does not indicate how costly or viable it is to implement such an action.

The cost-benefit analysis provided an indication of the financial, technical or other constraints or opportunities associated with each action, including the effectiveness of the action in meeting its aims. However, this score does not explain the ability of the action to mitigate the priority threats.

The thresholds described in Table 3-5 were therefore established to enable selection of actions to implement through this CMP. The aim of the thresholds was to sensibly combine the threat mitigation and cost benefit analysis scores, but still capture actions that are a very good idea from either a threat mitigation perspective or from a cost-benefit perspective. That is, some actions have a very high threat mitigation score, but may be a little more costly or resource intensive to implement. These actions should still be pursued because of their overall environmental and social benefit. Conversely, there are actions with a lower threat mitigation score, but that are highly efficient and low cost to implement. Indeed, for some such actions, their lower threat mitigation score reflects the fact that the action is specifically targeted to one threat (e.g. MF1 "Monitor and protect shorebird nesting sites on a yearly basis" had a TMS = 17 and CBA = 7). Such actions should certainly be pursued because of how well they are likely to treat the target threat, and at a high benefit to cost ratio.

The thresholds were also set to exclude actions that may have a high threat mitigation score but are simply too costly and difficult to implement; or likewise, that may be simple and inexpensive to implement, but are unlikely to bring any real benefit to the Lake.

The overall outcome for each action against these thresholds is provided in the *Lake Illawarra CMP Management Actions Assessment* (BMT, 2020c). Based upon the total multi criteria (threat mitigation and cost benefit) assessment, 36 actions resulted. Implementation details for the selected strategies and actions are provided in Chapter 4.

3.4 Changes to Actions After Public Exhibition

Following the public exhibition of the draft CMP document, substantial community concern was raised for a few specific lake management issues (e.g. the ability to undertake dredging, should this be needed in future). The high level of community concern prompted a further 4 actions to be added to the CMP, namely WQ8, RA4, RA5 and RA6. These new actions were then vetted through LIEMC, WCC, SCC, relevant state agencies and stakeholders and the community, prior to their inclusion in this CMP. While these four new actions were not assessed through the multi-criteria matrix, they were like other actions that had been analysed and phrased to ensure consistency with the 'slow' or 'go' categories used for the cost benefit analysis. For example, large scale dredging was previously considered in the multi-criteria assessment and resulted in a 'stop' due to the high costs associated with the action. This action was replaced with RA6, which is to do an investigation into the viability of dredging, rather than actual broadscale dredging. This action and RA5, small scale dredging, have costs of up to \$300,000, which falls into the 'slow' category. Small scale dredging as proposed in RA5 would also have much less environmental impacts than broad scale whole of bay dredging.





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Likewise, some of the actions from the public exhibition draft CMP were rationalised or expanded. For example, the water quality monitoring actions WQ7, WQ8 and WQ10 from draft CMP are now action WQ7 only, and the entrance channel action EC3 now expanded to cover emergency works.

For ease of reference for reviewers, public exhibition draft CMP Action numbers and current CMP action numbers are outlined in the *Lake Illawarra CMP Management Actions Assessment* (BMT, 2020c).

This CMP provides the approved actions to be taken torward for implementation. The final number of actions in the CMP is 39. Implementation details for all actions are provided in Chapter 4.

Table 3-5 Threat Mitigation and Cost Benefit Analysis Thresholds for Selecting Actions for Implementation

Threat Mitigation Score (TMS) + Cost Benefit Analysis (CBA) combination	Implementation Outcome	Explanation					
TMS > 30 + CBA ≥ 2	GO	The action has a very high threat mitigation score, even though the cost benefit score is relatively low. The action should be pursued through this CMP, as it has such a high potential for environmental benefit.					
TMS >15 + CBA ≥ 4	GO	The action has a lower threat mitigation score, with a high cost benefit analysis score. The action should be pursued because it is relatively easy and inexpensive to implement and will still have a moderate to high social or environmental benefit. Some actions in this category have a lower threat mitigation score because they focus on only one threat (e.g. MF1 "Monitor and protect shorebird nesting sites on a yearly basis" had a TMS = 17 and CBA = 7). Such actions should certainly be pursued because of how well they are likely to treat the target threat, and at a high benefit to cost ratio.					
TMS <15 + CBA ≤ 2	STOP	The action has a low threat mitigation score and a low CBA score, and therefore should not be pursued.					
TMS <15 + CBA ≥ 4 or TMS > 30 + CBA ≤ 2	SLOW, for future consideration	The action falls somewhere in the middle: it has a high threat mitigation score, but is simply too costly or difficult to implement, as described by its low benefit to cost ratio; OR, the action has a very low threat mitigation score meaning it is unlikely to bring substantial environmental or social benefit, even though it may be easy and cheap to implement. These actions are tagged as "SLOW" in that they will not be detailed for implementation through this CMP, but they remain available for consideration, should funding or other assistance permit.					





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(Actions to be implemented by the councils or by public authorities)

Implementation details for the CMP actions are provided in the following sections. The details contained in the tables are explained below.

- Action ID: a unique identifier for each action, with the first two letters relating back to the parent management strategy, e.g. Action WQ1 under the parent strategy "Improve Water Quality".
- Action: the action name
- Details: further details on how the action should be implemented.
- Locations: the sites at which the action should be applied. Where appropriate, the actions have been mapped, to identify the known sites to which an action applies. Actions in the Lake and foreshore area are displayed across 10 maps or zones, as shown in Figure 5-1. The Action Maps are provided in Chapter 5.
- Indicative costs: costs have been specified for each action, and for specific elements within an action if known, for example, for sites in the "location" column, or separate items to implement the action. The costs were originally derived from general sources and the Baxter et al (2016) audit, then updated based on the advice of the relevant council departments or agencies where possible. These costs are also outlined in greater detail for the life of the CMP in Chapter 6 (and Table 6-1 in particular).
- Responsible organisations: the parties primarily responsible for implementing the action, via financial and other resources, and are listed first (typically this is both Councils).
- Supporting organisations: the organisations who may support the responsible party to implement the action, predominately through the provision of technical or project management support, often considered usual business for that organisation, and subject to availability and funding.

In accordance with the mandatory requirements of the CM Act for CMPs, letters have been received from all state agencies who are responsible and / or supporting organisations for actions in this CMP confirming written agreement to these responsibilities. The letters have been provided to the Minister as a stand alone attachment (they are not required to be in the CMP document).

- Timeframe: a timeframe for implementation of parts or all of an action are specified, using time that is equivalent with the key IP&R documents, as follows:
 - Year 1: fo match with the Operational Plan (which typically extends for one financial year)
 - Year 2 to 4: to match with the Delivery Program which is a four-year program (including the Operational Plan)
 - Year 5 to 10: to match with the Resourcing Plan which is a 10 year financial plan.
 - The term "ongoing" is used where an action will need to be repeated regularly. Where possible, the details for repeating the option have been included (e.g. yearly, etc)





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- Where possible, the timing of different phases of an action have been specified.
- Performance Measure: a measure of the implementation and / or of the success of implementing
 the action (or parts of the action). Similar language to that used in Councils IP&R documents has
 been used, to assist with transferring the CMP actions into IP&R documents.
- Further Information: supporting documents or information that may assist with implementation are detailed in this column.

It is important to note that in enacting any of the actions in this CMP, all relevant approvals, permits, notifications and licences will be acquired, prior to the works / activities being undertaken (for example, REFs in accordance with the EP&A Act, aboriginal cultural heritage assessments for ground disturbance works, and so on).

In addition to the details provided in the implementation tables,

- The Business Plan outlining the costs, cost sharing arrangements and potential funding for the actions is detailed in Chapter 6 (and Table 6-1 in particular),
- The links between actions in this CMP and the IP&R Framework of both Councils is provided in Section 6.4.





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4.1 Improve Water Quality (WQ)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Timeframe (subject to available funding and resources)	Performance Measure	Further Information / References
WQ1	Implement a Risk Based Stormwater Management Framework for the Lake Illawarra catchment DPIE, in conjunction with both councils, undertake a research project to: Identify a range of stormwater treatment trains to achieve the new stormwater management targets and reflect contemporary best practices for integrated water cycle management (including a comparison with current or business as usual practices). Predict life cycle costing of the range of stormwater treatment trains. Outline opportunities (e.g. riparian corridors) and constraints for siting of stormwater infrastructure Provide sustainable funding models to assess the viability of the stormwater treatment trains to deliver tailored mechanisms for funding of life cycle costs of assets Predict (Monetised) co-benefits achieved through contemporary approaches to integrated water cycle management Develop Step by Step Practice Notes or guidelines on how the Risk-based Framework and outcomes of these investigations can be applied to the urban developments in Lake Illawarra.	The Lake Illawarra catchment	\$200,000 (DPIE – already funded)	DPIE Supporting: WCC and SCC	Year 1	The project delivers by the end of year one: A range of stormwater treatment trains to achieve new targets. Life cycle cost predictions. Opportunities and constraints for infrastructure sittings. Sustainable funding models. Co-benefit predictions. Implementation guidelines or similar.	Council may consider supplementary funding-for the planning of the additional treatment train. Councils encourage the use of alternative and feasible technologies to meet targets. It is recognised that to achieve the best results, the management of quantity as well as quality of water will need to be addressed by developers. For further information refer to Section 2.8.12 of the Lake Illawarra Information Synthesis Report (BMT, 2020a). Updating DCP may be delayed by the release of the standard template.
	WCC and SCC update their DCPs and standard conditions of development consent to reflect the Risk Based Framework pollutant reduction targets as 'best practice' for the Lake Illawarra catchment. See WQ4 regarding implementation.	The Lake Illawarra catchment	\$100,000 for temporary staff resource shared across Actions WQ1, WQ2, WQ3	WCC and SCC Supporting: DPIE	Year 1-2	WCC and SCC DCPs are updated by the end of year 1 to reflect the RBF reduction targets.	
	Where a comprehensive water cycle management plan is required, developers will be required to provide whole of life costings for treatment trains for both the original targets and the Risk Based Framework targets. Within the trial period (1 year), Council will expect the best overall environmental outcomes within reasonable long term asset management planning.	The Lake Illawarra catchment	and WQ4, to assist with implementation and managing consultancies (i.e. = \$25,000 to this action)	WCC and SCC Supporting: DPIE	Year 1-3	Report on number of DAs submitted with two treatment trains. WCC and SCC make a decision re how to best	





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Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Timeframe (subject to available funding and resources)	Performance Measure	Further Information / References
	 Outcomes of the DPIE research project and Council trial period will be considered by WCC and SCC to inform future application of the targets under the risk based framework, including whether any further DCP revisions are required. 	The Lake Illawarra catchment	Staff time + \$20 000 for analysis and report preparation	WCC and SCC	Year 3	implement the RBF by the end of year 3. DCPs updated accordingly where required.	





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Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Timeframe (subject to available funding and resources)	Performance Measure	Further Information / References
WQ2	Upgrade existing stormwater quality management measures, or install new devices, which may include water sensitive urban design or other design that will improve water quality as well as enhance habitat and natural values. Wherever possible and practical, the Risk Based Framework (see further information) should be implemented to determine the design and upgrade to the existing stormwater network. Upgrades and new devices must also be designed to better manage stormwater quantity, such as by reducing flow rates to reduce erosion and damage to vegetation, in an environmentally sensitive manner. Audit all stormwater quality management devices in the Lake Illawarra catchment, and determine priorities for upgrade or decommissioning. Prioritisation of new and retrofitting of existing stormwater quality measures to include cost-benefit and assessment of any potential constraints on effective functioning based on full lifecycle operation. Identify sites for new devices (including locations recommended here). Prioritisation of sites for new devices may be derived from the Benefit Mapping, with the priority areas conveyed by the mapped 'improve' sections of the catchment (Dela-Cruz, et al, 2017, Figure 2-31 in the Lake Illawarra Information Synthesis Report (BMT, 2020a). Set aside adequate funds for continued maintenance of new / replaced devices that accounts for depreciation. Monitor the effectiveness of various devices in different areas/settings, by monitoring the nutrient and sediment loads after devices are installed or upgraded, and above and below device once installed to test performance. The data may also improve the selection of devices for new or replacement sites. The monitoring should link in with the regular monitoring program given by WQ7. Incorporate the prioritised program of works into the IP&R Plans. Increase stomwater filtration by rehabilitating native vegetation & weed removal in stormwater channels, where appropriate and without compounding the risk of flooding.	Catchment wide. Locations for new devices in previous studies are: Reddall Reserve – 7 existing devices Whyjuck Bay – 2 existing devices Davies Bay – 1 existing devices Karoo Bay – 4 Existing devices Karoo Bay – 4 Existing devices Karoo Bay – 9 existing devices Karoo Bay – 1 existing devices Karoo Bay – 1 existing devices Karoo Bay – 1 existing devices Kully Bay Wetlands / Warrawong: new SQID (\$55,000) Primbee shoreline (various) Nicolle Road drain exiting Korrungulla Wetlands. Retro fitting of stormwater filtering for N/W Lake i.e. from Berkeley Harbour to Hooka Pt	\$100,000 for temporary staff resource shared across Actions WQ1, WQ2, WQ3 and WQ4, to assist with implementation and managing consultancies (i.e. = \$25,000 to this action). \$60,000 for consultancy to conduct audit across both LGAs and recommend program of works. \$10,000 p.a. for monitoring. Upgrades / new devices estimated at \$100,000 - \$500,000 each, exact numbers and cost of devices to be determined through audit.	WCC, SCC, Individual developers, depending on development. Supporting: DPIE - Coasts & Estuaries, EPA, Property NSW	Year 1: Commence audit Year 2: Complete audit and develop prioritised program of upgrades, new works and decommissioning Years 3 to 10: implement prioritised program of works; and undertake monitoring	Stormwater audit and renewal program is completed by Year 2. The prioritised program of works is incorporated into IP&R Plans by Year 3. Upgrades and new installations commence by Year 4. Monitoring program for new/upgraded and maintained devices is commenced by Year 4.	The Risk Based Framework = Risk-based framework for considering waterway health outcomes in strategic land-use planning decisions (Dela Cruz et al, 2017). DPIE is currently developing waterway health objectives and other tools to support implementation of the Risk Based Framework. Monitoring by WCC at Nicolle Rd Drain has not identified elevated metals in groundwater at end of Nicole Road. Stormwater treatment devices were designed, but not implemented by the LIA.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Time- frame (subject to available funding and resources)	Performance Measure	Further Information / References
WQ3	Review and prioritise maintenance and cleaning regime for existing stormwater quality devices, including gross pollutant traps, artificial wetlands and water sensitive urban design features, as informed by actions of WQ2. The maintenance program shall also incorporate any new /upgraded devices implemented through WQ2. Maintenance regimes must also consider efficiencies / new ways to carry out maintenance on specific stormwater quality devices and how the quantity of stormwater can be better managed, to reduce erosion and damage to vegetation from flows from existing stormwater outlets.	All stormwater devices in the catchment, prioritised through review of the program. Known sites include: Reddall Reserve – 6 existing devices, Whyjuck Bay – 4 existing devices Davies Bay – 1 existing device, Karoo Bay – 4 Existing devices Budjong Creek Wetlands Joes Bay Wetland Primbee shoreline	\$100,000 for temporary staff resource shared across Actions WQ1, WQ2, WQ3 and WQ4, to assist with implementation and managing consultancies (i.e. = \$25,000 to this action). \$30,000 for consultancy to review maintenance needs and develop prioritised program. Estimated \$5,000 to \$10,000 per device p.a. for maintenance and cleaning.	wcc, scc.	Year 1: Conduct review of maintenance regime and develop program for maintenance. Year 3 to 10: Implement the maintenance program, incorporating new devices as they are installed.	Review of maintenance regime completed and program of routine maintenance created and adopted by Year 1. Implementation of the maintenance program is commenced by Year 3.	
WQ4	Design and implement targeted catchment input monitoring as required for developments resulting in a large-scale change or intensification of land use. The programs should include monitoring of nutrients and sediments in runoff before, during and after development.	At development sites where there will be a large-scale change or intensification in land use.	\$100,000 for temporary staff resource shared across Actions WQ1, WQ2, WQ3 and WQ4, to assist with implementation and managing consultancies (i.e. = \$25,000 to this action). Monitoring regimes will be variable and developed on a case-by-case basis	WCC, SCC or Individual developers, depending on development	As required	Monitoring undertaken for largescale development projects. Enforcement occurred where required.	Refer to Section 7.4 for other details regarding monitoring. An example of a large-scale change or intensification of land use for which this action may apply would be the subdivision of a large rural lot for residential development of 50+ lots.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Time- frame (subject to available funding and resources)	Performance Measure	Further Information / References
WQ5	Reduce sediment load to the Lake by improving compliance with erosion & sediment controls for development sites. Increase amount of staff hours spent on reviewing sediment control (plans and on-site). Increase the number of compliance audits of development sites, which may require additional staff resources. Audit of sediment and erosion controls to be conducted prior to allowing vegetation clearing and earthworks. Ongoing audits required throughout the development to ensure sediment and erosion controls are maintained and performing as intended. Train Council works staff and contractors regarding best practice erosion and sediment control and ensure this is being implemented on Council work sites. Work with private certifiers to improve knowledge of best practice. Improve auditing and transparency of the application of sediment and erosion controls on privately certified development sites. Educate land managers on best practice for erosion control.	All new development sites requiring erosion and sediment controls within the Lake's catchment. Includes private and public work sites.	Estirnated total of \$1.6 million (based on staff resources of \$160,000 p.a. for 10 years)	WCC, SCC. Supporting: DPIE - Coasts & Estuaries, EPA, DPI Fisheries.	Ongoing	Increase in staff hours spent on compliance in the field. Number of development sites inspected and the percentage of sites compliant with best practice. Number of Council work sites inspected and the percentage of sites compliant with best practice.	Local government officers can inspect any construction site under the power of the NSW Local Government Act 1993 Section 191 Power of entry; and 192 Inspection. There are many examples of successful erosion control programs e.g. Get the Site Right — Parramatta River Catchment Group and Love our Lakes — Bega Valley Shire Council.
WQ6	Reduce the impact of sewer overflows. Develop a collaborative relationship and clarify roles with Councils and Sydney Water to improve gathering and sharing of reports of sewer leaks or overflows (location, severity, frequency). Improve reporting of leaks and overflows to Sydney Water to assist with prioritising repairs or upgrades. Identify contacts in Sydney Water and the Councils for record keeping and reporting of leaks and overflows, and sharing of this information as required. Sydney Water to provide information regarding future upgrade works in the catchment at suitable intervals.	Catchment wide.	Staff time for record keeping and reporting of incidents to/from Sydney Water.	WCC, SCC and Sydney Water Supporting: EPA	Year 1 and ongoing	100% of incidents properly recorded and reported to / by Sydney Water.	Sydney Water may need to undertake routine maintenance, emergency work and/ or environmental protection work on their infrastructure which is located in a Coastal Wetland area from time to time to ensure infrastructure is operating effectively and the potential for sewer overflows is minimised. NSW Department of Health are a stakeholder.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Time- frame (subject to available funding and resources)	Performance Measure	Further Information / References
WQ7	Implement water quality monitoring programs for estuary health, recreational use and physico-chemical and bacteriological indicators in the Lake and its catchment. Existing estuary health water quality monitoring shall be continued, to measure: • temperature; • salinity; • pH; • dissolved oxygen, • turbidity; • total, dissolved and reactive forms of nitrogen and phosphorus; and • chlorophyll a Recreational Use monitoring should be undertaken in accordance with the NSW Beachwatch sampling protocols. This typically involves sampling for Enterococi over the summer period, and as needed on an event-basis. A catchment wide physico-chemical and bacteriological monitoring program should be developed to address: • a review of existing monitoring programs; • localised pollution incidents that trigger further investigation; • pre- and post- development indicators; • link to management actions; • link to WQ1; and • inclusion of monitoring locations to account for future development (e.g. Yallah Bay) over time. For all water quality monitoring: • Set up data exchange arrangemonts with other land managers and use in analysis and annual summaries of results. • An annual summary of monitoring data and analysis of results shall be compiled, with a review of the program and results every 5 years and subsequent changes made if necessary.	Monthly estuary health WQ monitoring at 11 sites (see Section 7.4, Figure 7-1), including: • Lake entrance sites - Site 3 • Lake edge sites - Site 3A, Site 4, Site 5 and Site 6. • In-lake sites - NS1, NS2, NS3, EW1, EW2 Monitoring of 4 sites for recreational use (BW1, BW2, BW3 and ELL see Section 7.4 Figure 7-1), typically over the summer period. Sites for monitoring in the catchment are to be confirmed. Refer to potential contamination sites, Figure 2-27 in the Lake Illawarra Information Synthesis Report (BMT, 2020a).	\$120,000 / year plus staff costs (time) of \$10,000 / year.	WCC on behalf of WCC and SCC, WCC and SCC in catchment Supporting: DPIE - Coasts & Estuaries, NSW Beachwatch Program, and Sydney Water (ELL site)	Year 1 to Year 5, then reviewed, continue Year 6 to 10.	Annual summary reports completed, displaying morthly monitoring data and analysis of results. Fiver year review undertaken. Beachwatch data is collected and available to the public during summer, and as needed, and reported (e.g. in annual summary) as required. Lake catchment monitoring program is developed. Lake catchment monitoring is reported annually.	Refer to Section 7.4 for detailed information on existing monitoring programs and details. WCC's program follows standard procedures consistent with the MER protocols (refer Roper et al, 2011). Other specific monitoring actions are outlined without other management actions, such as WQ2. All will be consistent in methodology and linked to provide effective management advice. Action WQ1 may provide guidance on developing a lake catchment monitoring program.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Time- frame (subject to available funding and resources)	Performance Measure	Further Information / References
WQ8	Improve litter management through: provision of extra bins and bin collection in high usage areas over summer, conducting / supporting clean up days / large scale rubbish removal, e.g. 2 times/year in each LGA such as before and after summer, and implement a proactive patrolling and compliance program to reduce illegal dumping and rubbish disposal on the lake foreshore, creeks and surrounds.	The Lake and its tributaries, and associated reserves.	\$11,000 for provision, servicing and disposal of waste from 20 (10 in SCC and 10 in WCC) extra bins over 13 weeks each summer (\$5,500 each for SCC and WCC) \$20,000 for 4 (2 in each LGA) large scale clean up events p.a. \$10,000 (SCC) and \$12,000 (WCC) for additional compliance project costs p.a.	WCC and SCC Supporting: DPIE - Coasts & Estuaries, EPA	Year 1 - 10	Yearly number of bins /bin collection is increased in high usage areas. Number of clean up days increased across lake and creeks. Volume of rubbish collected on clean up days. Decrease of reported incidents of illegal dumping.	





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Time- frame (subject to available funding and resources)	Performance Measure	Further Information / References
WQ9	Investigate and manage potential pollution sources including contaminated sites that contribute to poor water quality in the Lake: Gather ground and surface water quality monitoring data from active and historical contaminated sites which may have been collected in accordance with EPA Environment Protection Licence conditions, EPA management of Significantly Contaminated Land, EPA/WCC/SCC management of pollution incidents and conditions of consent of Development Applications. Map the areas of contamination/potential contamination. Identify data gaps. Identify which of the areas are currently being managed and which ones there is scope for improved management. Develop (in consultation with relevant land managers) and implement a ground and/or surface water quality monitoring program targeting potential point source locations, particularly where no historical data is available. WCC/SCC/EPA undertakes negotiation/enforcement action with site owners for remediation. Any involvement by the EPA would be in accordance with their current legislative responsibilities under the Protection of the Environment Operations Act 1997 and the Contaminated Land Management Act 1997. Integrate new contamination information with environmental planning and development assessment policy, procedures and tools including DCPs, development assessment procedures, licence agreements, planning certificates and mapping.	Griffins Bay – e.g. from Kemblawarra Industrial area (nutrients and chlorophyll a measured at high levels in Griffins Bay in the past. Metals also possible). Windang Peninsula (from historical uncontrolled emplacement of fill) Haywards Bay (emplacement of fill) Tallawarra Power Station Illawarra Regional Airport (PFAS) Warrawong Tank Trap Woolshed Tannery Refer to potential contamination sites, Figure 2-27 in the Lake Illawarra Information Synthesis Report (BMT, 2020a).	\$60,000 p.a, plus staff time.	WCC and SCC Supporting: EPA, industries conducting monitoring under licence or other conditions.	Year 2 to 5	Ground and surface water quality monitoring data is gathered and reviewed Sources of contamination and sites that are likely to be the source(s) are identified The EPA / WCC / SCC has commenced negotiations / enforcement actions with site owners for remediation of runoff (in surface and / or groundwater).	Sydney Water has a database of some contamination reports available for the Lake Illawarra area, these reports can be shared with WCC and SCC under a 'Data Sharing Agreement'. It should be noted that the ground water monitoring associated with the Haywards Bay development emplacement did not consider geotechnical issues and the flow path is interrupted by an impermeable/very low permeability high that stops the contaminant from reaching the last test point. Refer to each Councils contaminated land registers; a constraint may be the standard DCP template. Refer to journal article by Jones et al (2019): "Distribution and sources of trace element pollution in the sediments of the industrialised Port Kembla Harbour, New South Wales, Australia".





Lake Illawarra Coastal Management Program (2020-2030)

Strategy Implementation Plan

4.2 Improve Planning and Management Arrangements for the Lake (PM)

(Recommended changes to the relevant planning controls, including proposed maps)

Action D	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Timeframe (subject to available funding and resources)	Performance Measure	Further Information References
M1	Commence integration of key objectives and strategies from the CMP into relevant planning and policy documents of both Councils, including the following actions: Update the DCPs and relevant consent conditions to specify: vegetation buffers, stomwater treatment measures and nutrient/sediment load reduction targets for development within the Lake catchment consistent with WO1; Coastal hazard management including long term inundation risks (on public and private lands), using relevant controls e.g. foreshore setbacks etc; the Environmentally Friendly Seawall Guidelines. Revise LEPs considering CMP management areas and objectives. Update both Councils' DA checklists to promote preservation of vegetation, erosion and sediment control, management of nutrient and sediment exports, coastal hazards including tidal inundation, and landscaping for new developments. Update or produce new POMs for community or crown land to include relevant CMP actions / objectives. Review and update local area plans (e.g. the Windang Town Centre Plan) to include CMP actions and reflect CMP objectives where relevant (e.g. bank protection methods, estuarine vegetation management etc). Work towards the incorporation of actions into regional and state programs and plans. Develop Council policies as required to implement CMP objectives and actions. Provide input to TfNSW when reviewing the NSW Maritime Infrastructure Plan 2019-2024 to have consistency with the proposed Lake Illawarra Watenways Facilities Plan (see RA1) in terms of recreational facilities; and to provide information relevant to speed / usage of boats in key fauna habitat areas. Provide input to DPI Fisheries when reviewing the commercial fishing status of the Lake regarding benefits or otherwise of commercial fishing being permitted in the Lake. Continue to support / promote Council submissions to state government on key lake issues e.g. cockle collection, legislation around waffle pods, etc.	Catchment	Staff time + consultancy assistance (up to \$50,000 per activity).	WCC and SCC Supporting: DPIE - PA, DPIE - Crown Lands, DPIE - Coasts & Estuaries, TfNSW, Sydney Water.	Year 2: DCP and LEP updates Remaining as required	The DCPs and relevant consent conditions have been revised to include appropriate environmental controls that support Lake health, including the Environmentally Friendly Seawall Guidelines The LEPs have been revised to consider the CMP objectives and management areas The DA checklists have been revised to include CMP actions and objectives # of POMs that are revised or produced that cite CMP actions or objectives	Refer to the Illawarra Shoalhaven Regiona Plan





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Timeframe (subject to available funding and resources)	Performance Measure	Further Information / References
PM2	Provide ongoing coordinated management of the Lake, which will require ongoing support for existing staff resources, to: Develop governance model, and where possible, establish this through and MOU with the relevant parties Undertake the project management of implementing the CMP Facilitate inclusion of CMP actions into both Councils' IPR Framework documents and business plans Develop and deliver a resourcing plan to deliver the CMP Continue to coordinate the Stakeholder Reference Group and toster collaboration with agency stakeholders and recognise the Stakeholder Reference Group as a priority platform for relationship building between all agencies Compile annual reports on CMP implementation, including checking against performance measures, and reporting against supporting documents Provide ongoing collaboration between SCC, WCC and other stakeholders on Lake management Investigate the formation of an Aboriginal Reference Group to support the implementation of the CMP Establish a grant support fund and support the application of grants including future planning according to Council processes, and Maintain a successful relationship with the University of Wollongong and utilise student resources where possible.	Catchment and Lake wide	\$250,000 p.a.	WCC, SCC. Supporting: Other agencies identified in the CMP, where relevant.	Year 1 and ongoing.	CMP implementation targets are being met on a yearly basis Annual reports on CMP implementation are completed (through the IPR Framework and / or separate report as required) Stakeholder Reference Group meets four times per year.	This action can be linked to PM3 as an avenue to report on outcomes, build relationships, support stakeholder collaboration. The website can be further used for targeted education and marketing, community surveys etc.





Lake Illawarra Coastal Management Program (2020-2030)

Action	Action	Locations	Indicative Cost	Responsibility,	Timeframe (subject	Performance	Further
ID	Details	(see Action Maps also)	(subject to available funding)	Supporting Organisations	to available funding and resources)	Measure	Information / References
PM3	Develop and implement a community engagement and participation strategy that enhances the community's knowledge of, skills in, and commitment to, protecting Lake Illawarra. The program should aim to provide information on the ecological, cultural and commercial values of the Lake and to facilitate changes in behaviour of individuals and groups which affect specific threats, e.g. relating to litter and plastics, illegal dumping, species identification and habitat values (saltmarsh, casuarina), cultural heritage. Various avenues for engagement and participation may be used, such as: Development of a logo and standard design theme for signage for use by both Councils Interpretive signage at key locations to promote specific lake values / habitats Media announcements (Newspaper, radio, TV, website) Brochures Field Days / Market activities / Workshops Activities in local schools; school holiday programs Programs largeting specific interest groups e.g. Aboriginal Community, Bushcare, fishers. Formation of or support for existing community groups to participate in or undertake activities such as water quality monitoring, estuarine vegetation rehabilitation, passive compliance (e.g. using local residents to monitor and report behaviours such as illegal vehicle access, littering, vegetation damage, illegal fishing, etc) Support or establish community organised litter collection / clean up events (like Clean Up Australia Day) with Councils collecting and disposing of the litter collected during the events Promotion of and inclusion in consultation on plans of management affecting the Lake Regular community surveys to better understand recreational activities, areas used, facilities required, and understanding of environmental issues, e.g. litter, sediments, etc Monilbring (attendance numbers, changes in behaviour etc) to determine what activities / approaches are successful (and should be continued) or should be modified Formation and maintenance of a website that outlines the environmental management of La	Sites previously identified as potential locations for signage include: Hooker Park Reddall Reserve Foreshore Area of Davies Bay Mogurah Point Macquarie Rivulet Purry Burry Point	\$80,000 p.a. for a staff member to develop program and \$20,000 p.a. to implement program (i.e. for materials, signs, staff and other resources required).	WCC and SCC Supporting: DPIE (including Coasts & Estuaries), ILALC, DPI Fisheries,	Year 1: Develop program Year 2 and on an annual schedule of works: Implement program and monitor success of the different activities	A Community Engagement & Participation strategy specific to the Lake is developed for both Councils Various activities and material / media are completed and prepared on a yearly basis. Surveys and other monitoring activities indicate the success or otherwise of various education activities / approaches.	See also EV3 and PM2 for further education initiatives and collaboration for this CMP. Lake Illawarra Estuarine Education Resource (Meryl McKerrow, 2010) As part of the engagement strategy new and existing platforms should be used including; Let's Chat, Shellharbour Connect, SCC/WCC Council websites and social media platforms. Engagement will include Aboriginal Advisory Committee, Disability Access Inclusion Advisory Committee groups. Landcare may also be involved with this action.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Timeframe (subject to available funding and resources)	Performance Measure	Further Information / References
PM4	 Establish a Lake Illawarra Asset Management Working Group that provides coordination services for agencies that manage assets around the Lake Illawarra foreshore. The working group would: Oversee the development of a framework for the coordinated management of assets around the Lake Illawarra foreshore, including potential cost sharing arrangements; Oversee a review of existing infrastructure around the Lake Illawarra foreshore and then an audit to determine priorities and service specifications for maintenance, renewal, additional assets or decommissioning as per action RA1; Facilitate the inclusion of priorities and service specifications arising from the audit into individual agency asset management plans other IP&R systems and forward planning documents as per RA1; Provide input into the planning, implementation and reporting of relevant asset management actions within the CMP in accordance to Councils IP&R Framework; Discuss asset management issues of a cross-jurisdictional nature including joint grant applications; Provide a forum for improved coordination of the management of assets, for example, the development of a Lake Illawarra Waterways Facilities Plan, an Around the Lake Shared Path as per RA1; or a lake foreshore parks and reserves adaptation plan for tidal inundation (see also IR2); Provide a forum for exchange of information relating to inundation risk, particularly for forward planning of asset replacement and renewal in areas at risk of tidal or storm event inundation; Have involvement in the interagency technical working group to oversee management actions in the entrance channel (refer entrance channel area mapped in Figure 5-2); Produce an accurate and correct map of Lake Illawarra's public land and assets ownership and management. 	Whole of lake and foreshore	Working Group \$5,000 p.a. to run plus staff time. Development of a Framework \$20,000 Other actions are costed in RA1 and IR2	WCC, SCC Supporting: DPIE – Crown Lands, Property NSW, Sydney Water	Year 1: Coordinated Management Framework for Lake Illawarra assets endorsed by members of the Working Group. Year 1: Undertake review and conduct Audit. Year 2: Develop priorities and service specifications for agencies to incorporate into Asset Management Plans and other IP&R documents. Years 2-3: Develop Waterways Facilities Plan. Years 3 to 10: Implement prioritised programs	The Lake Illawarra Asset Working Group meets at least 4 times a year. Years 1-10. Joint Management Framework for Lake Illawarra assets endorsed by members of the Working Group by end of year 1. Review and audit undertaken by end Year 1. Priorities and service specifications developed by end Year 2. Agency Asset management plans and other IP&R documents updated by end of Year 3	This action links to RA1 action "manage foreshore and recreational waterway infrastructure", IR1 "Update Asset Management Plans to identify tidal inundation risk timeframes for asset" and IR2 Whole of Lake Foreshore Adaptation Plan.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost* (subject to available funding, resources)	Responsibility, Supporting Organisations	Time-frame *	Performance Measure	Further Information References
EC1	Investigate and Finalise Options to Manage Erosion and Accretion Changes in the Entrance Channel Finalise management option study based on assessment of coastal processes driving erosion and accretion in the channel, complete necessary further assessments, detailed design and approvals. Options for managing entrance channel erosion and accretion include: • soft methods such as sand nourishment, dune repairs, dredging of marine sand for reuse on eroded areas or nearby beaches e.g. Warilla; • hard structures e.g. revetments, training walls or groynes; • strategic retreat (e.g. erosion on island foreshore where no assets); or • other options e.g. long term option to constrain channel flow and limit ongoing tidal velocity and tidal prism increase. A range of environmental, social, and economic impacts will be considered in assessing preferred management options, including impacts on cultural heritage. Management options will need to optimise environmental outcomes as well as being technically, economically and socially feasible. An interagency technical working group will be established to oversee the completion of the management options study, the assessment and design of preferred management options. This working group will need to include both councils, TfNSW, DPIE - Coasts & Estuaries, DPIE - Crown Lands, DPI Fisheries. Once agencies agree on preferred management options this action (EC1) will be updated to include the implementation of preferred options. This will require the CMP to be amended and resubmitted for certification. Note: emergency management and other works that are required to manage public infrastructure before the options study is completed may be undertaken through Action EC3, however there is still a need to consider the impacts of larger scale works in the context of the whole entrance channel.	Investigation Area: Entrance Channel (and adjacent coastal or lake zones as required to inform study). The entrance channel is defined as the area between the eastward margin of the ebb tide delta and western margin of the flood tide delta and adjoining lands. Areas in the channel known to be experiencing erosion or scour. • northern shore of the entrance channel along Windang Foreshore Park and Windang Beach Tourist Park • northern point of Reddall Reserve • channel to north of Reddall Reserve • northern shore of Picnic Island • Bevans Island, Berageree Island, swimming lagoon wall, southern training wall and the base of Windang Bridge piers. Areas in the channel known to be experiencing sedimentation (deposition / accretion): • Flood tide delta • Some sections of channel's southern foreshore (e.g. swimming area at Reddall Reserve)	Lake entrance management options study: (\$500,000, already programmed by WCC). Detailed design, assessment and approvals of preferred management option/s requiring more immediate response e.g. Windang foreshore protection: \$500,000. Detailed design, assessment, and approvals for possible preferred long-term management option to constrain flow and limit ongoing tidal increases (including cost benefit analysis): \$1.0M.	WCC, SCC, DPIE – Coasts & Estuaries, Crown Lands & TfNSW Supporting: DPI, Fisheries & DPIE – Coasts & Estuaries	Year 1: Finalise management options study Year 2-3: Prepare detailed design, assessment, and approvals for the preferred management options.	Managemen t options study is completed Interagency technical working group agree on preferred managemen t options .	Emergency management and other works are currently occurring and/or will be require to protect public assets, to ensure public safety / infrastructure project before the options study is completed. This includes works around Windang Bridge piers, power poles on Picnic Islansections of the northern foreshore of the entrance channel and where preferred management actions are already known (e.g. action EC3). Should any preferred action involve dredging of marine sand, and the sand not be required for remediating erosion elsewhere in the channel, SCC would seek to re-use this sand to nourish Warilla Beach (in accordance with the Shellharbour CZMP) with monitoring for effectiveness and adverse / positive effects on surfing conditions and amenity.





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Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
EC2	Undertake small scale works (e.g. beach scraping, re-shaping etc) to maintain swimming areas. This action allows for dredging and / or beach scraping/re-shaping to improve the recreational amenity of swimming areas in the channel. This action shall be undertaken so as to avoid direct or indirect negative impacts to or adjacent to the entrance channel.	Swimming areas of Reddall Reserve.	\$50,000 - \$150,000 per event.	SCC Supporting: DPIE – Crown Lands, TfNSW, DPIE - Coasts & Estuaries, DPI Fisheries	As required	Access and amenity restored to swimming and other waterway amenity areas.	Options study from EC1 to reflect this action.
EC3	Undertake emergency works or small scale noregrets actions as required to mitigate known risks to property and public safety. There are a number of existing at risk areas for which smaller scale actions are needed to mitigate risks to public safety and property in advance of outcomes from EC1. Based on existing scientific and engineering knowledge these actions can be progressed but their impact on the wider entrance channel needs to be considered and addressed. Example actions include: • placing rocks below Windang Bridge piers for stability; • shoreline protection and works to make safe sections of failing existing protection works east of Windang Bridge, northern side (i.e. at Tourist Park); • Endeavour Energy temporary works to protect power poles on Picnic Island; and • Dredging (if / as needed) to manage sedimentation and improve navigability e.g. flood tide delta. If dredging is undertaken: - Reuse dredged marine sand to remediation foreshore erosion / nearby beaches (e.g. Warilla, Perkins); All emergency works actions shall be undertaken so as to avoid direct or indirect negative impacts on the entrance channel and/or adjacent areas.	Entrance Channel only such as: East of Windang Bridge along northern foreshore (e.g. either side of groynes) Picnic Island (power poles) Windang Bridge piers, toreshore. Flood tide delta Other locations as may arise or be required as emergency works in interim until EC1 is completed.	\$0.5M to repair and make safe failing sections of protection works on northern foreshore east of bridge \$2.5M for rock placement under bridge piers \$150,000 to \$2 million per dredging event (noting costs can range from \$30,000 to remove 1,500 m³ from the fload tide delta by excavator to \$2M in 2007 for boat-based dredging of 200,000 m³ from entire entrance and nourishment of Warilla Beach).	WCC, SCC, TfNSW (Windang Bridge), DPIE – Crown Lands (e.g. sections of northern foreshore); Endeavour Energy (power poles on Picnic Island) Supporting: DPIE - Coasts & Estuaries, DPI Fisheries	Year 1- 5, or as required until EC1 is complete	Emergency works / small scale mitigative works are completed in a timely manner in keeping with environmental principles. Any dredging campaigns have had positive outcomes for navigation and for beach nourishment	Links to EC1 and EC4. If the sand is not required for remediating erosion elsewhere in the channel, SCC would seek to re-use this sand to nourish Warilla Beach (in accordance with the Shellharbour CZMP). Further analysis of the longer term impacts and management of Windang Bridge is required and will link to EC1.





Lake Illawarra Coastal Management Program (2020-2030)

Strategy Implementation Plan

Locations (see Action Maps Action Action **Indicative Cost** Responsibility, Time-frame Performance Further ID Measure Information / Details also) Supporting Organisations available funding) References EC4 Monitor changes to the entrance channel. Entire entrance channel area. Estimated WCC, SCC Year 1, then A topographic and Subject to from entrance shoals in the \$10,000 initially bathymetric survey statewide every 2 - 5 Topographic and bathymetric surveys (using ALS or Supporting: DPIE surf zone east of the then \$5,000 every years or after is completed and priorities, DPIE Coasts & Estuaries, other efficient method) should be undertaken regularly breakwaters to the drop over 2-5 years major storm analysed for can undertake (every 2-5 years) or following a noticeable change, and DPIE -Crown inside the Lake. events changes in the the surveys the data analysed to determine the trajectory of erosion Lands entrance channel (subject to and accretion patterns occurring in the entrance channel at least every 5 resources and (e.g. bank erosion / accretion and channel migration, years. other priorities) deepening or filling), since construction of the and share this breakwaters, and in relation to any further structural data with the works. This action will inform EC1. Councils (and other agencies as needed). EC5 Monitor and maintain existing entrance channel Entrance Channel \$150,000 -DPIE - Crown Ongoing Ensure entrance Note Outcomes infrastructure, with any works to be informed by \$240,000 pa Lands, Endeavour infrastructure is fit of EC1 shall Energy, TfNSW, EC1, EC3 and EC4. for purpose, guide any major WCC, SCC, structurally sound upgrades to Infrastructure includes but is not limited to: and safe for use. infrastructure. Supporting: DPI · training works which may be Fisheries and DPIE required to breakwaters Coasts & ameliorate Estuaries. groynes erosion / · revetments. accretion impacts etc.





Strategy Implementation Plan

4.4 Pr	otect ar	nd Rehabilitate	Estuarine and	Rinarian Ve	getation (FV)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time- frame (subject to available funding and resources)	Performance Measure	Further Information / References
EV1	Rehabilitate vegetation and manage public access along foreshores and banks of the Lake, its tributaries, islands and broader low-lying areas. This shall require: • a site inspection to confirm known and identify new rehabilitation sites; and • prioritisation and preparation of a detailed implementation program and action plan for locations, detailing: - rehabilitation using endemic species, in accordance with best practice, and in line with community values; - weed and pest control in accordance with regional pest plans; - fencing / access restrictions for sensitive areas, with educational signage to explain activities and damage caused by informal access, mowing, tree lopping etc; - permanent public access arrangements, i.e. provision of new / repaired access ways, boardwalks, shared cycleways etc, designed to limit damage to sensitive areas, which may include keeping people on paths; - potential impact on cultural heritage sites associated with degraded habitat and / or rehabilitation works; - Support for and assistance from volunteer Landcare groups (e.g. Budjong Creek Landcare, Bushcare, Aboriginal Bush Regeneration groups. Support includes funding, technical advice, training, and equipment.	Action to cover Lake foreshores, island foreshores, creek banks and broader low-lying areas around the Lake and tributanes, including coastal wetlands and littoral rainforest areas as defined in the State Environmental Planning Policy (Coastal Management) 2018 if required, and including such areas as: Picnic Island (\$10,000); Berageree Island, Pelican View Reserve (\$10,000); Bevans Island, Cudgeree Island (\$5,000), Hooker Park, Boonerah Point Reserve, Whyjuck Bay. Karoo Bay, Moureendah Bay, Oaky Creek. Burroo and Koona Bay, northern bank of Horsley Inlet upstream of Slaters Bridge, Macquarie Rivulet. Shared cost for Horsley, Oaky and Macquarie Rivulet: \$65,000 p.a. Duck Creek (wetlands and riparian corridor, under control of EnergyAustralia); Nijong Bay. Yallah Bay, Tallawarra Point, Boomberry Point. Mullet Creek, and Purrah Bay (\$500,000, including formal access to reduce uncontrolled damage); Kanahooka foreshore including Brooks Creek. Fred Finch Park (Hooka Creek, Hooka Point Park and Hooka Creek wetland). Berkeley Boat Harbour, Tuggerah Bay. Wollamai Point (\$20,000 p.a.); Lake Heights foreshore, Minnegang Creek, Creek adjacent to Kully Bay Oval. Kully Bay Wetland; Griffins Bay (\$200,000, inc, formal access/boardwalk).	Bushland weed control and rehabilitation works typically ~ \$2,000-\$10,000 per hectare; small scale foreshore access paths typically \$5,000 - \$20,000.	WCC, SCC; Energy Australia (for their lands only), Property NSW, DPIE – Crown Lands Supporting: NPWS. DPIE - Coasts & Estuaries, DPI Fisheries, LLS, CVA, ILALC, NSW Biodiversity Conservation Trust, TfNSW.	Year 1 and ongoing (new works and / or upkeep)	Number of hectares of estuarine and riparian vegetation managed / protected.	See also the Purry Burry Point to Heritage Park Site Restoratic Plan (2013), Berkeley Natu Reserve POM Picnic Island Reserve POM Picnic Island Reserve Pom PoM, Booners Point Vegetation Management Plan, Judbook Parade Landscape Master Plan and POM, Generic POM for the Community Land of WCC, and other relevant community or crown land Plans of Management. This action will also benefit water quality a revegetation throughout the catchment reduces





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time- frame (subject to available funding and resources)	Performance Measure	Further Information / References
	 Continue to fund and implement Council restoration programs in the Lake and catchment. In conjunction with revegetation works, some bank reshaping and erosion control works may be required, particularly on tributaries and creek banks and foreshores Support the implementation of the POM for the Berkeley Nature Reserve. Advocate for appropriate creation of biodiversity slewardship sites and consider possible dedication of biodiversity stewardship sites in the Lake catchment. Support where appropriate increased conservation outcomes and increased vegetation and biodiversity management actions that are proposed in future biodiversity certification applications in the Lake catchment Assess parks and sports grounds fringing the Lake for areas suitable for native vegetation. This can increase habitat, connect corridors of vegetation as well as adding shade trees to sports field perimeters. Action includes all important fringing / riparian vegetation, e.g. Swamp Oak Floodplain Forest, as well as natural vegetated remnants or green spaces with potential to improve natural area connectivity within the catchment. 	Korrungulla Wetland. Foreshore from Purry Burry Point to Cudgeree Bay, Windang Peninsula. Natural Areas Restoration Program for 3 areas within the WCC LGA: Lake Projects West, North and East (\$190,000 p.a. over Years 1 to 3, already committed). This shall require facilitation of work on private lands. It is important to note that, while the mapping of this action only shows the tidal portions of creeks and tributaries, the intent of this action is to extend rehabilitation works further upstream to include riparian areas, as this will further improve water filtration of runoff before entering and lake and habitat connectivity.					sediment run off into waterways. Landcare, MEMA and CVA may also be involved with this action.



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Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost *(subject to available funding & resources)	Responsibility, Supporting Organisations	Time- frame *	Performance Measure	Further Information / References
EV2	Undertake targeted action to control damage to foreshore and lake vegetation, including seagrasses, caused by: 4WDs and other vehicles, bikes (including BMX), boating activities, unfenced stock, mowing practices, tree damage and removal, pedestrians, illegal structures (e.g. land reclamation, seawalls, boat ramps, BBQs, seating, fencing, private signage), hand gathering (e.g. cockles etc). Actions may include: Prioritise and prepare detailed implementation program for mapped locations. Bellards / fencing / gates etc to restrict illegal access (provided they are low key from a visual perspective). Signs to explain estuarine habitat values. Signs / other barrier to replace removed vegetation. Removal of illegal structures (in consultation with landowners). Improved surveillance and compliance (through additional staff resources). Develop a policy for mowing practices on public foreshore lands, and educate Council works staff regarding the policy. Monitor the success of the different approaches for reducing access and damage and modify future approaches accordingly. Managing impacts on cultural heritage sites from vegetation damage and / or access. This may include negotiating voluntary acquisition of critical lands with sensitive habitats.	 Action is relevant lake wide, with known areas outlined below. Foreshore between Jettys by the Lake and Oaklands Village, Windang Whyjuck Bay Mogurah Point, and Yangar Point (restrict access to reduce vegetation clearing, mowing and excessive access, Oak Flats foreshore, Davies Bay and Karoo Bay. Koona Bay (south eastern side), Burroo Bay, Kurrura Point. Macquarie Rivulet coastal wetlands (CM SEPP) area (issues with cattle, 4WDs and other vehicles); Koonawarra Bay Brooks Creek Delta (southern end, issues with bike jumps and other activities). Koonawarra Bay (North), Purrah Bay. Hooka Creek, Hooka Point and Berkeley foreshore. Park east of Wollamai Point Primbee Bay (BBQs, ramps, seals), Griffins Bay. Purry Burry Point saltmarsh community (issues with 4WDs), and foreshore southward to Windang Note: there may be new areas identified in the future where similar rehabilitation works need to occur, consistent with best practice and that have minimal disturbance, e.g. in the coastal wetlands and littoral rainforest areas. Tidal inundation may increase the prevalence of illegal / ad hoc structures where foreshore areas are being slowly and permanently reduced in size. 	Depending on physical barrier selected, cost may range from \$10,000 to \$100,000. Additional staff resources for compliance \$80,000 p.a. (shared across both councils).	WCC, SCC Supporting: DPI Fisheries, DPIE - Crown Lands, DPIE - Coasts & Estuaries, TfNSW, LLS.	Year 1 and ongoing	Number of hectares of vegetation managed (on private and public land) and number of illegal activities investigated.	See also the Purry Burry Point to Heritage Park Site Restoration Plan (2013), Berkeley Nature Reserve POM, Picnic Island Reserve POM, Pelican View POM, Boonerah Point Vegetation Management Plan, Judbooley Parade Landscape Master Plan and POM, Generic POM for the Community Land of WCC, and other relevant community or crown land Plans of Management. Target areas: where problems have occurred; and where new view conflicts may arise due to mangrove growth (see medium priority areas from Williams and Wiecek, 2017). MEMA may be involved with this action.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time- frame (subject to available funding and resources)	Performance Measure	Further Information / References
EV3	Prepare and deliver an information program for the Lake Catchment on: mowing and gardening around sensitive foreshore vegetation; the legalities of building of structures (BBQs, seating, boat ramps, seawalls, land reclamation, fences, etc); environmentally friendly designs, habitat rehabilitation options, and planning and approval requirements for foreshore structures and works; illegal access and dumping; the importance of undertaking appropriate and ongoing Pest and Weed Management activities; threatened flora and fauna species, migratory birds and EECs that the Lake supports, vegetation damage and removal; and cultural heritage. Information can include: the importance of estuarine vegetation for ecological function, bank protection and water quality; the natural increase in mangroves in the Lake since lake opening; surveillance and reporting methods and prosecution / fines for offences. Activities could include Identifying Lake users associated with threatening activities that have a representative organisation or individual, or another means through which they can be reached as a group, with aim to facilitate partnerships to increase community engagement & participation. Develop partnerships that aim for understanding of community needs & use negotiation to reach agreement. Field days, brochures, workshops, and signage at relevant locations. Training for Council staff. Audiences may include: foreshore land owners, council works staff, landscapers/ builders, and via high schools and general community. DA officers and building certifiers etc. who approve or design foreshore works (for education reagrding foreshore structures).	Catchment wide.	\$20,000 to develop program, plus \$10,000 p.a. for staff time and resources to implement.	WCC, SCC. Supporting: DPIE - Coasts & Estuaries, CVA, LLS, DPI Fisheries, TfNSW, ILALC.	Year 1 and ongoing	Information program is developed by end Year 2 and incorporated into PM3. At least 2 successful partnerships established annually with Lake user groups & relevant activities / programs developed & delivered through those groups.	This action links with PM3. Target areas: where problems have occurred; and where new view corflicts may arise due to mangrove growth (see medium priorily areas from Williams and Wiecek, 2017, reproduced in Appendix E of the Lake Illawarra Information Synthesis Report (BMT, 2020a)). Council/ other organisations Communication Policies. Lake Illawarra Estuary Management Education Program. Developed by WCC and Dep't of Education 2010. Ocean Walth, Landcare and CVA may also be involved with this action.





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Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
EV4	Prepare and implement an estuarine macrophyte mapping and monitoring program. Undertake estuarine macrophyte mapping for the entire lake, to determine the current coverage and distribution of mangroves, saltmarsh and seagrass. Determine changes in distribution and coverage of macrophytes, by a comparison with the previous mapping. Monitor areas identified as high and medium priority for conservation of saltmarsh in foreshore prioritisation maps (see Appendix E of the Lake Illawarra Information Synthesis Report (BMT, 2020a) and Figure 7-2) for 2 years. If it can be shown mangroves are having an impact on saltmarsh, work with relevant stakeholders to determine best strategies to minimise ongoing impacts and develop a mangrove management plan if necessary. Repeat lake wide estuarine macrophyte mapping and analysis every 5 years.	Lake wide. For comparison of mangroves and saltmarsh, focus on Medium and High Priority areas identified in the Foreshore Prioritisation Maps (as per mapping by Williams and Wiecek (2017), in Appendix E of the Lake Illawarra Information Synthesis Report (BMT, 2020a); and Figure 7-2).	\$50,000 per mapping episode (Year1, Year 6 and Year 10). \$10,000 for area specific macrophyte monitoring (Year 2-5).	WCC, SCC Supporting: DPIE - Coasts & Estuaries, DPI Fisheries, Energy Australia	Year 1: mapping Year 2 to 4: monitoring Year 6: mapping Year 10: mapping	Estuarine macrophyte mapping and analysis completed by Year 2. Area specific monitoring completed by Year 4. Estuarine macrophyte mapping and analysis repeated by Year 6 and Year 10.	Some estuarine macrophyte mapping is already being undertaken by stakeholders. EV4 is not intended to duplicate any existing work; rather this action is intended to promote stakeholders working together to best use resources to gain the appropriate information required by all for use. This action links with EV5. Refer to guidance in Assessing estuary ecosystem health: Sampling, data analysis and reporting protocols (State of NSW and OEH, 2016). DPI Fisheries has recently completed some mapping of estuarine vegetation within Lake Illawarra, and will be examining trends in marine vegetation distribution to date as part of a MEM Strategy project.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding and resources)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
EV5	Develop and implement a program to enhance opportunities for estuarine vegetation migration. Build on previous work to identify areas that could be modified or managed to permit migration and colonisation by saltmarsh. Previous work is illustrated in Appendix E of the Lake Illawarra Information Synthesis Report (BMT, 2020a)) with respect to tidal inundation projections, as a starting point of priority areas. From EV4, add areas where action is required to manage saltmarsh retreat. Implement actions to allow saltmarsh migration or manage retreat, e.g. by: land repurchase (as one example of how this action could be undertaken, and which does not rule out the other ways to implement the migration plan), MOUs with landowners, removal of physical barriers (e.g. walls, paths, land reclamation).	Potential areas for migration are identified in the Foreshore Prioritisation Maps, based Williams and Wiecek (2017) in Appendix E of the Lake Illawarra Information Synthesis Report (BMT, 2020a).	Staff time or consultancy (\$25,000) to develop and progress action program to achieve security of migration areas into the future. Additional \$ to implement actions.	WCC, SCC. Supporting: DPIE - Coasts & Estuaries, DPI Fisheries, DPIE - PA.	Year 2 to 10	Areas are identified and program is prepared by end Year 5. Number of locations where modifications have been made to promote migration or manage retreat.	This action links to / follows on from EV4. Refer to Section 7.4.7, and recommendations by Williams and Wiecek (2017). MEMA may also be involved with this action.





Lake Illawarra Coastal Management Program (2020-2030)

Strategy Implementation Plan

4.5 Maintain and Improve Recreation and Amenity (RA)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information References
RA1	Manage foreshore and waterway recreational infrastructure in accordance with Transport and Recreation Asset Management Plans, condition assessments and asset management strategies prepared by relevant agencies, informed by Plans of Management and approved recreation masterplans. 1. Prepare in consultation with TNSW, the Lake Illawarra Waterways Facilities Plan that prioritises boating facility upgrades based on factors including but not limited to user demand, existing facilities and available navigational access. 2. Undertake a review of existing information on recreational infrastructure (i.e. established hierarchies, recommendations from maintenance programs for existing facilities, user needs now and into the future with population growth, tidal inundation (see IR1) etc, ownership and responsibility (connection with IR2), entrance channel issues (see EC actions), costs and other resources) and prepare a comprehensive audit and risk assessment to inform next actions (upgrades, renewals, replacements, strategic retreat, decommissioning etc). 3. Consider the provision of additional facilities during the audit (e.g. BBQs, picnic shelters, drinking water stations, toilets, fitness equipment, fish cleaning stations, lighting, dog bags, BMX / skate parks etc). 4. Establish service specifications for priority existing foreshore assets for inclusion in Agency and Council asset management plans and other IP&R documents based on the audit, including ongoing maintenance, upgrades / renewal, replacement, additions to or decommissioning of existing assets. 5. Develop priorities for new assets and improved assets to be incorporated into relevant WCC, SCC, Property NSW and DPIE – Crown Lands planning documents for future budget consideration. 6. Upgrades, maintenance and new infrastructure should be designed to be: • environmentally and fish friendly; and • Wheelchair / disability accessible.	Works currently programmed include: Koona Street Stormwater renewal (20/21) \$250,000 Central Park play equipment (19/20) \$200,000 Reddall Reserve park and boat ramp renewal (\$1.2m in 2019/20 plus some construction in 20/21) Deakin Reserve building and carpark renewal (20/21) Lake Cycleway renewal: Lake Heignts to Berkeley Boat Harbour (\$120,000) Primbee to Windang: Shared path renewal along Windang Road (\$100,000) Future work locations are to be determined by the audit (2) and Lake Illawarra Waterways Facilities Plan (1).	Maintenance: \$5,000 per item for an estimated 25 sites p.a. (total of \$125,000 p.a.) Programmed upgrades of \$1.87+ million. Independent audit / condition assessments: \$60,000 (\$20,000 to DPIE – Crown Lands and \$40,000 to WCC/SCC). Lake Illawarra Waterway Facilities Plan: \$50,000. Future upgrades and costs will be determined after the audit is completed.	WCC, SCC, DPIE – Crown Lands, Property NSW (in lands that they own and manage) Supporting: TNSW, DPI Fisheries	Year 1-2: Undertake review and conduct Audit. Year 2-3: Develop prioritised program. Incorporate into forward planning documents, existing Asset Management Plans and other IP&R documents. Years 2-3: develop Facilities Plan. Years 4 to 10: Implement prioritised program and asset management plans.	Review and audit undertaken by end Year 2. Prioritised program developed and incorporate new assets into planning documents by end Year 3. Asset management plans and other IP&R documents updated by end of Year 3 Boating Plan for Lake Illawarra developed by end Year 3. Prioritised Program and asset management plans are implemented by end Year 10. Yearly maintenance of assets is under-taken.	Ownership of some land and assets around Lake Illawarra is fragmented. Refer to Land Tenure map for current status of land ownership and responsibility for this action links to action PM4 "Establish a Lake Illawarra Asset Management Working Group" and IR1 "Updale Asset Management Plans to identify tidal inundation risk timelrames for asset". TfNSW may also need to be involved ir this action. Links to EC actions





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
RA2	Construct new sections of shared pathway to complete the pathway linkage around the Lake. Remove and rehabilitate informal / degraded tracks as new sections are completed. Consider disabled access and facilities, bubblers / drinking stations, and lighting when designing new shared pathway sections. The shared pathway will not be extended through sensitive environmental and / or cultural areas and its siting will accommodate current and future site constraints including tidal inundation. Consultation will occur with all appropriate landowners in negotiating the preferred route.	Works currently programmed include: Feasibility and constraints mapping for an Around the Lake Shared Path Plan (\$120,000). Koona Bay (future stages, design \$50,000; Kanahooka St to Shearwater Blvd likely on-road construction \$350,000) Note: Jocation not mapped as preferred siting for this path is yet to be determined. Listed below (but not mapped) are locations for shared paths requested by the community for future consideration, but that are not currently in SCC or WCC Infrastructure Delivery Programs: Community request a shared pathway link from Macquarie Rivulet to Tallawarra Power Station (so that cyclists do not need to use the highway with 100km speed limit). As part of this, investigate providing shared pathway to Haywards Bay. Kanahooka Point to Purrah Bay; Shared path bridge over Mullet Creek, from Purrah Bay to Currungoba Peninsula Currungoba Peninsula / Koong Burry Bay foreshore, linking to Hooka Park and crossing of Hooka Creek.	Programmed works: \$520,000. Future works are estimated at \$100,000 to \$1,000,000 per path including design costs, depending on style and length.	WCC, SCC, Private Developers through s94 provisions. Supporting: DPIE – Crown Lands, TfNSW, DPI Fisheries, Property NSW	Year 2: develop Around the Lake Shared Path study. Year 1 to 10: implement upgrades and extensions to cycleway.	Pathway alignments determined by end Year 2. Prioritised program for new path construction developed by Year 3.	While formal access paths will also be constructed through action EV1, sites listed under this action and RA2 are primarily for community and recreational use. This action links to RA3 – public right of way.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
RA3	Investigate the opportunities of public access along the foreshore and amend the acquisition layers of the relevant Council Local Environmental Plans if applicable. As part of development applications or rezoning proposals, negotiate with land owners regarding public and private foreshore ownership and allow public access along private foreshore sections as opportunities present themselves.	Apply to areas as appropriate.	Staff time	WCC and SCC Supporting: DPIE – Crown Lands, DPIE- Coasts & Estuaries	Year 5 to 10	Length (m) of foreshore where public access is achieved.	Some properties are already designated for acquisition, specific to the Wollongong LEP. Linked to RA2 and objectives around improving public access to the foreshore.
RA4	Build on the Tourism opportunities for Lake Illawarra Encourage Destination Wollongong and Tourism Shellharbour to work logether to further develop and achieve common Tourism goals across the lake. This includes linking the outcomes of the CMP to the Destination Management Plan — Wollongong and Destination Management Plan — Shellharbour. Recognising that a healthy lake underpins expanded but sustainable tourism based infrastructure and activities.	Whole of lake	Staff time	WCC, SCC Supporting: Destination Wollongong, Tourism Shellharbour	When the Destination Management Plans for Wollongong and Shellharbour are updated.	The revised Destination Management Plans for Wollongong and Shellharbour are linked to the CMP. The revised Destination Management Plans for Wollongong and Shellharbour have a specific Lake Illawarra component and that they have appropriate links to each other, recognising the shared nature of the asset.	Destination Management Plan - Wollongong Destination Management Plan- Shellharbour 2018 - 2022
RA5	Conduct small scale dredging to improve public recreational outcomes and to improve the functionality of stormwater outlet infrastructure. Allow for localised dredging around key recreational boating infrastructure and stormwater drains around the Lake where sedimentation and/or the changed nature of the entrance channel has impacted on usage, access and/or functionality. Dredging to be supported by clear justification of the recreational and functionality need, consideration of any cumulative environmental impacts as well as all required environmental assessments and approvals.	Lake wide. Potential locations for small scale dredging include limited areas in proximity to public recreational facilities, assets and infrastructure including boat ramps, jettles and sailing clubs; and stormwater drains.	\$50,000 - \$300,000per episode. Note: if a dredging episode is costed at more than \$300,000 (at 2020 prices) it should not be considered small scale for the purposes of this action, and should be investigated through action RA6.	SCC, WCC Supporting: DPIE – Crown Lands, DPIE – Coasts & Estuaries, TfNSW, DPI Fisheries	Opportunistic, as funding becomes available and as need becomes apparent.	Small scale dredging undertaken with all required environmental controls and approvals to improve recreational use and/or functionality with minimal environmental impact.	Funding is currently available for one-off dredging projects that result in improved navigation and recreational outcomes under the Rescuing our Waterways Program from DPIE – Crown Lands.





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Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
RA6	Investigate the need for and viability of larger scale dredging of bays and the entrances to creeks or other measures to improve recreational amenity and access within the Lake where sedimentation and/or the changed nature of the entrance channel has negatively impacted on recreational use. The investigation would include but not be limited to the following. • A business case considering broad social, economic and environmental implications and consideration of all possible alternatives. • An identification of the parameters and limitations of the activities being proposed including a consideration of government policies and an indication of the likely approval pathway and the type of environmental assessment that will be required. This may be an environmental impact assessment which evaluates; impacts on aquatic ecosystems and hydrological regimes, the mobilisation of contaminants and associated health impacts, treatment of potential or actual acid sulphate soil, and sediment reuse. • The investigation will recommend specific actions, and a cost-benefit analysis which includes full lifecycle management considerations must be completed for recommended actions. • Upon completion of the RA6 investigation, this CMP may need to be amended to include any recommended actions to undertake dredging at identified locations. Resubmission and recertification of the CMP would be required before any dredging could occur.	Whole of lake but concentrating on bays identified during public consultation including: Griffins Bay Southern Back Channel Buroo Bay Koona Bay Haywards Bay Koonawarra Bay Voran Bay Purrah Bay Tuggerah Bay Tuggerah Bay Entrances to creeks	\$300,000 for investigations.	SCC, WCC Supporting: DPIE – Crown Lands, DPIE - Coasts & Estuaries, TfNSW, DPI Fisheries	By year 6	Investigation completed that includes specific actions, a Business Case, Environmental Assessment and Cost Benefit Analysis	If the investigation showed larger scale dredging was appropriate and viable the anticipated costs per episode would likely be \$1M-\$5M





Lake Illawarra Coastal Management Program (2020-2030)

Strategy Implementation Plan

4.6 Protect and Promote Cultural Heritage (CH)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
CH1	Protect and promote cultural heritage in and around the Lake and its catchment. Employ a Cultural Heritage Officer to work on Lake Illawarra with assistance from Federal or State funding processes. This person will work with the Aboriginal and non-indigenous community to further cultural awareness activities, such as: Develop and implement a Conservation Management Plan for Lake Illawarra to achieve conservation and protection of Aboriginal heritage sites recognised as being at risk. Protection of eroding heritage sites is also captured by Action FB1. Undertake a strategic review of foreshore infrastructure to consider the heritage and cultural significance of sites such as the Tank Trap and Dix's Wharf. Support trials in cultural burning, assisting in monitoring and evaluation and supporting follow up reporting of outcomes. Build cultural links with other strategies when implementing the CMP. This could include education materials, signage, provision of facilities, rehabilitation works, etc. Encourage suitable cultural tourism ventures in and around the Lake. Implement the re-naming / shared naming of sites of cultural significance around Lake Illawarra to name of relevant Aboriginal origin. Organise a 'festival of the Lake' event that celebrates the areas cultural and ecological values. Develop an Illawarra Events Strategy which integrates compulsory cultural recognition of the Lake and its values into key community events. Support the continuation of the Lake Illawarra Arts Trial around the entire lake foreshore. Encourage signage recognising the indigenous history of relevant sites.	Lake wide	\$100,000 p.a. for additional staff resource. \$20,000 p.a. for operating costs. Costs for heritage protection works included with FB1.	WCC, SCC Supporting: NPWS, DPIE - Coasts & Estuaries, ILALC, LLS.	Year 1 and ongoing		Dance hall on Gooseberry Island (managed by NPWS under the Berkeley Nature Reserve Plan of Management) is an example of a non-indigenous heritage grotection works will be required over the 10 year life of the plan, therefore costings for this have not been included in the business plan. Fire and Rescue and RFS may also need to be involved with this action. This action links to PM3.





Lake Illawarra Coastal Management Program (2020-2030)

Strategy Implementation Plan

4.7 Manage Foreshore and Bank Erosion and Sedimentation (FB)

Action D	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
B1	Undertake a bank condition assessment and determine and implement erosion control measures. Undertake a bank condition assessment of lake and tributaries to the tidal limit (and beyond if resourcing allows) to map foreshores experiencing erosion. Identify the likely causes of erosion (e.g. stormwater outflow, wind waves, tidal currents). Prioritise the sites based on their severity, risks from ongoing erosion (e.g. to public safety, nearby seagrasses etc), and feasibility and cost of controlling erosion / management action. Determine feasible and appropriate erosion control measure that also optimise environmental outcomes. Concept designs for remedial action should preference the use of revegetation, or otherwise utilise the environmentally friendly seawall guidelines for engineered solutions and aim to improve habitat connectivity and protection of cultural heritage. Potential disturbance of cultural heritage needs also be considered in designs. Monitor success or otherwise of remedial action. Provide bank condition assessment and outcomes to relevant land management authorities including DPIE – Crown Lands to assist them in managing their assets.	A bank condition survey of entire Lake foreshore and tributary creeks to the tidal limit is required to identify current sites of erosion (see actions details and further information). While it is noted that foreshores are variously in public and private ownership, identifying all sites allows state agencies to work with private land owners to achieve consistent remediation outcomes.	\$60,000 for consultancy for bank condition assessment (allocation of \$5,000 to DPIE – Crown Lands and \$55,000 to WCC/SCC) (survey, identification of causes, prioritisation and erosion control recommendations). \$5,000 p.a. for monitoring. \$20,000 to \$200,000 per site for erosion control works, depending on requirements.	WCC, SCC Supporting: DPIE - Coasts & Estuaries, DPIE - Crown Lands, DPI Fisheries, LLS	Year 1: Conduct bank condition assessment Year 2 onwards: begin implementing erosion control works. Monitor low risk sites for change in erosion risks. Year 3 and ongoing: monitor effectiveness of erosion control measures.	Bank condition assessment and report is completed by Year 1. # of sites where erosion control is implemented. # of sites where monitoring demonstrates remedial works are effective.	Due to the lapse of time and the focus on using revegetation to manage many erosion issues (see EV1), the mapping by OEI and LIA of eroding sites is no longer current, and therefore requires updating. The bank condition survey could be teamed with Action FB3, depending on time constraints and methods used. DPIE — Crown Lands will be considering future requirements for bank stabilisation works for Oaklands Village and Jetties By The Lake — this will be incorporated into a strategy with any future works as yet, unfunded.





Lake Illawarra Coastal Management Program (2020-2030)

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
FB2	Implement Environmentally Friendly Seawall Guidelines or similar for new and upgraded foreshore protection works. This action aims to improve the environmental performance and outcomes for foreshore protection works when the renewal of existing or construction of new infrastructure is required, where appropriate and feasible to do so. The Environmentally Friendly Seawall Guidelines or similar should be used in upgrade designs, to improve the environmental benefits of existing structures.	All applicable Lake foreshore areas where proposals exist for new or upgraded seawalls. This may include: Oaklands Village to Jettys by the Lake. Skiway Park Illawarra Yacht Club structures	\$50,000 to \$150,000 per site, depending on requirements.	WCC, SCC, DPIE – Crown Lands, other land owners / managers Supporting: DPIE - Coasts & Estuaries, DPI Fisheries	Year 2 onwards	# of sites upgraded by Year 5.	EC1 will provide information for the entrance channel.
FB3	Undertake a bathymetric survey of the entire Lake and tributaries up to the tidal limit. Survey should be conducted along transects used previously in the tributary creeks. Methods such as marine-based LiDAR should be considered. Survey should be compared with previous surveys, to determine if and where sedimentation / erosion is occurring on the Lake or creek bed. Survey to be completed every 10 – 20 years. Senior Management Team in both Councils to be informed when complete.	Entire Lake waterbody and all tributary creeks up to the tidal limit (Future surveys can capture beyond the tidal limit).	\$50,000	WCC, SCC Supporting: DPIE - Coasts & Estuaries	Year 5	A whole of lake and tributary bathymetric survey has been completed and analysed against historical data	





Strategy Implementation Plan

4.8	Dronaro	for	Inundation	Dieke	(ID)
4.0	Prepare	101	munuation	LI2V2	

Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
IR1	Update Asset Management Plans for all publicly owned and managed assets to clearly identify asset at risk from inundation over future timeframes, including tidal inundation. This involves notation of the risk of periodic and permanent inundation on asset management registers for roads, stormwater infrastructure, sewer and water infrastructure, community facilities including parks and reserves, cycleways, jetties, boat ramps, entrance training walls and other waterway infrastructure, environmental assets such as saltmarsh, coastal wetlands, etc. When asset managers progress a refurbishment or replacement of the asset, the inundation risk can then be factored into the redesign / relocation / alternatives of the asset. The asset management plan notation should trigger an options assessment for replacement or major upgrade, to determine a preferred approach that manages inundation risk as well as improving the asset. Novel solutions to relocate, raise or retrofit the asset should be considered. The feasibility and viability of asset relocation including impacts upon upstream and surrounding land need to be investigated. The assessment should identify an inundation response that is suitable to the expected lifespan of the asset and its interdependencies with other assets. Consideration of asset interdependencies should link back to strategic planning, floodplain risk planning and/or adaptation plans for the region. For example, raising of a roadway will need to consider both the servicing of residents and the effect of road raising on flood/inundation behaviour. Asset management plan updates should incorporate findings of Action IR2, when available. Asset management is an important vehicle for implementing replacement or retrofit actions to manage inundation at the time of asset renewal avoids both the costs of not fulfilling the asset life before inundation reaches an unacceptable level, or the potential costs of maladaptation where action is taken too early. Frequent inundation of assets, such as roads, build	All assets affected by tidal inundation over future timeframes (refer Asset Risk Registers and Risk Maps in the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b).	Staff time (or \$10,000 per agency / council for minor consultancy) to update asset management plans.	WCC, SCC, DPIE – Crown Lands, Property NSW, Sydney Water, TinSW, DPIE - Coasts & Estuaries Supporting: DPI Fisheries	Year 2-4	All agency asset management plans are updated	The extent and risks from tidal inundation are in the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b) and Kumbier et al (2019) tidal inundation modelling report This action links to Action IR2 Whole of Lake Foreshore Adaptation Plan and Action IR5 Investigate novel solutions to manage inundation risks to assets. Property NSW is in the process of upgrading Strategic Asset Management Plans for all assets within the Kully Bay locality.





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Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
IR2	Prepare a whole of Lake Foreshore Adaptation Plan for public (community and environmental) lands, which will involve adaptation planning for all foreshore parks and reserves, including their associated assets such as cycleways, jetties, boat ramps, to provide a holistic approach to managing and adapting to tidal inundation risks. The action involves assessment and selection of adaptation actions for parks /reserves around the entire Lake Illawarra foreshore, considering tidal inundation and current and future usage demand, to determine: parklands that are more resilient, or can be reconfigured to retain their useability over time; parklands that are feasible to protect; land areas that will need to be transitioned from open space to fringing habitat; land that needs to be secured for future relocation of larger assets such as the cycleway, land that needs to be secured for future foreshore and wetland habitat migration (linking with Action EV5); a program of asset raising for jetties and boat ramps (which by their very nature need to be next to or in the waterway) provided access to the asset can be maintained. Outcomes of the adaptation plan should then be fed into masterplans / POMs for the parks, to facilitate implementation of adaptation actions. As required, the outcomes of this action could also be fed into asset management plans (see Action IR1). This action requires collaboration and consolidation for managing foreshore community / recreational and environmental lands, which can be facilitated through Action PM4 Establish a Lake Illawarra Asset Management Working Group. This action aims to recognise that tidal inundation has a very different and detrimental consequence on community recreation reserves and assets compared with storm inundation because it is effectively permanent, with the community losing access and enjoyment of precious and rare foreshore land.	All parks, reserves, sports grounds, and associated assets, particularly those with high usage / demand including but not limited to: Reddall Reserve Fred Finch Park (inc. sports grounds) Shared Path / Cycleway (entire lake) Judbooley Parade Foreshore Windang Foreshore Windang Foreshore Hooka Park Skiway Park Koona Bay Reserve Koonawarra Bay Lakeside Drive Reserve William Beach Reserve Lake Illawarra Foreshore	\$80,000 for an adaptation plan for the park and reserve network around the Lake. Incorporating outcomes into POMs / Masterplans to occur as and when they are updated. Incorporating outcomes into Assets Management Plans to occur through existing costings for Action IR1.	WCC, SCC, and Property NSW. Supporting: DPIE – Crown Lands, DPIE-Coasts & Estuaries, DPI Fisheries, TfNSW.	Year 5-7	An adaptation plan has been prepared. POMs / Masterplans and asset management plans incorporate findings of the plan when they are updated.	The extent and risks from tidal inundation are contained in the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b) and Kumbier et al (2019) tidal inundation modelling report.





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Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
IR3	Incorporate tidal inundation mapping into strategic land use planning documents. As a minimum this would include a foreshore building line / buffer / setback in the LEPs, DCPs and council policy. Tidal inundation risks are different to storm inundation risks in that the tidal inundation water level occurs so frequently as to be considered permanent (e.g. daily high tides), and the existing land use can no longer be supported. This is a different impact than for storm events where the inundation occurs very infrequently (once in 20 years+) and many land uses can continue between events. And in this case, land use planning controls for flooding will not fully manage tidal inundation risks, and additional controls are needed. The planning controls would apply to both public and private land to enable the continued provision of: public right of way and access to the foreshore, land for fringing habitats, and new public assets on community land and infrastructure (i.e. that would not be in existing asset management plans). Areas that are impacted by inundation should not be eligible for land use intensification.	All land affected by tidal inundation.	\$20,000 for consultancy to develop foreshore building line and other appropriate controls. Staff time to implement.	WCC and SCC Supporting: DPIE – PA, DPIE - Coasts & Estuaries	Year 2 to 4	Planning controls have been amended to include appropriate provision for tidal inundation	Land affected by tidal inundation is illustrated in the Kumbier et al (2019) tidal inundation modelling report.
IR4	Undertake water level and condition monitoring for all lake inundation events (i.e. tidal, ocean anomaly, rainfall), to: Record the frequency and details of events, based on review of existing lake water level gauge data; Record assets affected and impacts / condition after each event or yearly, as required; and Report to Council and update asset management plans as required. Asset condition monitoring should prioritise public foreshore assets that are expensive, have a long lifespan, and / or are highly important to the community, include natural assets. This action provides invaluable information to demonstrate the occurrence of coastal inundation, and for developing triggers for site specific management actions into the future.	Key foreshore assets following inundation events including "king high tides" and ocean water level anomaly events.	\$10,000 p.a. for water level and asset condition monitoring;	WCC and SCC Supporting: DPIE - Coasts & Estuaries	Year 1 and ongoing	Water level recording is maintained. Asset condition impacts after inundation events is recorded and used in AMPs	The extent and risks from tidal inundation are contained in the Community Uses, Values, Threats and Opportunities: Lake Illawarra study (BMT, 2020b) and Kumbier et al (2019) tidal inundation modelling report.





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Action ID	Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations	Time-frame (subject to available funding and resources)	Performance Measure	Further Information References
R5	Investigate novel solutions to manage inundation risks to assets such as stormwater, sewer, and water; cycleways, roads and bridges, etc. This action aims to provide novel and innovative solutions to asset replacement where relocation is not viable. Certain assets by their very nature must be located on low-lying high risk lands, for example sewer and water pump stations and stormwater outlets. This action would involve: Literature review identifying the latest technologies and success of their implementation worldwide; Challenges and opportunities defining the viability of solutions in the Lake Illawarra context, including physical processes of inundation in the Lake and interdependencies and connectedness of assets; Research and development of novel solutions, for example Bunding argund pump stations, Floating cycleways / roads / arterial roads, Bridge designs that allow for habitat migration, Stormwater pump systems and backflow devices, Legalities and practicalities of handover/ acquisition / repurchase of private land to council / state once permanently inundated; and Recommendations for suitable solutions and / or further research / case studies in the Lake Illawarra context.	Whole of lake	\$30,000 plus partnership (i.e. in-kind contribution or ARC grant) with a private consultancy and/or research organisation to fund for example a PhD or post doctorate position.	WCC and SCC Supporting: DPIE - Coasts & Estuaries, Sydney Water, TfNSW.	Years 5-10	A report is produced (e.g. PhD thesis, post-doctoral thesis, scientific report etc) on viable novel solutions to inundation risks for asset replacement specific to Lake Illawarra.	





Lake Illawarra Coastal Management Program (2020-2030)

Strategy Implementation Plan

4.9 Protect and Manage Key Fauna (MF)

ction Action Details	Locations (see Action Maps also)	Indicative Cost (subject to available funding)	Responsibility, Supporting Organisations / Programs	Time-frame (subject to available funding and resources)	Performance Measure	Further Information / References
Povelop and implement a fauna management program including shorebirds fish and other fauna. This may include but is not limited to the following actions where Council works with stakeholders to: Identify, monitor and protect shorebird habitat, foraging, breeding and nesting sites on a yearly basis (refer to Figure 2-20, pp. 52 of the Lake Illawarra Information Synthesis Report (BMT, 2020a)) and assist DPIE - Coasts & Estuaries /NPWS in managing the public through education and exclusion works, and / or pest management (e.g. fox control) that may be required; Where appropriate, rezone bird habitat areas to higher environmental protection zones (including to national park status where supported by NPWS); Survey recreational fishers on a regular basis (e.g. every 5 years), to gather data on fish species distribution and numbers in the Lake. Undertake periodic scientific fauna surveys (e.g. every 2-3 years) to better understand fish and other fauna assemblages, distribution and numbers in the Lake. Advocate for and investigate conducting a study on cockle biomass, to assess for the sustainability of cockle harvesting in the Lake and assist in the development of a harvest strategy for the species. Analyse the data sources (i.e. recreational fishers, fauna surveys, commercial fishing data) to identify trends in fauna assemblages. Where a change or impact on fauna health is identified, determine causes and develop and implement actions to mitigate the change / impacts, where possible. Councils to assist in distribution of agency education material conceming fishing and fauna management.		\$15,000 to develop fauna management program. \$50,000 for staff and resources to implement actions, e.g. shorebird habitat monitoring, recreational fishing surveys, data management. \$20,000 (consultancy) per ecological survey and analysis.	WCC, SCC. Supporting: DPIE - Coasts & Estuaries, LLS, DPI Fisheries, TfNSW, local businesses to support survey distribution where appropriate.	Year 1 and ongoing	Fauna management program is developed by end Year 2. Number of successful shorebird hatchlings per year. Number of recreational fishing surveys returned. Number of scientific fish and fauna surveys undertaken Data sources (e.g. surveys above) are reviewed to identify any trends at the completion of each survey event	Links to education programs in PMS and EV3. Local bird clubs could be engage to help do counts e.g. Illawarra Birders whom already do regulabird counts at various Lake Illawarra sites an share information with agencies. Refer to survey method guidance in Assessing estuary ecosystem health Sampling, data analysis and reporting protocols (State INSW and OEH, 2016). Protection of fauna is done under the generabiosecurity duty obligations of the Biosecurity Act 2015.





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5 Action Maps

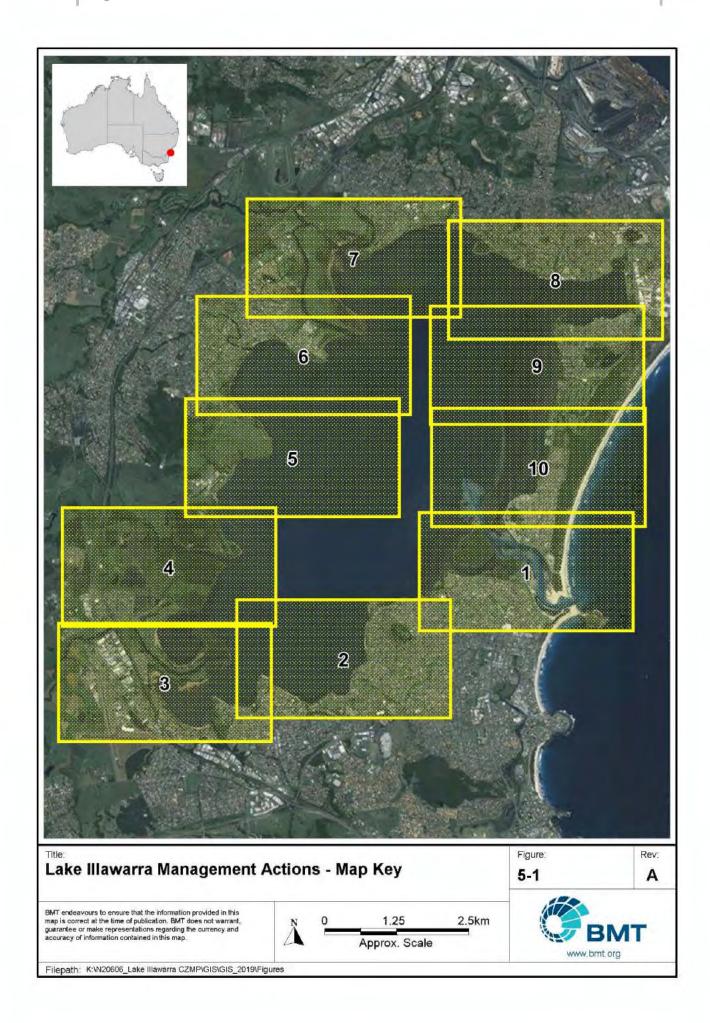
The following chapter contains a series of maps covering the entire foreshore region of the Lake and displaying locations for CMP actions where applicable. A key plan displaying the coverage of each map is provided in Figure 5-1 as an overview to the zone maps.

The Action maps display the known locations for which various actions in the CMP shall be applied and should be read in conjunction with the implementation details provided in Chapter 4.

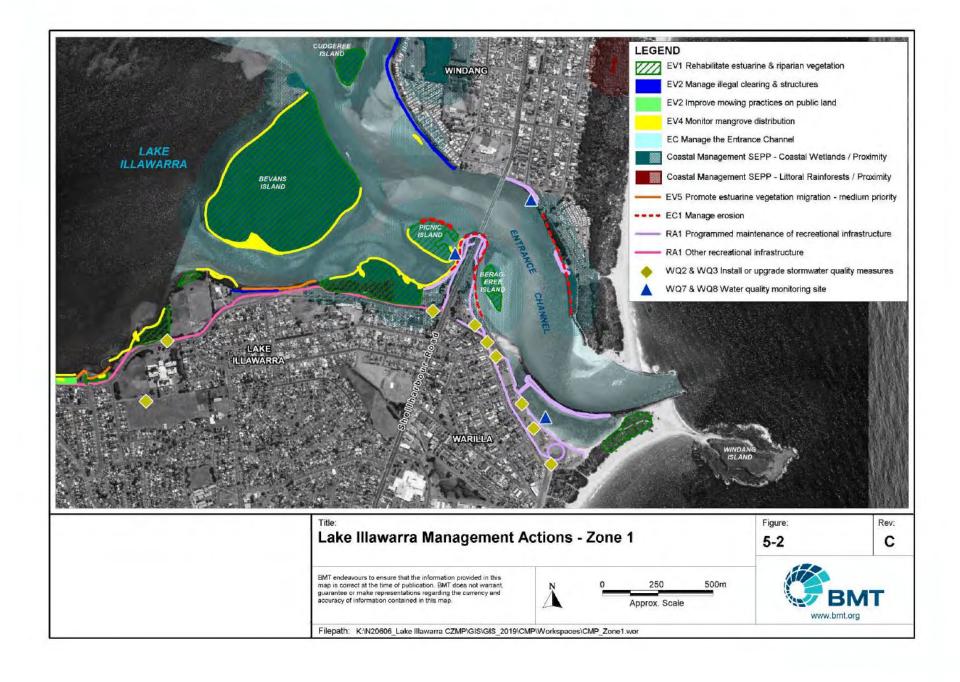
Not all actions have been mapped, only those actions for which mapping is useful or relevant (e.g. Action PM1 is not mapped as it is not location specific and applies catchment wide, whereas specific areas known to require rehabilitation through action EV1 have been mapped). Not all locations at which an action may apply have been mapped, as new or unknown locations may arise over the life of the plan (for example, there may be new rehabilitation areas identified in future for action under EV1). In addition, in relation to rehabilitating riparian habitats (EV1), the mapping has focused on the immediate Lake foreshore and tidal sections of tributaries. However, it is the intent of this action to extend beyond the tidal limit of tributaries where works will have a benefit on reducing pollutant loads entering the Lake.



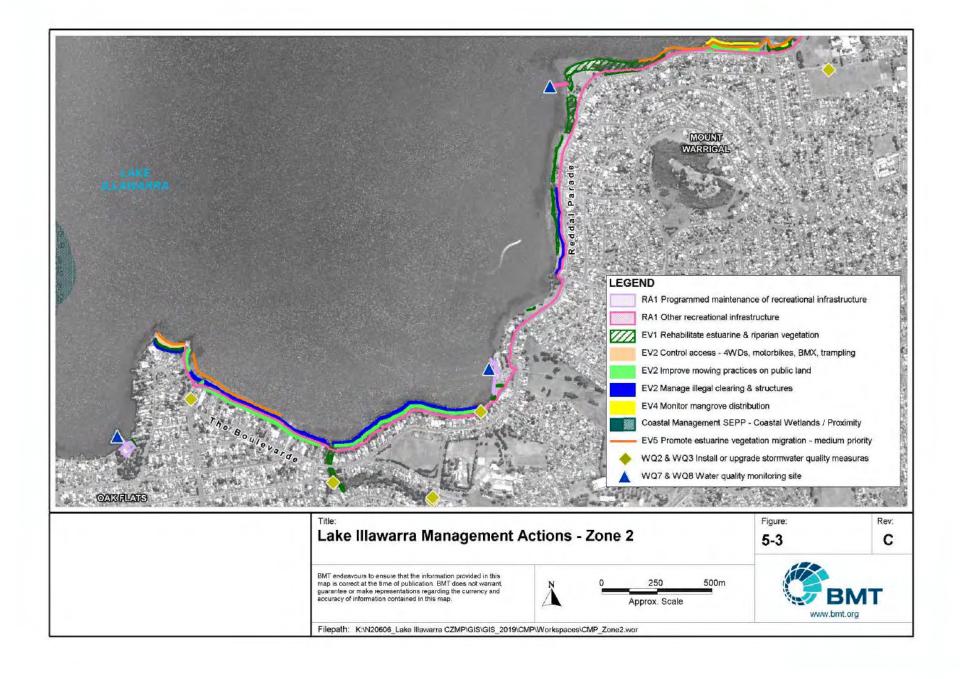




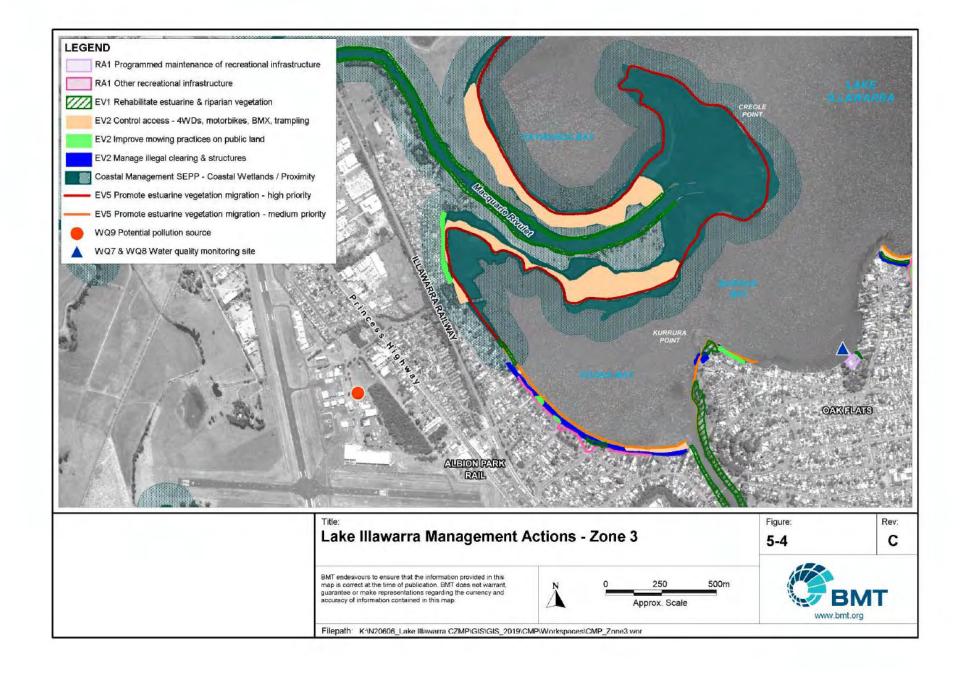




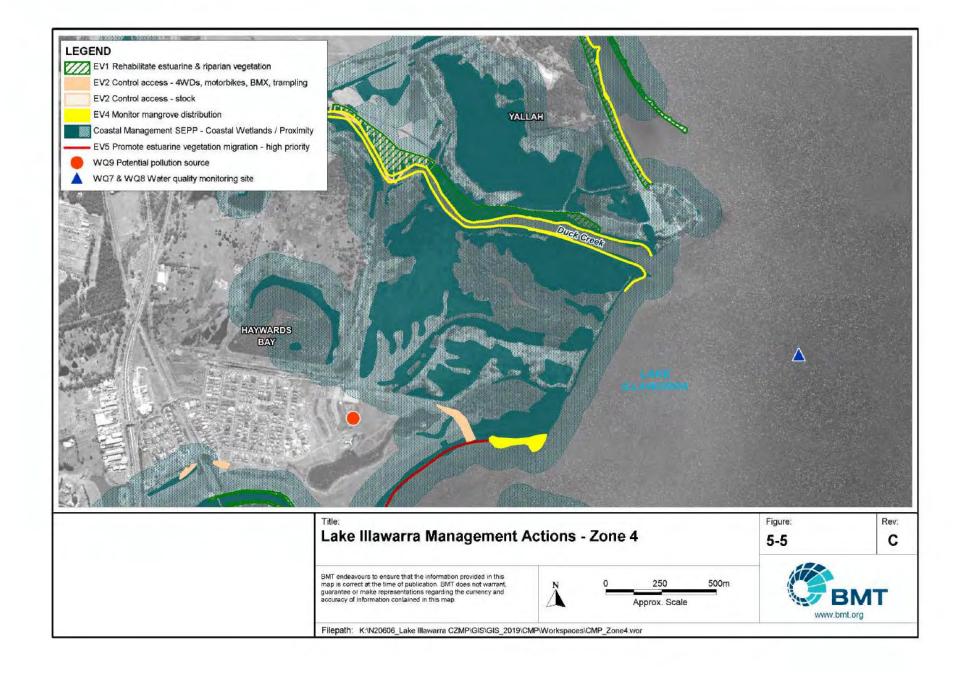




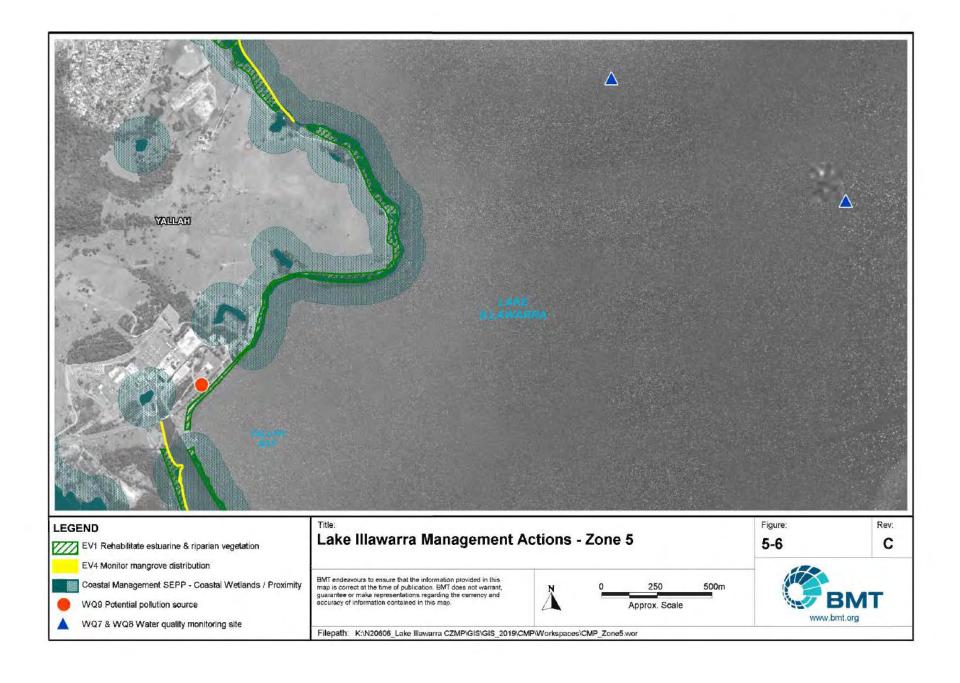




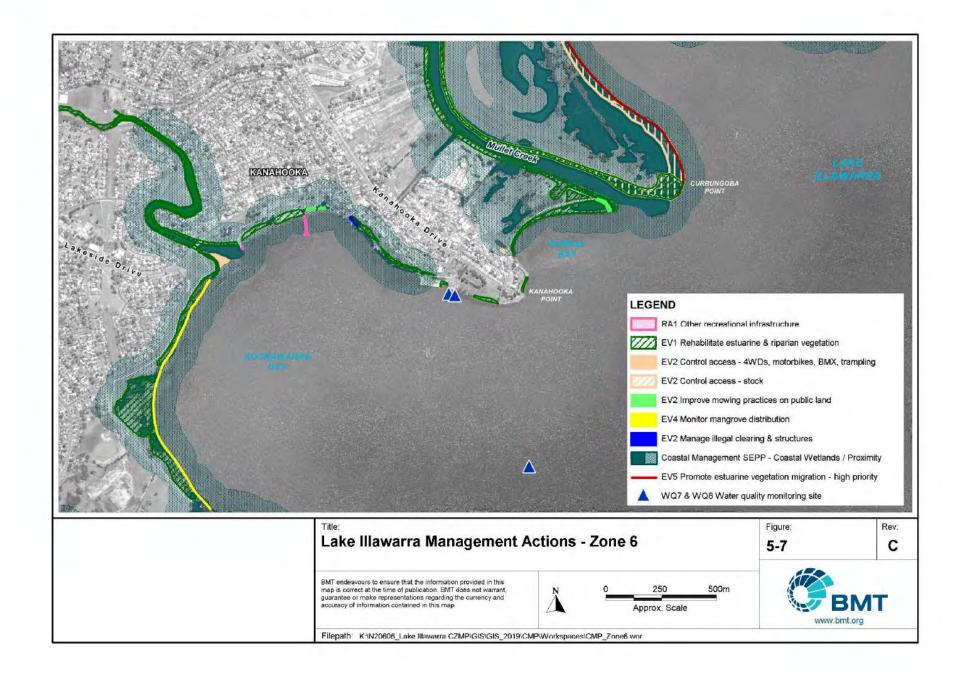




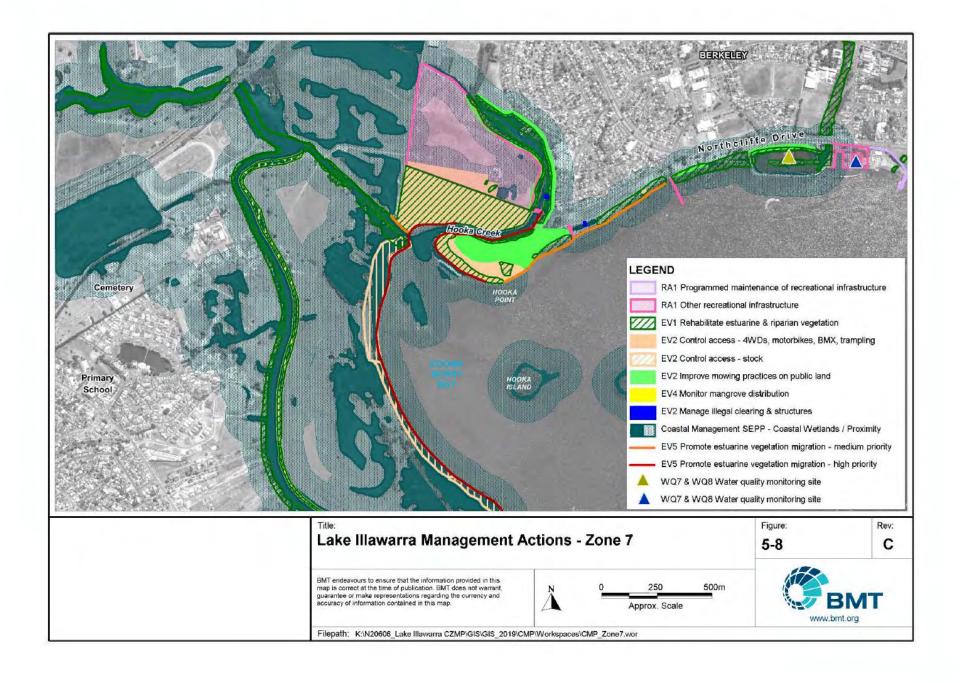




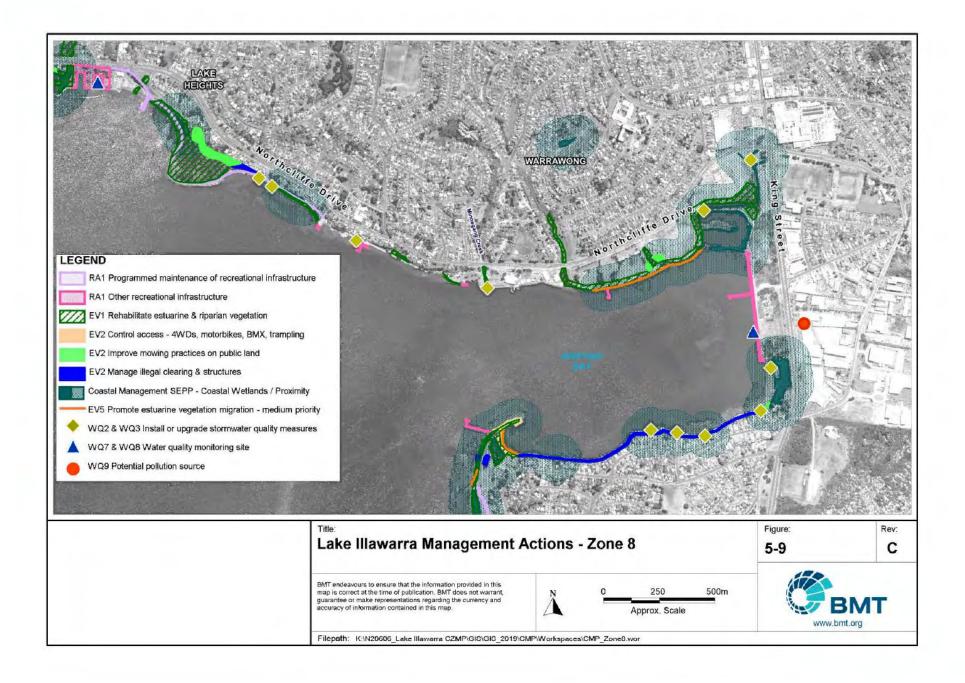




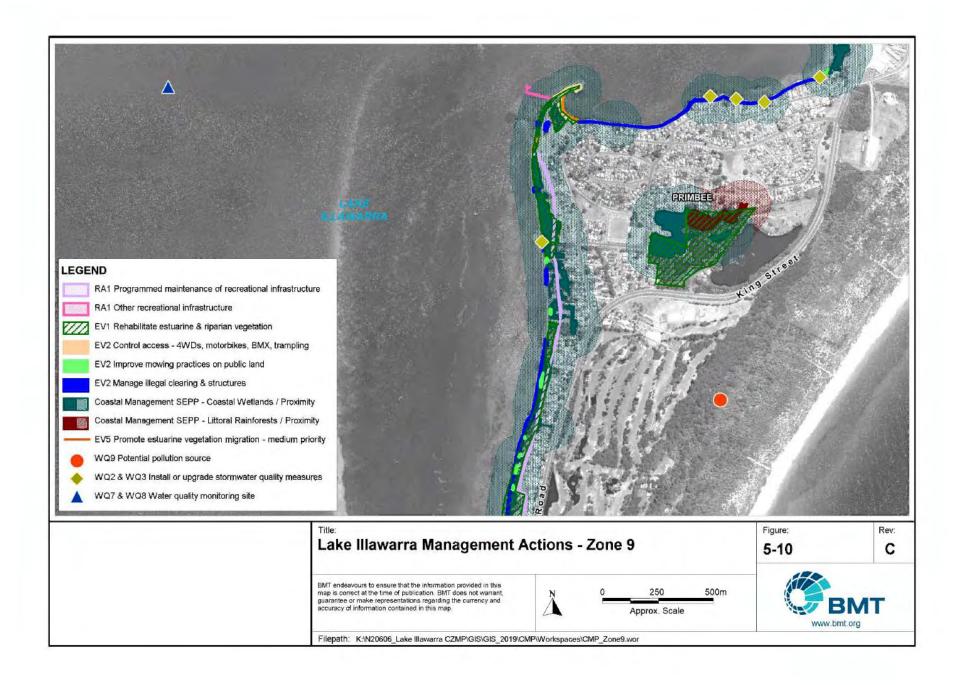




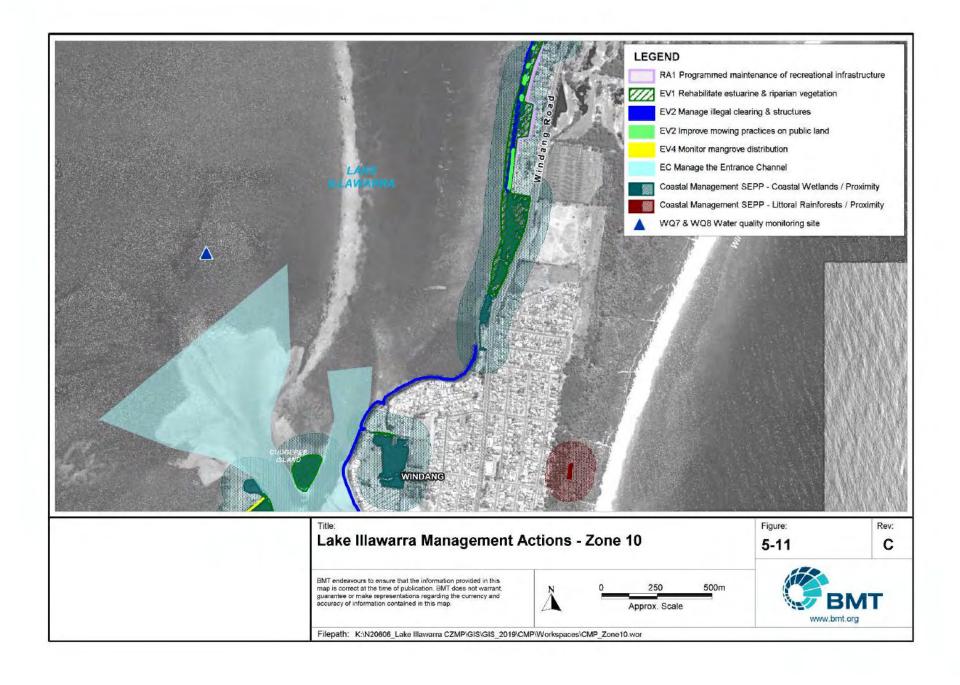














Lake Illawarra Coastal Management Program (2020-2030)

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6 Business Plan

6.1 Intent and Value of Implementing the Lake Illawarra CMP

Preserving and restoring the water quality and environmental habitats of Lake Illawarra is vital to the culture and economy of the local community, with benefits flowing on to the entire state of NSW. The Lake supports numerous important habitats including endangered ecological communities such as coastal saltmarsh, and these habitats in turn support a variety of species. In recognition of their high environmental values, NSW legislation requires such habitats to be protected and maintained.

The Lake Illawarra CMP is a program of physical works, monitoring and investigations, and planning and education initiatives that target the threats to the Lake's ecological and cultural values. The CMP also includes actions directly aimed at improving recreational opportunities for the public; and targets coastal hazards that are present in the Lake now and may occur in future.

Investment in the Lake Illawarra CMP provides an opportunity to directly improve and preserve the water quality, environmental habitats, cultural spaces and recreational opportunities of Lake Illawarra, and in doing so, bring benefits to the public. The Lake Illawarra CMP contains 39 actions set out within nine strategies, that aim to manage, preserve, improve, promote and rehabilitate our Lake. Many of the actions are targeted towards improving ecological health, as this is the key to supporting the recreational, cultural and economic values of the Lake. And while ecological actions are more numerous, financial resources are well targeted towards supporting recreational amenity, such as for upgrades to facilities and navigation. Funding will be required for many of the actions, and will be vital for the success of the CMP.

6.2 Resource and Financial Planning

Delivery of the Lake Illawarra CMP is estimated fo cost \$36,340,000 over 10 years. Existing staff resources in the Councils with the support of relevant agencies including DPIE - Coasts & Estuaries, are expected to facilitate the delivery of actions as per the Strategy Implementation Plan, with the Councils, state agencies and other stakeholders responsible for funding and/or implementing the actions. It should be acknowledged that as technology and new information changes other management actions may become feasible and will be reviewed for inclusion in the plan. Where additional staff resources have not been identified, this is expected to have an impact on current resourcing levels within both Councils, the financial requirements for this have been included in the Business Plan (e.g. see PM2 in Table 6-1). It is anticipated that both WCC and SCC will work together under a MoU with the guidance of a Stakeholder Reference Group. Each individual council will still be the ultimate decision maker but is expected to provide updates to the Stakeholder Reference Group.

Based upon the timeframes for actions and estimated costings, \$6,933,000 is required in Year 1 to implement specified actions. A forecast \$14,587,000 is estimated across Year 2 to 5 (inclusive), with a final \$14,820,000 required over Years 6 to 10 for the program. The cost estimates and their breakdown across the specified years for delivery is provided in Table 6-1.

It should be noted that it is difficult to definitively forecast the costs to funding of the CMP beyond Year 1. Likewise, costings are not indexed. Councils prepare a yearly budget, and through this





Lake Illawarra Coastal Management Program (2020-2030)

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process, actions from the CMP will be fed into these yearly budgets. For all responsible or supporting organisations that are identified, the actions remain subject to funding, availability of resources, and organisational and/or government priorities. For example, other Council and State Government priorities and budgetary processes in play that may affect the timing of or ability to implement for implementation of CMP actions. Further to this, there may be situations where CMP actions are delayed, for example funding will be required, and this will change the projections for yearly spend beyond Year 1. As such, costs are provided as a forecast for Year 2 onwards.

Due to many CMP actions involving works on the loreshore of the Lake and its tributaries, Aboriginal Cultural Heritage requirements may be invoked if ground disturbance is needed. Depending on the situation and the works being undertaken, these requirements can be reasonably time consuming and costly. It is therefore possible that particular CMP actions may face implementation delays if this occurs. These requirements are necessary to ensure Aboriginal Cultural Heritage is protected and preserved and as such timeframes may have to be revised as issues arise. This should be considered when updating any forward plans or this Business Plan.

Similarly, coastal hazards can present delays particularly when and impact occurs earlier than anticipated or is more severe than expected. Again, this may affect funding and financing in any one year.

As implementation of the CMP progresses, relevant sections of Councils' Business Plans will be updated on a yearly basis to reflect the budget for the CMP for each upcoming year, to allow relevant actions to be fed into the implementation process, and to account for external grant funding awarded to implement CMP actions (see Financing and Funding below). Councils must integrate these actions into their operational plan, where they can be formally adopted.





Table 6-1 Cost Estimates for CMP implementation

Action ID	Action	Estimated cost of actions (subject to available funding)	Timeframe (subject to available funding and resources)	Year 1 (estimate)	Year 2 to 5 (forecast estimate)	Year 6 -10 (forecast estimate)	Potential Funding Sources	Alignment with IP&R Frameworks
	Total cost for CMP	\$36,340,000		\$6,933,000	\$14,587,000	\$14,820,000		
Strateg	y 1: Improve Water Quality (WQ)							
WQ1	Implement a Risk Based Stormwater Management Framework for the Lake Illawarra catchment	Estimated total of \$245,000 = \$200,000 for DPIE research project (already funded), plus \$25,000 for staff resources (= 1/4 of the \$100,000 for temporary resource to be shared across WQ1 to 4), plus \$20,000 for analysis and report preparation for RBF trial.	Year 1 to 3	\$200,000	\$45,000		Council (Ordinary Rates, Revenue) Developer Contributions NSW Coastal and Estuary Grants Program	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6. SCSP 2023 Objective 2.1: Strategy 2.1.1.
WQ2	Upgrade existing stormwater quality management measures, or install new devices, which may include water sensitive urban design or other design that will improve water quality as well as enhance habitat and natural values	Estimated total of \$1.565 million = \$25,000 for staff resources (= 1/4 of the \$100,000 for temporary resource to be shared across WQ1 to 4), plus \$60,000 for consultancy to complete stormwater audit, plus \$1.4 million for newluggrades to devices (estimated for years 4-10, exact number and costs for devices to be determined through audit), plus \$80,000 for monitoring (\$10,000 p.a. for 8 years).	Year 1 to 10	\$30,000	\$485,000	\$1,050,000	Council (Ordinary Rates, Revenue) Council Special Rates NSW Coastal and Estuary Grants Program	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6. SCSP 2023 Objective 2.1: Strategy 2.1.1. Objective 3.1: Strategy 3.1.2.
WQ3	Review and prioritise maintenance and cleaning regime for existing stormwater quality devices	Estimated total of \$2.455 million = \$25,000 for staff resources (= 1/4 of the \$100,000 for temporary resource to be shared across WQ1 to 4), plus \$30,000 for consultancy to conduct review and develop maintenance program plus \$2.4 million in maintenance (\$10,000 per device p.a. for approx 30 devices over 8 years – WCC own 17 of the devices and SCC own 13 of the devices).	Year 1 to 10	\$30,000	\$925,000	\$1,500,000	Council (Ordinary Rates, Revenue) Council Special Rates	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6. SCSP 2023 Objective 2.1: Strategy 2.1.1
WQ4	Design and implement targeted catchment input monitoring as required for developments resulting in a large-scale change or intensification of land use	Estimated total of \$25,000 for staff resources (= 1/4 of the \$100,000 for temporary resource to be shared across WQ1 to 4). Cost of monitoring program will be variable and developed on a case by case basis, with costs borne by the developer(s).	As required		\$25,000		Council (Ordinary Rates, Revenue) Developer Contributions NSW Coastal and Estuary Grants Program	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6. SCSP 2023 Objective 2.1: Strategy 2.1.1.
WQ5	Reduce sediment load to the Lake by improving compliance with erosion & sediment controls for development sites	Estimated total of \$1.6 million (based on staff resources of \$160,000 p.a. for 10 years).	Ongoing	\$160,000	\$640,000	\$800,000	Council (Ordinary Rates, Revenue)	WCSP 2022 • Goal 1: Objective 1.2, Objective 1.6: SCSP 2023 • Objective 2.1: Strategy 2.1.1.
WQ6	Reduce the impact of sewer overflows	Staff time only.	Year 1 and ongoing				Sydney Water Council (Ordinary Rates, Revenue)	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6. SCSP 2023 Objective 2.1: Strategy 2.1.1 Objective 3.1: Strategy 3.1.2
WQ7	Implement water quality monitoring programs for estuary health, recreational use and physico-chemical and bacteriological indicators in the Lake and its catchment	Estimated total of \$1.3 million = \$120,000 p.a. plus staff time of \$10,000 p.a. for 10 years.	Year 1 to 5, then reviewed, continue Year 6 to 10.	\$130,000	\$520,000	\$650,000	NSW Coastal and Estuary Grants Program Council (Ordinary Rates, Revenue) Special Infrastructure Contribution	WCSP 2022 Goal 1: Objective 1.2. SCSP 2023 Objective 2.1: Strategy 2.1.1 Objective 1.1: Strategy 1.2.1
₩Q8	Improve litter management	Estimated total of \$530,000 = \$11,000 p.a. for extra bins in summer (\$5,500 for each LGA), plus \$20,000 p.a. for 4 large scale clean up events (2 per LGA), plus \$22,000 p.a. compliance project costs (\$10,000 for SCC, \$12,000 for WCC).	Year 1 to 10	\$53,000	\$212,000	\$265,000	Council (Ordinary Rates, Revenue) Council Special Rates	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6, SCSP 2023 Objective 2.1: Strategy 2.1.1.
WQ9	Investigate and manage potential pollution sources including contaminated sites that contribute to poor water quality in the lake	Estimated total of \$240,000 = \$60,000 p.a. plus staff time over 4 years.	Year 2 to 5		\$240,600		NSW Coastal and Estuary Grants Program Council (Ordinary Rates, Revenue)	WCSP 2022 Goal 1: Objective 1.2. SCSP 2023 Objective 2.1: Strategy 2.1.1.



Table 6-1 Cost Estimates for CMP implementation

Action ID	Action	Estimated cost of actions (subject to available funding)	Timeframe (subject to available funding and resources)	Year 1 (estimate)	Year 2 to 5 (forecast estimate)	Year 6 -10 (forecast estimate)	Potential Funding Sources	Alignment with IP&R Frameworks
Stratec	y 2: Improve Planning and Management Arra	ngements for the Lake (PM)	100001000					
PM1	Commence integration of key objectives and strategies from the CMP into relevant planning and policy documents of both Councils	Estimated total of \$100,000 plus staff time = assumed 2 episodes of consultancy assistance @ \$50,000 each, plus staff time.	Year 2 to 10		\$50,000	\$50,000	Council (Ordinary Rales, Revenue) NSW Coastal and Estuary Grants Program	WCSP 2022 Goal 1. Objective 1.1, Objective 1.6 SCSP 2023 Objective 2.1: Strategy 2.1.1, Strategy 2.1.2. Objective 2.3: Strategy 2.3.2.
PM2	Provide ongoing coordinated management of the Lake, which will require ongoing support for existing staff resources	Estimated total of \$2.5 million = staff resources (\$250,000 p.a. for 10 years).	Year 1 and ongoing	\$250,000	\$1,000,000	\$1,250,000	Council (Ordinary Rates, Revenue) NSW Coastal and Estuary Grants Program	WCSP 2022 Goal 1: Objective 1.1, Objective 1.6 SCSP 2023 Objective 2.1; Strategy 2.1.3 Objective 2.3; Strategy 2.3.6.
РМЗ	Develop and implement a community engagement and participation strategy that enhances the community's knowledge of, skills in, and commitment to, protecting Lake Illawarra	Estimated total of \$980,000 = \$80,000 p.a. for a staff member to develop and implement program plus \$20,000 p.a. for resourcing program implementation.	Year 1 - staff time, then yearly for program	\$80,000	\$400,000	\$500,000	NSW Coastal and Estuary Grants Program Council (Ordinary Rates, Revenue) NSW Environment Trust National Trust Programs	WCSP 2022 Goal 1. Objective 1.1, Objective 1.6 Goal 4. Objective 4.2 SCSP 2023 Objective 2.1: Strategy 2.1.2, Strategy 2.1.4. Objective 2.2: Strategy 2.2.1. Objective 1.1: Strategy 1.1.7
PM4	Establish a Lake Illawarra Asset Management Working Group that provides coordination services for agencies that manage assets around the Lake Illawarra foreshore	Estimated total of \$70,000 = \$5,000 p.a. for 10 years plus \$20,000 for Development of a Framework document, plus staff time	Year 1 and ongoing	\$25,000	\$20,000	\$25,000	NSW Coastal and Estuary Grants Program Council (Ordinary Rates, Revenue) NSW Environment Trust National Trust Programs	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6 Goal 5. Objective 5.3, Objective 5.5 SCSP 2023 Objective 2.1 Strategy 2.1.3 Objective 2.3: Strategy 2.3.6 Objective 3.1 Strategy 3.1.2 Objective 1.2 Strategy 1.2.3
Strateg	y 3: Manage the Entrance Channel (EC)							
EC1	Investigate options to manage erosion and accretion changes in the entrance channel and implement management solutions	Estimated total of \$1.96 million for investigations = \$500,000 for management options study + \$500,000 for detailed design, approvals etc for immediate response actions + \$1 M for detailed design, CBA, approvals etc for long-term management option/s.	Year 1 to 10	\$500,000	\$1,500,000		Council (Ordinary Rates, Revenue) NSW Coastal and Estuary Grants Program Special Infrastructure Contribution Fisheries Habitat Action Grants	WCSP 2022 Goal 1: Objective 1.2 SCSP 2023 Objective 2.1: Strategy 2.1.3.
EC2	Undertake small scale works (e.g. beach scraping, re- shaping etc) to maintain swimming areas	Based on \$50,000 - \$150,000 per event, estimated total of \$300,000 = assuming 3 episodes @ \$100,000 per event for this costing spreadsheet.	As required		\$100,000	\$200,000	NSW Coastal and Estuary Grants Program Council (Ordinary Rates, Revenue) NSW Environment Trust Fisheries Habitat Action Grants	WCSP 2022 Goal 5: Objective 5.3, Objective 5.5. SCSP 2023 Objective 2.1: Strategy 2.1.3. Objective 2.3: Strategy 2.3.6.
EC3	Undertake emergency works or small scale no-regrets actions as required to mitigate known risks to property and public safety	Estimated total of \$3.15 million for: \$150,000 for one dredging campaign + \$0.5M to place rocks below Windang Bridge piers for stability + \$0.5M to repair and make safe failing sections of protection works on northern foreshore east of bridge.	Year 1 to 5	\$3,000,000	\$650,000		Council (Ordinary Rates, Revenue) NSW Coastal and Estuary Grants Program Special Infrastructure Contribution Crown Lands Rescuing our Waterways Program (i.e. for dredging)	WCSP 2022 Goal 5: Objective 5.3, Objective 5.5 SCSP 2023 Objective 2.1: Strategy 2.1.3. Objective 2.3: Strategy 2.3.6.
EC4	Monitor changes to the entrance channel	Estimated total of \$20,000 = \$10,000 initially then \$5,000 every 2-5 years.	Year 1, then every 2-5 years	\$10,000	\$5,000	\$5,000	NSW Coastal and Estuary Grants Program Council (Ordinary Rates, Revenue) NSW Environment Trust National Trust Programs	WCSP 2022 Goal 1: Objective 1.2 SCSP 2023 Objective 2.1: Strategy 2.1.3
EC5	Monitor and maintain existing entrance channel infrastructure, with any works to be informed by EC1-EC2 and EC4	Estimated total of \$2 million = assumed \$200,000 p.a. for this costing 2 spreadsheet, based on an estimated maintenance cost of \$150,00-\$240,000 p.a.	Ongoing	\$200,000	\$800,000	\$1,000,000	Marine Infrastructure maintenance programs (Crown Lands / RMS) Council (Ordinary Rates, Revenue) NSW Coastal and Estuary Grants Program	WCSP 2022 • Goal 1: Objective 1.2 • Goal 5: Objective 5.3 SCSP 2023 • Objective 2.1: Strategy 2.1.3, • Objective 2.3: Strategy 2.3.6



Table 6-1 Cost Estimates for CMP implementation

Action ID	Action	Estimated cost of actions (subject to available funding).	Timeframe (subject to available funding and resources)	Year 1 (estimate)	Year 2 to 5 (forecast estimate)	Year 6 -10 (forecast estimate)	Potential Funding Sources	Alignment with IP&R Frameworks
Strateg	y 4: Protect and Rehabilitate Estuarine and R	parian Vegetation (EV)						
EV1	Rehabilitate vegetation and manage public access along foreshores and banks of the Lake, its tidal tributaries, islands and broader low-lying areas	Estimated total of \$2.35 Million = \$590,000 for SCC sites (\$59,000 p.a. for 10 years), plus \$570,000 (\$190,000 p.a. for 3 years) already committed by WCC to the Natural Areas Restoration Program, plus \$990,000 costed for known WCC sites, plus \$200,000 for additional new sites (estimated 20 sites @ \$10,000 each - WCC = 15 of the sites and SCC = 5 of the sites).	Year 1 and ongoing	\$368,000	\$1,092,000	000,008	NSW Coastal and Estuary Grants Program NSW Environment Trust Crown Reserves Improvement Fund Building Resilience to Climate Change NSW Heritage Grant Programs Minor environmental grants through LLS and DPI Fisheries (e.g. Fish Habitat Grants)	WCSP 2022 • Goal 1: Objective 1.2 SCP 2023 • Objective 2.1; Strategy 2.1.1, Strategy 2.1.2.
EV2	Undertake targeted action to control damage to foreshore vegetation, including seagrasses	Estimated total of \$1.1 million = \$300,000 for works (22 known sites plus 8 new (future) sites @ \$10,000 each - WCC = 22 of the sites and SCC = 8 of the sites), plus \$800,000 in additional staff resources (\$80,000 p.a. for 10 years).	Year 1 and ongoing	\$130,000	\$470,000	\$500,000	NSW Coastal and Estuary Grants Program NSW Environment Trust Crown Reserves Improvement Fund Building Resilience to Climate Change NSW Heritage Grant Programs	WCSP 2022 Goal 1: Objective 1.2 SCSP 2023 Objective 2.1: Strategy 2.1.1, Strategy 2.1.2, Strategy 2.1.3.
EV3	Prepare and deliver an information program for the Lake Catchment	Estimated total of \$120,000 = \$20,000 to develop program, plus \$100,000 for staff time and resources (\$10,000 p.a. for 10 years).	Year 1 and ongoing	\$30,000	\$40,000	\$50,000	NSW Coastal and Estuary Grants Program Council (Ordinary Rates, Revenue) NSW Environment Trust National Trust Programs	WCSP 2022 Goal 1: Objective 1.6. Goal 4: Objective 4.2. SCSP 2023 Objective 2.2: Strategy 2.2.1.
EV4	Prepare and implement an estuarine macrophyle mapping and monitoring program	Estimated total of \$160,000 = \$150,000 (3 mapping events at \$50,000 each) + \$10,000 for area specific monitoring.	Year 1 (mapping), 2 to 4 (monitoring), 6 (mapping), 10 (mapping)	\$50,000	\$10,000	\$100,000	NSW Coastal and Estuary Grants Program NSW Environment Trust Building Resilience to Climate Change	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6. SCSP 2023 Objective 2.1: Strategy 2.1.2, Strategy 2.1.4.
EV6	Develop and implement a program to enhance opportunities for estuarine vegetation migration	Estimated total of \$275,000 =\$26,000 for consultancy to develop program, plus \$250,000 (estimated 5 sites at \$50,000 each for migration actions - WCC = 3 of the sites and SCC = 2 of the sites).			\$175,000	\$100,000	NSW Coastal and Estuary Grants Program Building Resilience to Climate Change Coastal Lands Protection Scheme NSW Environment Trust	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6. SCSP 2023 Objective 2.1: Strategy 2.1.1, Strategy 2.1.2. Objective 2.3: Strategy 2.3.6.
Strateg	y 5: Maintain and Improve Recreational Amer	ity (RA)						
RA1	Manage foreshore and waterway recreational infrastructure	Estimated total of \$8.13 million = \$1.87 million in upgrades already programmed in existing Council Infrastructure Delivery Programs (\$220,000 in MCC and \$1,650,000 in SCC for Years 1-3), plus independent audit of \$60,000 (Yeart-2), plus Lake Illawarra Watenway Facilities Flan of \$50,000 + maintenance of \$1.25 million (based on \$5,000 per item for estimated 25 existing waterway assets p.a. over 10 years), plus estimated costing for new renewal Items in future delivery programs of \$4.9 million from Year 4 to 10 (\$3.3 M in WCC and \$1.6 M in SCC) (based on current Infrastructure Delivery Program of \$2 M over 3 years).	Year 1 to 10	\$1,277,000	\$2,728,000	\$4,125,000	Council (Ordinary Rates, Revenue) Crown Reserves Improvement Fund State Infrastructure Contribution Maritime Infrastructure Delivery Programs (RMS / Crown Lands)	WCSP 2022 Goal 5 Objective 5.3, Objective 5.5. SCSP 2023 Objective 3.1: Strategy 3.1.2. Objective 1.2: Strategy 1.2.3.
RA2	Construct new sections of shared pathway to complete the pathway linkage around the Lake	Estimated total of \$1.52 million = \$520,000 for programmed works (\$400,000) and feasibility study for and Around the Lake Share Path Plan (\$120,000), plus \$1,000,000 (estimated 5 sites @ \$200,000 each - WCC = 3 of the sites and SCC = 2 of the sites) for newlupgraded sections.	Year 1 to 10	\$200,000	\$720,000	\$600,000	Council (Ordinary Rates, Revenue) Crown Reserves Improvement Fund (and other DPIE - Crown Lands programs) State Infrastructure Contribution	WCSP 2022 Goal 5: Objective 5.5. Goal 6: Objective 6.1 SCSP 2023 Objective 1.2: Strategy 1.2.4.
RA3	Investigate the opportunities of public access along the foreshore and amend the acquisition layers of the relevant Council Local Environmental Plans if applicable	Staff time only.	Year 5 to 10				Council (Ordinary Rates, Revenue) Building Resilience to Climate Change Coastal Lands Protection Scheme	WCSP 2022 Goal 1: Objective 1.6 Goal 4: Objective 4.2 SCSP 2023 Objective 2.1: Strategy 2.1.3 Objective 2.3: Strategy 2.3.2
RA4	Build on the Tourism opportunities for Lake Illawarra	Staff time only.	Ongoing				Council (Ordinary Rates, Revenue)	WCSP 2022 Goal 4: Objective 4.2 SCSP 2023 Objective 1.1: Strategy 1.1.1.
RA5	Conduct small scale dredging to improve public recreational outcomes and to improve the functionality of stormwater outlet infrastructure	Estimated cost is \$700,000 = 4 dredging episodes at \$175,000 each (based on estimated cost of \$50,000 - \$300,000 per episode) over the 10 year period. Note: if a dredging episode is costed at more than \$300,000 (at 2020 prices) it should not be considered small scale for the purposes of this action, and should be investigated through action RA6.	Opportunistic and as needed over Year 1 to 10		\$350,000	\$350,000	Council (Ordinary Rates, Revenue) Crown Lands Rescuing our Waterways Program NSW Coastal and Estuary Grants Program	WCSP 2022 Goal 5: Objective 5.3 SCSP 2023 Objective 1.2: Strategy 1.2.3
RA6		Estimated cost of \$300,000 for investigations. Note: if the investigations showed larger scale dredging was appropriate and viable the anticipated costs per episode would likely be \$1M-\$5M (which has not been included in this business plan).	By Year 6		\$300,000		Council (Ordinary Rates, Revenue) Crown Lands Rescuing our Waterways Program NSW Coastal and Estuary Grants Program	WCSP 2022 • Goal 5 · Objective 5.3 SCSP 2023 • Objective 1.2: Strategy 1.2.3.



Table 6-1 Cost Estimates for CMP implementation

Action ID	Action	Estimated cost of actions (subject to available funding)	Timeframe (subject to available funding and resources)	Year 1 (estimate)	Year 2 to 5 (forecast estimate)	Year 6 -10 (forecast estimate)	Potential Funding Sources	Alignment with IP&R Frameworks
CH1	y 6: Protect and Promote Cultural Heritage (C Protect and promote cultural heritage in and around the Lake and its catchment	Estimated total of \$1.2 million = \$1 million for staff resource (\$100,000 p.a. for 10 years) and \$200,000 for operating costs (\$20,000 p.a. for 10 years).	Year 1 and ongoing	\$120,000	\$480,000	\$600,000	NSW Coastal and Estuary Grants Program NSW Environment Trust NSW Heritage Grant Programs National Trust Programs	WCSP 2022 • Goal 1 Objective 1.4. SCSP 2023 • Objective 2.3. Strategy 2.3.5. • Objective 4.1: Strategy 4.1.3. • Objective 1.1: Strategy 1.1.1.
Strateg	y 7: Manage Foreshore and Bank Erosion (FE							
FB1	Undertake a bank condition assessment and determine and implement erosion control measures	Estimated total of \$300,000 = \$60,000 consultancy for condition assessment and recommended controls (allocation of \$5,000 to DPIE - Crown Lands and \$55,000 to WCC/SCC), plus \$40,000 for monitoring (\$5,000 p.a. over 8 years), plus \$200,000 for emsion controls works (estimated 5 sites at \$40,000 each - WCC = 3 of the sites and SCC = 2 of the sites).	Year 1 (assessment), Year 2 to 4 (works), Year 3 to 10 (monitoring)	\$60,000	\$215,000	\$25,000	NSW Coastal and Estuary Grants Program NSW Environment Trust Crown Reserves Improvement Fund Building Resilience to Climate Change NSW Heritage Grant Programs	WCSP 2022 • Goal 1: Objective 1.2. SCSP 2023 • Objective 2.1; Strategy 2.1.2, Strategy 2.1.3.
FB2	Implement Environmentally Friendly Seawall Guidelines or similar for new and upgraded foreshore protection works	Estimated total of \$150,000 (estimated 3 sites at \$50,000 each - WCC = 2 of the sites and SCC = 1 of the sites).	Year 2 to 4		\$150,000		NSW Coastal and Estuary Grants Program NSW Environment Trust Crown Reserves Improvement Fund Building Resilience to Climate Change	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6. SCSP 2023 Objective 2.1: Strategy 2.1.2, Strategy 2.1.3. Objective 3.1: Strategy 3.1.2.
FB3	Undertake a bathymetric survey of the entire Lake and tributaries up to the tidal limit	Estimated at \$50,000.	Year 5		\$50,000		NSW Coastal and Estuary Grants Program NSW Environment Trust Building Resilience to Climate Change	WCSP 2022 • Goal 1: Objective 1.2, Objective 1.6: SCSP 2023 • Objective 2.1: Strategy 2.1.3, Strategy 2.1.4.
Strateg	y 8: Prepare for Inundation Risks (IR)							
IR1	Updale Asset Management Plans for all publicly owned and managed assets to clearly identify asset at risk from inundation over future limeframes, including tidal inundation	Estimated total of \$50,000 (estimated that of the 7 agencies, 5 will utilise minor consultancy assistance at \$10,000 each) + staff time.	Year 2 to 4		\$50,000		NSW Coastal and Estuary Grants Program Building Resilience to Climate Change NSW Environment Trust	WCSP 2022 Goal 1: Objective 1.2, Objective 1.6 SCSP 2023 Objective 2.1: Strategy 2.1.3. Objective 2.3: Strategy 2.3.6. Objective 3.1: Strategy 3.1.2.
IR2	Prepare a whole of Lake Foreshore Adaptation Plan for public (community and environmental) lands	\$80,000 plus staff time to incorporate findings into ANPs, POMs and masterplans as and when they are updated.	Year 5 to 7		\$10,000	\$70,000	NSW Coastal and Estuary Grants Program Building Resilience to Climate Change NSW Environment Trust	WCSP 2022 • Goal 1: Objective 1.2, Objective 1.6 SCSP 2023 • Objective 2.1: Strategy 2.1.3. • Objective 2.3: Strategy 2.3.6. • Objective 3.1: Strategy 3.1.2.
IR3	Incorporate tidal inundation mapping into strategic land use planning documents	\$20,000 plus staff time.	Year 2 to 4		\$20,000	- 4	NSW Coastal and Estuary Grants Program Building Resilience to Climate Change Coastal Lands Protection Scheme NSW Environment Trust	WCSP 2022 • Goal 1: Objective 1.2, Objective 1.6 SCSP 2023 • Objective 2.1: Strategy 2.1.3. • Objective 2.3: Strategy 2.3.2.
IR4	Undertake water level and condition monitoring for all lake inundation events	Estimated total of \$100,000 (\$10,000 p.a. for 10 years).	Years 1 to 10	\$10,000	\$40,000	\$50,000	NSW Coastal and Estuary Grants Program Building Resilience to Climate Change NSW Environment Trust	WCSP 2022 Goal 1: Objective 1.2 SCSP 2023 Objective 2.1: Strategy 2.1.3. Objective 2.3: Strategy 2.3.2.
IR5	Investigate novel solutions to manage inundation risks to assets such as stormwater, sewer, and water, cycleways, roads and bridges, etc.	\$30,000 plus research partnership (with a consultancy and/or university).	Years 5 to 10		\$10,000	\$20,000	NSW Coastal and Estuary Grants Program Building Resilience to Climate Change NSW Environment Trust	WCSP 2022 Goal 1: Objective 1.1; Objective 1.6 SCSP 2023 Objective 2.3: Strategy 2.3.6: Objective 3.1: Strategy 3.1.2. Objective 2.1: Strategy 2.1.3.
Strateg	y 9: Protect and Manage Key Fauna (MF)							- I was a second of the second
MF1	Develop and implement a fauna management program including shorebirds, fish and other fauna	Estimated total of \$125,000 = \$15,000 to develop program, plus \$60,000 for ecological surveys (3 at \$20,000 each), plus \$50,000 to implement program (e.g. for yearly shorebird habitat monitoring, data management etc).	Year 1 and ongoing	.\$20,000	\$60,000	.\$45,000	NSW Coastal and Estuary Grants Program NSW Environment Trust NSW Hentage Grant Programs National Trust Programs Building Resilience to Climate Change	WCSP 2022 Goal 1: Objective 1.1. SCSP 2023 Objective 2.1: Strategy 2.1.1, Strategy 2.1.2, Strategy 2.1.4.



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6.3 Funding and Financing

WCC and SCC have budget allocations to assist with implementing actions to achieve the environmental goals and objectives of their respective Community Strategic Plans. As the Lake Illawarra CMP actions fall largely under these environmental goals and objectives (see details at the end of this Business Plan), the existing budgets of the Council may fund some or part of the actions, particularly in the CMP's first year until grant funding applications can be made. There is an existing arrangement between the councils that for lake wide actions or actions that span areas in both LGAs that costs are shared at a ratio of 2:1 for WCC to SCC.

There are a range of other funding mechanisms available for financing the implementation of the CMP. Councils have the opportunity to take advantage of the various local, state and federal grant programs, as listed in Table 6-2. The quantity of this funding cannot be accurately quantified until such time as it is awarded.

The staffing resources required to facilitate the implementation of the CMP across the two Councils and their various departments, to forward plan for commencing and progressing the actions over 10 years, and in particular to seek and obtain grant funding to achieve this, are set out for this CMP via Action PM2: Provide ongoing coordinated management of the Lake. It will be imperative that both Councils and the state agencies maintain good working relationships, as a basis for successful implementation of the CMP.

Through the use of existing Council budgets, seeking grant funding and donations wherever possible, and funding ongoing staff resources to plan, apply for grants, and then progress implementation of actions, it is hoped there will continue to be sufficient funds available to implement this CMP over its intended life of 5 to 10 years.

Beyond this timeframe, there will continue to be risks to the health and sustainability of the Lake, such as from climate change and development pressures, as well as new emerging risks. This CMP is expected to be revised after 10 years, and reviewed in five years, as detailed in Chapter 7.





Table 6-2 Local, NSW and Federal Government Funding Mechanisms

Funding Source	Details
Council Funding	Mechanisms
Council Ordinary Rates	A key funding mechanism for Council are statutory rates and charges, which can be applied to private landowners and businesses. Under the <i>Local Government Act 1993</i> (LG Act), ordinary rates can be applied to all rateable land within a local government area. This money can be used to fund delivery of community assets and services and may also be used to implement coastal management actions.
Special Rates	Specific works, services, facilities or activities that benefit certain parcels of rateable land can be funded (in whole or part) by Council by applying special rates under the LG Act. Where a coastal management action directly benefits a property owner, special rates provide a mechanism for Council to secure contributions from those landowners over time.
	Special rates can be implemented in different ways. Council can issue rates over a property or alternatively enter into an arrangement with the owner for payment of a lump-sum amount.
	Where a property, or properties, benefit from a coastal protection service, a coastal protection service charge can be applied (see below).
Coastal Protection Service Charge	The coastal protection service charge can be applied on rateable land where that land benefits from a coastal protection service, such as a seawall, erosion control measure or beach nourishment for example.
	The charge can be applied where coastal protection works are constructed by, or on behalf of the owner or occupier (current or previous). The charge can also be applied where coastal works are constructed in a joint arrangement between an owner or occupier and a public authority or council.
	The charge is applied to cover Council costs for construction, maintenance or repair of the works, as well as managing/remediating the impacts caused by the works.
	(refer to the NSW Coastal Management Manual (OEH, 2018) for further information).
Development Contributions	Developer contributions enabled under the Environmental Planning and Assessment Act 1979 may be used for coastal management in some instances, such as funding capital works to manage the development impacts on the coast or reduce risk to the development from coastal hazards. WCC and SCC differ in the way that they collect and manage Developer Contributions. The criteria and ability to use those contributions will be dependent on the relevant Developer Contribution Plan.
Revenue Generated by Council	Council can also fund coastal management initiatives through revenue they may generate through hire, rental or other commercial partnerships (e.g. Surt Life Savings Clubs, Holiday Parks etc).
NSW Government	Funding Mechanisms
NSW Coastal and Estuary Grants Program	Under this program, the NSW Government provides grants to local government to support coastal management planning (e.g. hazards studies, management plans/programs) and actions to manage the risks of coastal hazards (e.g. erosion protection), restore degraded coastal habitats (e.g. wetlands, dunes) and improve the health of NSW estuaries. Funding of up to 50% of a project cost is available to successful applications and the
	programme is administered by DPIE - Coasts & Estuaries. Grant funding will be prioritised to Council applications associated with certified Plans.
	The program has funded 5 Wollongong City Council and 2 Shellharbour City Council projects worth a total of \$834,000.00 since 2017/2018.





Funding Source	Details
Building Resilience to Climate Change	The partnership program between Local Government NSW (LGNSW) and DPIE aims to address climate change risks and vulnerabilities facing NSW councils. It aims encourage climate change: planning, minimisation, adaptation and implementation adaptation responses.
NSW Environment Trust	Funding is available under the NSW Environment Trust to a broad range of organisations for projects that enhance the environment of NSW. Grants may be awarded for on ground rehabilitation and improvement works, research applications, land acquisition, waste reduction and promotion of environmental education. Individual grants of up to \$100,000 with a total of \$2 million is available for government entities. The NSW Environment Trust is an independent statutory body established by the NSW Government to make and supervise the environment grants. The Trust is administered by DPIE. Suitable coastal management grant applications may relate to dune care, for example.
Crown Reserves Improvement Fund (CRIF)	The CRIF is administered by DPIE – Crown Lands providing financial support for the development, maintenance and improvement of public reserves. Subject to a competitive application process, the funds may be available to Council for eligible activities / works on coastal Crown reserves managed by Council.
	There is no set limit for a funding application. In previous rounds, the funding requests have ranged from \$500 to \$2 million.
NSW Heritage Grant Programs	This program is administered by DPIE and aims to fund projects that provide sustainable, long-term heritage benefits and provide public benefit and enjoyment from heritage. Funding may be available for the management of heritage items in the coastal environment. Aboriginal Cultural Heritage Grants:
	Funding for activities and works identified in a finalised heritage management document or tool has a minimum of \$20,000 and a maximum of \$70,000.
	 Funding for cultural participation projects that engage the wider community to understand, celebrate and participate in Aboriginal cultural heritage has a minimum of \$10,000 and maximum of \$50,000.
	Community Heritage Grants:
	Up to \$60 000 depending on project type
	Small Heritage Grants:
	• up to \$10,000
Special Infrastructure Contributions	Special Infrastructure Contributions (SIC) help fund the delivery of some of the key pieces of State and regional infrastructure required to support a growing population, such as:
	state and regional roads;
	 transport facilities such as bus shelters and interchanges;
	regional open space, pedestrian links and cycleways; and
	social infrastructure such as schools, healthcare and emergency services.
	They may also contribute to the cost of planning and offsetting biodiversity impacts. SICs are imposed through a Ministerial Determination. DPIE – PA is responsible for the SIC system. There is an annual budget allocation of \$3 million.





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Funding Source	Details
Coastal Lands Protection Scheme	The Coastal Lands Protection Scheme is used to bring significant coastal lands into public ownership and provides for their long term management and care. DPIE administers the Scheme, which receives an annual budget allocation of \$3 million for strategic acquisitions, such as for. Public access: fo promote public access to the coastal foreshore Scenic quality: to maintain the scenic quality of the NSW coast Ecological values: to protect ecological sites of regional, state and/or national significance.
Crown Lands Rescuing our Waterways Program	 The program aims to help deliver better access to local waterways for recreational and commercial waterway boaters and other users. Dredging projects that may be subsidised under this program include: Dredging strategies and/or their supporting studies (e.g. sediment hydrodynamics) Navigation for a range of vessels (recreational, tourism and commercial) Access to public waterway intrastructures such as boat ramps and wharves Pre-dredge activities for projects which are eligible and likely to proceed to dredging, for vessel navigation. Coastal councils can apply and are required to make a financial contribution of at least 50% of project costs and be responsible for developing and managing their projects. Funding of up to \$1.5 million is available for projects on an annual basis. The program is currently set to end by June 2021.
Federal Governm	ent Funding Mechanisms
National Partnership Agreement on Natural Disaster Resilience	The Australian Government partners with State Governments to fund priority disaster resilience initiatives through the National Partnership Agreement on Natural Disaster Resilience. The aim of the program is to enhance Australia's resilience to natural disasters through mitigation works, measures and related activities. Funding is prioritised in terms of states natural disaster risk profile and priorities and focuses on building disaster resilient communities. The Commonwealth will provide a fotal financial contribution to the States of up to \$52.2 million, with an estimate of \$13.5 going to NSW. The Commonwealth's financial contribution will cover up to 50% of the estimated cost of delivering the activities specified in a State's agreed Implementation Plan.

6.3.1 Cost Benefit & Distribution (Public/Private)

The multi-criteria cost benefit analysis compared CMP actions with the indirect and direct impact upon identified threats, weighted towards the level of threat. Through this process, actions in the CMP primarily aim to benefit estuary health, with flow-on benefits to the public (through improved recreation etc); and some actions primarily aim to benefit the public, with flow-on benefits to estuary health. There are no actions within the CMP that aim to directly benefit private interests. Therefore, no public-private cost sharing arrangements are required.

6.3.2 Implementation Responsibility, Cost Sharing and Funding Contributors

The implementation details provided in the CMP in Chapter 4 highlight the relevant responsible and supporting organisations, including state agencies, who will likely provide financial, technical and /or staff resources towards implementing various actions in the strategy implementation plan. The responsible organisation is expected to lead implementation of an action and obtain financial and/or





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staff resources. Supporting organisations may support the responsible organisation to implement the action through the provision of technical or project management support (that would usually be considered standard business for that organisation), subject to availability, and in rare cases may provide financial support. The CMP requires each state agency that is identified as a responsible or supporting organisation for an action to agree to this responsibility in writing.

WCC and SCC are responsible for facilitating through budgetary processes the implementation of the program, using both specific staff resources and using existing elements of the IP&R Framework of both councils to undertake, track and measure the success of actions in the CMP. The integration into the IP&R framework would be considered through the Asset Management Planning process within the Resourcing Strategy. The Community Strategic Plan provides a vehicle for each community to express its long-term aspirations and is the critical link when translating strategic objectives into actions. The Resourcing Strategy makes clear what elements of the Community Strategic Plan each stakeholder is responsible for, with other levels of government, business, nongovernment organisations, community groups and individuals also having a role in achieving the outcomes of the Community Strategic Plan. SCC and WCC will consider the identified actions within the Coastal Management Plan and how best to implement them and consider the priorities of the Community as identified in the CSP. Through this process, funding and resource contributions from the state agencies will be sought and managed at the appropriate time (see "resource and financial planning" and "funding and financing options" for details regarding when contributions will be required from lead and support organisations). All potential Government funding programs which give rise to council accessing funds from are subject to individual eligibility requirements and government priorities, competitive funding rounds and assessment, and availability of funds for each respective program. As such, it is noted that grant funding needs to be applied for is not guaranteed.

There is a common understanding between the councils that for lake wide actions or actions that span areas in both LGAs that costs are shared at a ratio of 2:1 for WCC to SCC.

The public is anticipated to become involved in implementing CMP actions via education strategies that provide activities for the community to attend, and that aim to change the behaviour of community members to benefit the Lake.

6.3.3 Contingent Liabilities

A contingent liability is a potential liability that may occur, depending on the outcome of an uncertain future event. A contingent liability is recorded in the accounting records if the contingency is probable and the amount of the liability can be reasonably estimated.

The hydraulic adjustment of the entrance channel is an area of potential liability. Ongoing erosion of the northern foreshore may require more substantial investment in protection works than has been estimated. Investigations for appropriate short and long term management measures for erosion / accretion in the entrance channel shall be undertaken through Action EC1, with immediate actions permissible through EC3. However, adjustment of the channel will and should be expected to continue to occur over the next 100 years or more. Changes will be exacerbated by ongoing sea level rise. There may continue to be investment required as new challenges arise in the entrance channel area.





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Managing the ecological response to the opening of the entrance is covered under Action EV5 (Develop and implement a program to enhance opportunities for estuarine vegetation migration) in the CMP. However, there may be a liability for Council should the ecological responses be greater (or worse) than expected.

The impacts arising from storms (which result in present day coastal hazards) and sea level rise are also considered a liability. In particular, the opening of the entrance channel has left the channel foreshores far more exposed to swell wave action that may generate erosion hazards. Remedial works following storms may consume budget allocations otherwise earmarked for environmental actions in this plan, although Councils do have access to disaster relief funding. The timing of impacts from sea level rise is difficult to predict, and there is potential for impacts to occur earlier or have a greater consequence than anticipated, which would in turn require actions to be implemented or brought into the CMP planning process earlier than anticipated.

An identified threats risk assessment has been completed and is outlined previously in Section 2.4, Table 2-2. There is also the possibility of delays to implementation due to NSW planning changes. Annual review of this business plan in combination with review of CMP implementation (see Section 7.2), will allow regular review of new or existing contingent liabilities, with the annual budget updated as necessary.

6.4 Alignment with the Integrated Planning and Reporting Framework

The Lake Illawarra CMP contains 39 actions set out within 9 strategies, that aim to manage, preserve, improve, promote and rehabilitate our Lake. The actions directly link to the identified threats (see Table 3-1). The Lake Illawarra CMP strategies and actions align with the goals, objectives and strategies of the Shellharbour and Wollongong Community Strategic Plans (CSP), as set out previously in Table 6-1. It should be noted that both CSPs are currently undergoing an update, however the goals, objectives and strategies are not expected to substantially change. To assist with scheduling the implementation of actions, a Gantt chart for the actions (timeline and budget) has been included in Table 6-3.





Table 6-3 Detailed Lake Illawarra CMP Gantt Chart - Including Budget (\$)

	TODO V-V EXILIBOR CON HUNGING SHIP SE											
Action ID	Action	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
WQ1	Implement a risk-based decision-making framework for the Lake Illawarra catchment.	\$200,000	\$45	,000								\$245,000
MOS	Upgrade existing stormwater quality management measures, or install new devices, which may include water sensitive urban design or other design that will improve water quality as well as enhance habitat and natural values.	\$30,000		\$485	5,000				\$1,050,000			\$1,565,000
WQ3	Review and prioritise maintenance and cleaning regime for existing stormwater quality devices.	630,000		#925	5,000				\$1,500,000			\$2,455,000
WQ4	Design and implement targeted catchment input monitoring as required for developments resulting in a large-scale change or intensification of land use.					\$25	,000					\$25,000
WQ5	Reduce sediment loads to tributaries of the Lake by improving compliance with erosion and sediment controls for development sites.	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$160,000	\$1,600,000
WQ6	Reduce the impact of sewer overflows.					Staff ti	me only					\$0
WQ7	Implement existing water quality monitoring programs for estuary health, recreational use and physico-chemical and bacteriological indicators in the Lake and its catchment	\$130,000		\$520	0,000				\$650,000			\$1,300,000
WQ8	Improve litter management.	\$53,000		8212	2,000				\$265,000			8630,000
WQ9	Investigate and manage potential pollution sources including contaminated sites that contribute to poor water quality in the lake.			\$240	0,000							\$240,000
PM1	Commence integration of key objectives and strategies from the CMP into relevant planning and policy documents of both Councils.			\$50	0,000				\$50,000			\$100,000
PM2	Provide ongoing coordinated management of the Lake, which will require ongoing support for existing staff resources.	\$250,000	6250,000	6250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$2,500,000
PM3	Develop and implement a community engagement and participation strategy that enhances the community's knowledge of, skills in and	\$80,000		\$400	0.000				\$500,000			\$980,000
PM4	commitment to, protecting Lake Illawarrs. Establish a Lake Illawarrs Asset Management Working Group that provides coordination services for agencies that manage assets around the Lake Illawarra foreshore.	\$25,000		\$20	,000				\$25,000			\$70,000
EC1	Investigate options to manage erosion and accretion changes in the entrance channel and implement management solutions.	\$500,000		\$1.50	00,000							\$2,000,000
EC2	Undertake small scale works (eg beach scraping, re-shaping etc) to maintain swimming areas.	4			0,000				\$200,000			\$300,000
EC3	Undertake emergency works or small scale no-regrets actions as required to mitigate known risks to property and public safety.	\$3,000,000			0.000							\$3,650,000
EC4	Monitor changes to the entrance channel.	\$10,000			-1	\$5,000				\$5,000		\$20,000
EC5	Monitor and maintain existing entrance channel infrastructure, with any works to be informed by EC1-EC2 and EC4.	1200,000	\$800,000		\$1,000,000			\$2,000,000				
	Rehabilitate vegetation and manage public access along foreshores and banks of the Lake, its Itidal tributaries, islands and broader low-lying				-1							
EV1	ar985.	8368,000			32,000				\$890,000		\$2,350,000	
EV2	Undertake targeted action to control damage to foreshore and lake vegetation, including seagrasses	\$130,000			0,000,0		\$500,000			\$1,100,000		
EV3	Prepare and deliver an information program for the Lake catchment	\$30,000			1,000	_	\$50,000			\$120,000		
EV4	Prepare and implement an estuarine macrophyte mapping and monitoring program.	\$50,000		\$10,000			\$50,000				\$50,000	\$160,000
EV5	Develop and Implement a program to enhance opportunities for estuarine vegetation migration.			\$175	5,000				\$100,000			6275,000
RA1	Manage foreshore and waterway recreational infrastructure.	\$1,277,000		62,72	28,000				64,125,000			\$8,130,000
RA2	Construct new sections of shared pathway to complete the pathway linkage around the Lake.	\$200,000		\$720	0,000				\$600,000			\$1,520,000
RAD	Negotiate a public "right of way" along the foreshore, as opportunities present themselves.								Staff (me only	r		\$0
RA4	Build on the Tourism opportunities for Leke Illawarra.		Staff time only					\$0				
RA5	Conduct small scale dredging to improve public recreational outcomes and to improve the functionality of stormwater outlet infrastructure.			\$350	0,000				\$350,000			\$700,000
RA6	Investigate the need for and viability of larger scale dredging of bays and entrances to creeks or other measures to improve recreational amenity and access within the Lake where sedimentations and/or the changed nature of the entrance channel has negatively impacted on recreational use.			\$300	0,000							\$300,000
CH1	Protect and promote cultural heritage in and around the lake and its catchment.	\$120,000	9480,000 9800,000			\$1,200,000						
FB1	Undertake a bank condition assessment and determine and implement erosion control measures.	360,000	\$216,000 \$25,000				\$300,000					
FB2	Improve the environmental performance and outcomes for foreshore protection works when the renewal of existing or construction of new infrastructure is required, where appropriate and feasible to do so		\$150,000							\$150,000		
FB3	Undertake bathymetric survey of the entire Lake and tributaries up to the tidal limit.		840,000							\$52,00%		
IR1	Update Asset Management Plans for all publicly owned and managed assets to clearly identify asset at risk from inundation over future timeframes, including Idal inundation		\$10,00							MODE		
IR2	Whole of Lake Foreshore Adaptation Plan for public (community and environmental) lands.		(\$70,000) (\$70,000)		(800)				840,000			
IR3	Incorporate tidal inundation mapping into strategic land use planning documents.		10.00			\$20000						
IR4	Water level and condition monitoring for all lake inundation events	\$10,000	\$40,000 960,000			3100,000						
IR5	Investigate novel solutions to manage inundation risks to assets such as stormwater, sewer, and water, cycleways, roads and bridges, etc.					\$10,000			\$25,000			\$20,000
	Develop and implement a fauna management program including shorebirds, fish, and other fauna.	\$20,000			000				\$45,000			\$125,000



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7 Monitoring, Evaluation and Reporting Program

The Lake Illawarra CMP requires evaluation and reporting regarding the success of its implementation, and the success of actions in reducing the threats and maintaining the values of Lake Illawarra. Where implementation performance is sub-optimal, the evaluation process should identify contingencies to remedy the situation.

This CMP is to be the first of many iterations of a coastal program of works to manage Lake Illawarra, although it is not the first management document for the Lake. Such plans, and the studies that underpin them, should be revised at least every 10 years.

7.1 Internal Communication and Implementation

The importance of internal communications within and between the Councils cannot be over emphasised in the success or otherwise of implementation of this CMP. To support the integration of this CMP with the day to day operations of both councils, it is recommended that 12 months after the CMP is certified, and henceforth at yearly intervals, key staff from both Councils that are responsible for its implementation, in partnership with the regional DPIE - Coasts & Estuaries representative(s), undertake an internal workshop to gauge the status of implementation of the CMP and general understanding of its objectives through both Councils. The workshop would include a refresher of the CMP contents, to reinvigorate existing staff and for new staff.

7.2 Reporting on CMP Implementation

Both WCC and SCC deliver an Annual Report to document their progress in implementing the respective Councils' Delivery Program and Operational Plan activities over each financial year. Performance measures are included for each action in the Operational Plan.

In the Strategy Implementation Plan of this CMP (Chapter 4), each action has been given a performance measure. This can be used to feed actions into both Councils' Delivery Programs and Operational Plans or longer term Resourcing Plans.

The performance measures shall also be used to gauge whether the actions have been implemented or not, which can then be reported in the Annual Report. This provides for a yearly evaluation of the implementation status of each action in the CMP.

Where actions have not been included in the IP&R Framework, a yearly evaluation of those CMP actions by the officer(s) responsible for facilitating implementation of the CMP is recommended. This may be undertaken through the annual review of the Business Plan (see Section 7.2.1), or as a separate process.

If it is determined that an action is not being implemented in accordance with the nominated timeframe, then one or both of the following contingencies should be adopted:

Determine the cause for the delay in implementation. If delays are funding based, then seek
alternative sources of funding, including applying for new or novel grant funding programs. If
delays are resource-based, seek additional assistance from stakeholder agencies and / or
consider using an external consultancy to coordinate implementation of the action(s). This can be
facilitated through the Business Plan; and if necessary,





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Modify and update the CMP to reflect a timeframe or costing for implementation of the action that
is more achievable. It should be noted that revisions to the CMP would need to be endorsed by
all relevant stakeholders and agencies responsible for implementation.

7.2.1 Annual Business Planning

The CMP Business Plan (Chapter 6) should be updated on an annual basis. The Business Plan reflects the expected cost of the CMP over the coming financial year and details the resourcing and financing arrangements to meet these costs. The Business Plan demonstrates the contribution from successful grant funding applications to specific actions, and the additional contribution required from the Councils.

The Business Plan reflects what actions: have been implemented, will be brought online for implementation in the coming financial year, are ongoing and require continued funding, have been carried over to the next financial year, and / or have been modified to improve the potential for implementation. The business plan provides an avenue for bringing delayed actions into play (for example, as identified through the reporting process, Section 7.2). Through the Business Plan, the financial, resourcing or timing requirements for delayed actions can modified, and forecasts adjusted to account for implementation of these actions over the coming or a future financial year.

The business plan will be a key document for tracking success in grant funding applications and part or full contributions from the Councils. It is this financial success that will guarantee the implementation of the CMP.

7.3 CMP Review

A review should be conducted after five years to measure the performance of the CMP in terms of actually managing and reducing the threats to the ecological, social and economic values of the Lake. That is, 'how has the CMP made a difference?' and 'has the level of risk or risk rating for the threats been reduced?'.

The main mechanism for gauging whether the CMP has been successful is to re-evaluate the threats through a repeat of the threat assessment process. As for the first threat assessment, all of the existing controls that assist with managing the threats should be included when assessing the level of risk, particularly those actions that have or are being implemented through the CMP. There are two specific questions to be answered:

- Has the level of risk changed? (including for those threats in this plan that are currently assessed as low); and
- Have the very high or high threats been adequately managed / mitigated? (i.e. has the risk rating been reduced to a tolerable level through management?).

If it is determined that the threats have not been adequately managed / mitigated, or that new intolerable threats have arisen, the following contingencies should be adopted:

 Carry out a formal review of the implemented management strategies, identifying possible avenues for increasing the effectiveness of the strategy in managing the risks along the coastline (including new risks);





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- Commence implementation of additional/back-up management strategies that may assist in meeting the objectives of the CMP (possibly 'fast-tracking' some longer term strategies as necessary);
- Reconsider the urgency of management for key threats. Upscaling from passive to active
 management may be needed, for example, where climate change or entrance channel related
 threats have increased in severity and now require intervention to ameliorate impacts.

If the need arises, new actions or items can also be added to the CMP as part of the review process.

Any such changes to the CMP would need to be endorsed by the stakeholders and relevant government agencies, as well as the community.

7.4 Water Quality and Estuary Health Monitoring Program

7.4.1 Preamble

A CMP requires a monitoring, evaluation and reporting framework to be established to help determine whether the outcomes intended from the CMP implementation are being realised. One of the outcomes for the Lake Illawarra CMP is protection and improvement in water quality and estuary health of the Lake. The monitoring regime being recommended for this is outlined below.

7.4.2 Background

Water quality monitoring has been ongoing continuously since 2005, but has been added to and refined in more recent years to focus on estuary health. Additionally, recreational monitoring was expanded to cover 4 sites in the lake in late 2018.

It is noted, however, that a focus is on assessing estuary ecosystem health based on water quality indicators alone is somewhat limited. There is opportunity in an ongoing program to include other indicators that are also important for estuary health (such as macrophyte distributions), and to assess water quality for recreational use, given the lake is commonly used for recreational purposes by the community, and the potential for greater use of the lake for this purpose in the future.

Inputs from the catchment have a significant influence on the condition of the lake, and many of the management actions in the CMP relate to reducing these inputs over time. Therefore, targeted monitoring of catchment inputs is also recommended to assess how pollution loads being delivered to the lake are changing over time.

7.4.3 Objectives of the Monitoring Program

The objectives of the water quality and estuary health monitoring program are:

- (1) Track the water quality and estuary health condition of the Lake for protection of aquatic ecosystems and for recreational use.
- (2) Track the effectiveness of the CMP in reducing catchment inputs to the Lake, by undertaking targeting monitoring of pollution loads.
- (3) Identify any emerging water quality and estuary health issues to inform the ongoing management strategy for the Lake.





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(4) Keep the community updated on the water quality and estuary health condition of the Lake.

7.4.4 Lake Monitoring at Present

Under the current program being coordinated by WCC, the Lake is monitored at six foreshore and five in-lake locations. An analysis of the results collected over several years has shown that a number of these sites have very similar water quality (WCC, 2015, 2016, 2017, 2018a). Therefore, the number of sites recommended for ongoing monitoring can be rationalised, ensuring that sites with the longest data records are generally retained.

7.4.5 Catchment Monitoring at Present

SCC currently undertakes quarterly water quality sampling at sites throughout the LGA including the Lake Illawarra catchment. Results are reported through the Community Strategic Plan. This monitoring program is currently being reviewed. Physicochemical, nutrient and bacteriological data is gathered and is used inform management actions and identify areas of non-compliance where further investigation is required.

7.4.6 Monitoring Program for this CMP

Table 7-1 describes the overall monitoring design for the Lake, including the requirements for macrophyte monitoring. Action WQ7 outlines the costs, timeframes and responsibilities for undertaking the water quality monitoring program as it is proposed in Table 7-1. Action EV4 provides the details, costs, timeframes and responsibilities for undertaking the macrophyte mapping and monitoring, as proposed in Table 7-1 also.

The sites recommended for ongoing monitoring are shown in Figure 7-1. Table 7-2 presents further information on the location of the water quality sites. No attempt has been made to relabel the sites to ensure they can be related with earlier records. Three new sites have been added for recreational use monitoring. These are areas around the Lake that are already commonly used for a number of recreational activities. This is in addition to the site at Entrance Lagoon Beach that is currently monitored under the Beachwatch program. Water quality data that is collected by other agencies will be sourced where relevant and when it is considered useful to the objectives outlined above.





Table 7-1 Monitoring Design for Lake Illawarra

Lake use / value	Indicator	Sites	Frequency	Notes
Protection of aquatic ecosystems	Water quality: physico- chemical indicators (temperature, salinity, pH, dissolved oxygen, turbidity; total, dissolved and reactive forms of nitrogen and phosphorus), and chlorophyll a	Foreshore sites – 1,2,3, 4, 5, 6 Lake sites – NS1, NS2, NS3, EW1, EW2	Monthly	Protocols being used in the council program follow standard procedures consistent with the MER protocols, and these procedures can be retained.
	Macrophytes – seagrass, saltmarsh, mangroves	Entire lake	Within 2 years, then every 5 years	Follow guidelines in State of NSW and OEH (2016)
Recreational use	Enterococci	BW1, BW2, BW3, ELL	As per the NSW Beachwatch sampling regime	Follow Beachwatch protocol

Table 7-2 Location of Water Quality Monitoring Sites in Lake Illawarra

ID	Site Location	Lake Zone	Purpose
Site 2	Boat ramp at Windang Peninsula	Lake Entrance	For water quality
Site 3	At Picnic Island	Lake Entrance	and estuary health
Site 3A	Jetty at Boonerah Point Reserve	Lake Edge	
Site 4	Jetty at Sailing Club at Виггоо Вау	Lake Edge	
Site 5	Boat ramp and jetty at Kanahooka	Lake Edge	
Site 6	Jetty at Griffins Bay Wharf	Lake Edge	
NS1	Norfh along a norfh-south transect	In-lake	
NS2	Middle along a north-south transect	In-lake	
NS3	South along a norfh-south transect	In-lake	
EW1	East along an east-west transect	In-lake	
EW2	West along an east-west transect	In-lake	
BW1	At Ski Way Park	Lake Edge	For recreational
BW2	At Kanahooka Boat Ramp	Lake Edge	use
BW3	At Purry Burry Point, Primbee	Lake Edge	
ELL	At Entrance Lagoon Beach	Lake Entrance	



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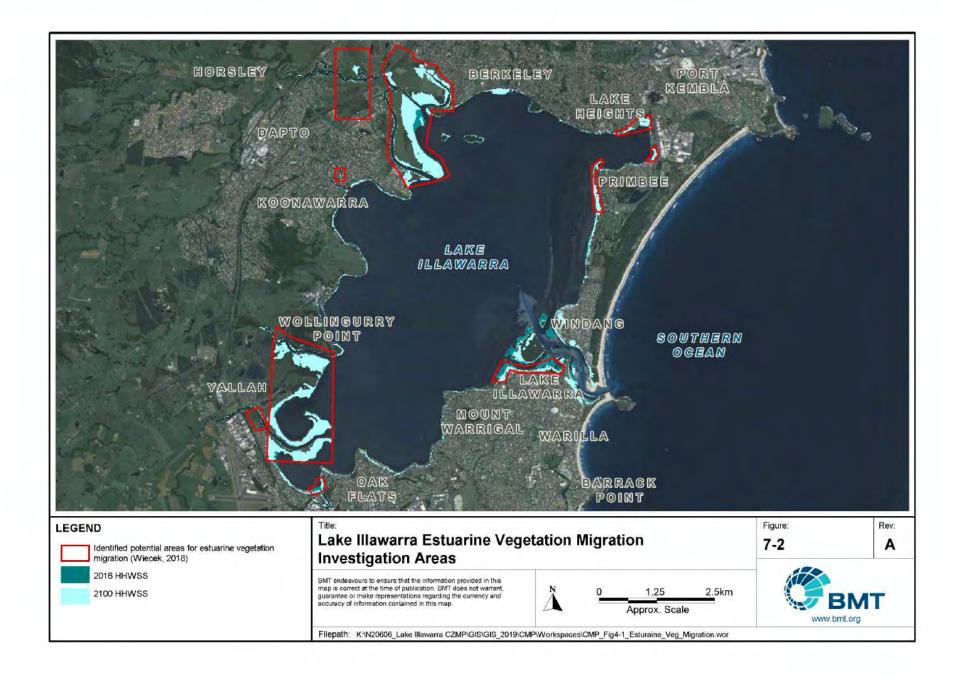
Figure 7-1 Location of Sampling Sites for the Water Quality and Estuary Health Monitoring
Program and for Recreational Use

7.4.7 Information Relevant to Estuarine Macrophyte Monitoring

Lake Illawarra tidal inundation map highlighting the largest low-lying areas that could potentially allow for estuarine vegetation migration (outlined in red, refer Appendix E, Figure 11 of the BMT (2020a) Lake Illawarra Information Synthesis Report) and as sea level rises (see Figure 7-2) could be investigated further for this purpose. These low-lying areas are currently either agricultural lands or public foreshore land that is open parkland or vegetated. Other low-lying inundated areas not highlighted are generally already developed with housing or other significant infrastructure where it is less likely they could be managed to allow for estuarine vegetation migration. Other narrower strips of foreshore along the lake where some estuarine vegetation migration is possible also occur, where changes in management such as reducing the width of areas mowed will contribute to longer term conservation. These areas are marked on the more specific management action mapping.









Lake Illawarra Coastal Management Program (2020-2030)
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Appendix A NSW Coastal Management Framework and Mandatory Requirements

A.1 Definition and Objectives for the Coastal Management Areas

A.1.1 Coastal Wetlands and Littoral Rainforest Area

Coastal wetlands and littoral rainforest support high value biodiversity that are particularly sensitive to development. This management area is defined in the CM Act as land which displays 'the hydrological and floristic characteristics of coastal wetlands or littoral rainforests and land adjoining those features' (DPE, 2016). This area focusses on protecting well established and more extensive vegetation communities (as opposed to single trees or isolated stands). Specific controls on development apply to this management area, as set out in the Coastal Management SEPP.

The objectives of the coastal wetland and littoral rainforest management area within the *CM* Act are to:

- protect coastal wetlands and littoral rainforests in their natural state, including their biological diversity and ecosystem integrity;
- promote the rehabilitation and restoration of degraded coastal wetlands and littoral rainforests;
- improve the resilience of coastal wetlands and littoral rainforests to the impacts of climate change, including opportunities for migration;
- support the social and cultural values of coastal wetland and litforal rainforest communities, and;
- promote the objectives of State policies and programs for wetlands or littoral rainforest management.

Mapping at Lake Illawarra identifies coastal wetlands fo extend across the low lying margins of the Lake, namely around Mullet Creek, Duck Creek and Macquarie Rivulet flood tide deltas, but also within and around the entrance channel and the Windang Peninsula region (see Figure 1-3). Littoral Rainforest areas are present on Windang Peninsula.

A.1.2 Coastal Vulnerability Area

Coastal fringing land threatened by coastal hazards will be encompassed within the coastal vulnerability management area. This area focusses on identifying land subject to current and future coastal hazards, and applying specific controls to inform land use decisions. Development in this management area is permitted, but must comply with the Coastal Management SEPP requirements (DPE, 2016).

The summarised **objectives of the coastal vulnerability management area** within the *CM Act* are to:

- ensure public safety and prevent risks to human life;
- mitigate current and future coastal hazards;
- maintain the presence of beaches, dunes and other natural features;





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- maintain public access, amenity and use of the coast;
- encourage land use that reduces exposure to hazards, including through siting, design, construction and operational decisions;
- adopt coastal management strategies that reduce exposure to hazards, in the first instance by restoring or enhancing natural defences such as dunes, and thereafter by taking other action and;
- if taking other action, to;
 - avoid significant degradation or disruption of biological diversity, ecosystem integrity, coastal processes (ecological, biophysical, geological, geomorphological), beach and foreshore amenity, and social and cultural values;
 - avoid adverse offsite impacts, or otherwise restore the land if any impacts are caused by the action to reduce exposure to hazards;
- maintain essential infrastructure, and;
- improve community resilience and reduce reliance on emergency responses.

Hazard types specific to Lake Illawarra include entrance instability, coastal and tidal inundation, and foreshore erosion. The coastal vulnerability management area is not currently mapped in the CM SEPP. DPIE intends to identify areas to be included in the coastal vulnerability area over time (DPE, 2016).

Even though the SEPP mapping does not identify a vulnerability area in the Lake Illawarra coastal zone at present, these hazards do exist. The coastal inundation hazard area derived by Cardno (2010, 2012) may be used to represent the coastal vulnerability area for Lake Illawarra. The coastal inundation hazard area was modelled by Cardno (2010, 2012), using the levels shown in Table A-1, which represents inundation levels inside Lake Illawarra due to present day ocean water level events, and such events at 2050 and 2100 factoring in SLR. The 100 year Average Recurrence Interval (ARI) ocean water level for the present day of 1.44 m AHD was derived from guidance by DPIE - Coasts & Estuaries (formerly DECCW) for Fort Denison in Sydney. For the future time periods of 2050 and 2100, Cardno (2010, 2012) adopted a projected sea level rise of 0.4 m and 0.9 m respectively.

Wave set up was not included in the ocean water level boundary conditions, as swell waves do not penetrate into the estuary further than Windang Bridge, and as such, do not shoal and break to generate wave set up.

Cardno (2010) found that the peak ocean still water levels are modified in the estuary due to tidal attenuation through the Lake entrance. For example, the peak 100-years ARI storm ocean water level of 1.44 m AHD translated into an estuarine water level of 0.7 m AHD upstream of Windang Bridge.





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Table A-1 Ocean Water Level Boundary Conditions for Coastal Inundation Modelling

Ocean Water Level Scenario	Indicative Timeframe	Water Level (m AHD)
Immediate: 100 yr. ARI ocean water level	Present Day	1.44
High risk: 100 yr. ARI ocean water level + 0.4 m SLR	2050	1.84
Low risk: 100 yr. ARI ocean water level + 0.9 m SLR	2100	2.34

A.1.3 Coastal Environmental Area

The NSW coastal environment is diverse and encompasses a range of different landforms, processes and environments. The coastal environment management area is land containing features such as the coastal waters of the State, estuaries, coastal lakes and lagoons, and land adjoining those features such as headlands and rock platforms.

The objectives of the coastal environmental area within the CM Act are to:

- protect and enhance coastal environmental values and natural processes of coastal waters, estuaries, coastal lakes, coastal lagoons, and enhance natural character, scenic value, biological diversity and ecosystem integrity;
- reduce threats to and improve resilience of these coastal environments, including in response to climate change;
- maintain and improve water quality and estuary health;
- support social and cultural values of the coastal environments;
- maintain the presence of beaches, dunes and natural features of the foreshore; and
- maintain and improve public access, amenity and use of the coast.

The Coastal Management SEPP acknowledges the important environmental values of the coastal environment management area and outlines a range of specific controls that aim to minimise the impact of development on this area (DPE, 2016). Draft mapping of the coastal environment area at Lake Illawarra encompasses the estuary waterbody and its entrance channel, plus a 500m fringe landward of the Lake and entrance foreshore, in addition to 1km upstream beyond the Highest Astronomical Tide within its tidal tributaries (see Figure 1-3).

A.1.4 Coastal Use Area

The coastal zone comprises land that is extremely valuable in terms of the economy and society. Indeed, the coastal zone supports a range of human uses and development types that enable the wider coastal community to live, work and play on the coast. The coastal use management area encompasses land adjacent to coastal waterways (ocean, estuaries, lakes etc.) where impacts of





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development on the use and enjoyment of the beaches, dunes, estuaries and lakes need to be considered.

The objectives of the coastal use management area within the CM Act are to:

- protect and enhance the scenic, social and cultural values of the coast by ensuring that:
 - the type, bulk, scale and size of development is appropriate for the location and natural scenic quality of the coast,
 - adverse impacts of development on cultural and built environmental heritage are avoided or mitigated,
 - urban design, including water sensitive urban design, is supported and incorporated into development activities,
 - adequate public open space is provided, including for recreational activities and associated infrastructure, and
 - the use of the surt zone is considered;
- accommodate both urbanised and natural stretches of coastline.

The Coastal Management SEPP sets out controls specific for the coastal use management area that ensure development proposals address a range of public interest criteria.

A.2 Meeting the Mandatory Requirements and Essential Elements

Table A-2 Mandatory Requirements for a Coastal Management Program Relevant to Preparation of the Lake Illawarra CMP

		of the Coastal Management Act 2016 e preparation of CMPs as follows	How this CMP addresses these requirements
(1)	A local council is to prepare a coastal management program in accordance with the coastal management manual.		The Lake Illawarra CMP has been prepared in accordance with the NSW Coastal Management Manual (OEH, 2018) that was current at the time of this CMP's preparation.
(2)	The Minister may, by notice in writing given to a local council, direct the local council in its preparation of a coastal management program. A direction under this subsection prevails to the extent of any inconsistency between it and the coastal management manual		The Minister has not directed the local councils in preparation of this CMP.
(3)		eparing a coastal management ram, a local council must:	
	(a)	consider and promote the objects of this Act, and	The objects of the CM Act are reflected in the objectives of this CMP, see Section 1.5.
	(b)	give effect to the management objectives for the coastal management areas covered by the program, and	The management objectives for the coastal management areas are re-iterated in the coastal strategy statement and objectives of this CMP, see Section 1.5.





Lake Illawarra Coastal Management Program (2020-2030)

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NSW Coastal Management Framework and Mandatory Requirements

Section 14 of the Coastal Management Act 2016 defines the preparation of CMPs as follows			How this CMP addresses these requirements
	(c)	consider the State and regional policies and plans prescribed by the regulations for the purposes of this section.	Legislation relating to the management of the Lake is considered in Section 1.4.
(4)	the t	rection under this section may specify ime within which the direction must be plied with.	This subsection does not apply as the Minister has not directed the local councils in preparation of this CMP.
Sect	tion 15	of the Coastal Management Act	How this CMP addresses these requirements

(4)	the t	rection under this section may specify ime within which the direction must be plied with.	This subsection does not apply as the Minister has not directed the local councils in preparation of this CMP.
2016		5 of the Coastal Management Act les the matters to be dealt with in a Illows	How this CMP addresses these requirements
(1)	A co	astal management program must:	
	(a)	identify the coastal management issues affecting the areas to which the program is to apply, and	A summary of the threats affecting Lake Illawarra is provided in Section 2.4, with detailed analysis of the threats outlined in the Community Uses, Values, Threats and Opportunities Lake Illawarra Report (BMT, 2020b).
	(b)	identify the actions required to address those coastal management issues in an integrated and strategic manner, and	A detailed multicriteria cost benefit analysis of the options was conducted, including assessment of the options direct influence on the threats to the Lake, in order to identify suitable actions for the CMP. This assessment is detailed in Section 3.3 and the Lake Illawarra CMP Management Actions Assessment (BMT, 2020c).
	(c)	identify how and when those actions are to be implemented, including those to be implemented by local councils under Chapter 13 of the Local Government Act 1993, those to be implemented under environmental planning instruments and development control plans under the Environmental Planning and Assessment Act 1979 and those to be implemented by public authorities (other than the local council), and	The Strategy Implementation Plan in Chapter 4 provides details of how and when actions are to be implemented, and responsibilities for implementation (lead and support), including the local councils (WCC and SCC) and other public authorities. The implementation tables also indicate those actions to be implemented through changes to the LEP, DCP or other planning documents. The implementation tables also provide details to enable the actions to be implemented through both councils IP&R Frameworks.
	(d)	identify the costs of those actions and proposed cost-sharing arrangements and other viable funding mechanisms for those actions to ensure the delivery of those actions is consistent with the timing for their implementation under the coastal management program, and	The Strategy Implementation Plan in Chapter 4 provides details of estimated costs for the actions. The Business Plan in Chapter 6 (and Table 6-1 in particular) details further the financing and funding mechanisms for implementing the actions in the CMP.





Lake Illawarra Coastal Management Program (2020-2030)

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NSW Coastal Management Framework and Mandatory Requirements

2016		of the Coastal Management Act es the matters to be dealt with in a llows	How this CMP addresses these requirements
	(e)	if the local council's local government area contains land within the coastal vulnerability area and beach erosion, coastal inundation or cliff instability is occurring on that land, include a coastal zone emergency action subplan.	Present day storm inundation risks are currently effectively managed through the Flood Risk Emergency Management process. This CMP sets out the process for defining the coastal vulnerability area for Lake Illawarra, refer to Section 1.3.1.1.
(2)	inclu	astal management program may also de other matters as may be authorised ermitted by the coastal management ual.	This Lake Illawarra CMP focuses on improving or maintaining the environmental values of the Lake.
(3)	A coastal zone emergency action subplan is a plan that outlines the roles and responsibilities of all public authorities (including the local council) in response to emergencies immediately preceding or during periods of beach erosion, coastal inundation or cliff instability, where the beach erosion, coastal inundation or cliff instability occurs through storm activity or an extreme or irregular event. For the purposes of this subsection, those roles and responsibilities include the carrying out of works for the protection of property affected or likely to be affected by beach erosion,		A coastal zone emergency action subplan is not required for this Lake Illawarra CMP.
(4)		astal management program must not de the following:	
	(a)	matters dealt with in any plan made under the State Emergency and Rescue Management Act 1989 in relation to the response to emergencies,	This program does not deal with such matters.
	(b)	proposed actions or activities to be carried out by any public authority or relating to any land or other assets owned or managed by a public authority, unless the public authority has agreed to the inclusion of those proposed actions or activities in the program.	WCC and SCC have primary responsibility for all actions except WQ6 which is a shared responsibility with Sydney Water, with other agencies listed as support organisations.







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MD20/3951 Z20/70050

Cr Gordon Bradbery AM Lord Mayor Wollongong City Council

Cr Marianne Saliba Mayor Shellharbour City Council C/- Locked Bag 8821 WOLLONGONG DC NSW 2500

By email: council@wollongong.nsw.gov.au

Dear Councillor Bradbery and Councillor Saliba

Thank you for your letter, on behalf of Wollongong City Council and Shellharbour City Council regarding submission of the Lake Illawarra Coastal Management Program – September 2020 (CMP) for certification under the Coastal Management Act 2016.

I am pleased to certify the program under Section 17(2) of the Coastal Management Act 2016.

Certification relates to meeting requirements under the Act and is not an endorsement of specific proposed management actions.

I commend both Wollongong and Shellharbour City Councils on being one of the first councils to achieve certification for a CMP under the new Coastal Management Framework. The CMP will be an important document for guiding your councils and other stakeholders in the ongoing management of Lake Illawarra.

Now that the CMP is certified, please arrange for it to be published in the NSW Government Gazette, as required under Section 17(3) of the Act. Once gazetted, the program will be taken to meet the requirements of Part 3 of the Act and Coastal Management Manual.

Congratulations again on your achievement.

Yours sincerely

The Hon. Shelley Hancock MP Minister for Local Government 11/11/2020

7 December 2020



Wollongong City Council and Shellharbour City Council

Coastal Management Act 2016

Gazettal and Commencement of a Coastal Management Program

Notice is hereby given, under section 17(3) of the Coastal Management Act 2016, that upon the publication of this Notice in this Gazette, the Lake Illawarra Coastal Management Program (CMP) 2020 will commence.

Wollongong City Council and Shellharbour City Council have prepared the Lake Illawarra CMP 2020 and received certification by the Minister for the Local Government under Section 17(2) of the Coastal Management Act 2016 on November 9, 2020. The CMP presents a long-term plan for the management of Lake Illawarra to provide the strategic direction and specific actions to address the threats to the Lake and to maintain the ecological, social and economic values of the Lake. The overall intent of the CMP is to work towards achieving ecological sustainability for Lake Illawarra over the long term.

The CMP may be viewed on the councils' websites at:

https://wollongong.nsw.gov.au/about/environment/coast-and-waterways/lake-illawarra https://cdn.shellharbour.nsw.gov.au/sites/default/files/Environment_documents/lakeillawarracmpfi nalseptember2020 1.PDF

For more information call Wollongong City Council on (02) 4227 7111 or Shellharbour City Council on (02) 4221 6111.

Dated 07/12/2020

GREG DOYLE General Manager Wollongong City Council CAREY McINTYRE Chief Executive Officer Shellharbour City Council



File: IW-300.110 Doc: IC20/465

ITEM 11

WASTE AND RESOURCE RECOVERY - FEES AND EXEMPTIONS COUNCIL POLICY

Council has a longstanding policy of accepting mixed general waste without charge from eligible Community Service Organisations. There are ongoing implications from this practice, as it discourages the sorting and reuse and/or recycling of material and is misaligned with Council's commitment to reduce our municipal solid waste, divert waste from landfill and reduce greenhouse gas emissions as set out in:

- The Waste Avoidance and Resource Recovery Act 2001 and the associated NSW Waste and Resource Recovery Strategy 2014 to 2021;
- Council's Waste and Resource Recovery Strategy 2022; and
- Council's Climate Change Mitigation Action Plan 2020.

This Paper recommends the adoption of the revised Waste and Resource Recovery – Fees and Exemptions Policy effective from 11 January 2021.

RECOMMENDATION

- 1 Council adopt the draft Waste and Resource Recovery Fees and Exemptions Council Policy from 11 January 2021.
- 2 Council support eligible Local Community Service Organisations through the development and implementation of Individualised Waste Management Plans to assist in waste reduction and increase diversion of material from landfill.
- 3 Council undertake additional community consultation in relation to fee exemptions for Pensioner Concession Cardholders in early 2021.

REPORT AUTHORISATIONS

Report of: Joanne Page, Manager Open Space & Environmental Services

Authorised by: Glenn Whittaker, Director Infrastructure + Works - Connectivity Assets + Liveable City

(Acting)

ATTACHMENTS

1 Draft Waste and Resource Recovery - Fees and Exemptions Council Policy (proposed changes highlighted)

BACKGROUND

Waste from Community Service Organisations

Council's current *Waste and Resource Recovery Park – Fees and Exemptions Policy* entitles Community Service Organisations with active EPA Community Services Exemptions to dispose of an unlimited volume of unusable goods and materials recovered from public donations received at local facilities without charge. In FY2019 and FY2020, this practice resulted in approximately 1900 tonnes of material being landfilled.

The practice of not sorting material for reuse and / or recycling and providing a full fee exemption for the landfilling of General Mixed Waste is misaligned with the:

- practices of other local Councils; and
- expectations of the broader community who are participating in recovery through reuse, composting and / or recycling.

Waste from Pensioner Concession Cardholders



During July and August, Community engagement was constrained due to COVID-19 restrictions, which may have led to low numbers of impacted residents providing a response. Therefore, additional consultation is proposed for early 2021.

PROPOSAL

Waste from Local Community Service Organisations

The following changes are recommended to the current *Waste and Resource Recovery Park – Fees and Exemptions Council Policy* for eligible Community Service Organisations.

Current exemption	Proposed exemption
Illegally dumped material Not specifically specified.	Illegally dumped material Will receive the full gate fee exemption (currently \$384 / Tonne) for illegal dumping events where the Event is reported and investigated by Council prior to the material being delivered to Wollongong Waste and Resource Recovery Park.
Unusable goods and materials (sorted): Not specified.	Unusable goods and materials (sorted): Unlimited volume from public donations where the material is sorted for reuse and / or recycling (sorting area to be established).
Unusable goods and materials (not sorted): Unlimited volume from public donations receive a full gate fee exemption (currently \$384 / Tonne).	Unusable goods and materials (not sorted): Unlimited volume from public donations will receive a reduction in the gate fee by the NSW EPA Waste Levy - (Currently \$238 / Tonne = \$384 / Tonne - \$146 / Tonne).

To support the proposed changes, Council staff will work with Local Community Service Organisations to develop and implement individualised Waste Management Plans which are designed to:

- reduce unwanted material being received by these Organisations;
- assist these Organisations when they receive illegally dumped material;
- encourage the sorting, reuse, and recycling of the material received.

Local charity shops run by Community Service Organisations have been impacted by COVID-19 restrictions which has delayed the development of individualised Waste Management Plans.

Temporary fee exemptions will be granted through the General Manager's delegation to eligible Local Community Service Organisations until 1 March 2021 to allow enough time to develop and implement Individualised Waste Management Plans.

CONSULTATION AND COMMUNICATION

Consultation was undertaken in July and August 2020 in the general community and via direct contact with all Community Service Organisations who were eligible and utilising the fee exemption.

Of the Community Service Organisations utilising the exemption:

- 40% were already sorting materials, with 1 of these separating up to 20 different streams; and
- 80% were supportive of the sustainable approach proposed by Council.

Members of the community who responded during the community engagement period supported the proposed changes if suitable infrastructure was provided for Community Service Organisations to sort the material received.

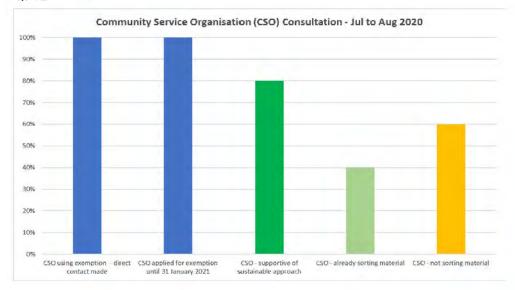


Figure 1: Summary of Consultation with Community Service Organisations currently utilising the fee exemption.

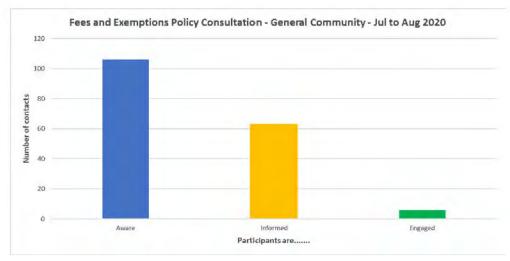


Figure 2: Summary of Consultation with the community regarding the draft Waste and Resource Recovery – Fees and Exemptions Council Policy

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 Goal "We value and protect our environment". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Operational Plan Actions
1.2.1 Reduce our ecological footprint, working together to minimise the impacts of climate change and reduce waste going to landfill.	1.2.1.1 Develop and implement a range of programs that encourage community participation in reducing Wollongong's ecological footprint.	Deliver waste minimisation programs in accordance with the Waste Strategy.
	1.2.1.3 Methods to reduce emissions are investigated and utilised	Continue to deploy Council's Waste and Resource Recovery Strategy.

7 December 2020

SUSTAINABILITY IMPLICATIONS

The recommendations support the sorting and reuse and/or recycling of material and are aligned with Council's commitment to reduce our municipal solid waste, increase diversion of waste from landfill, reduce greenhouse gas emissions and increase landfill life as set out in:

- The Waste Avoidance and Resource Recovery Act 2001 and associated NSW Waste and Resource Recovery Strategy 2014 to 2021;
- Our Waste and Resource Recovery 2022 Action Plan; and
- Our Climate Mitigation Action Plan 2020.

RISK MANAGEMENT

The recommendations consider the ongoing regulatory risk of Council continuing to accept material from Community Service Organisations without providing an incentive for the waste to be sorted for reuse and/or recycling rather than landfilling.

The recommendations consider reputational and social risks of imposing additional costs on eligible Local Community Service Organisations through:

- Development and implementation of individualised Waste Management Plans;
- Fee exemptions for eligible Community Service Organisations through the General Manager's delegation until 1 March 2021;
- Continuing to provide support for illegally dumped material;
- Continuing to provide support for sorted material that can be reused and/or recycled.

FINANCIAL IMPLICATIONS

It is expected that the current cost of landfilling material received from Community Service Organisations will be offset by the cost of reusing and recycling the material. The costs associated with implementing individualised Waste Management Plans and the purchase and installation of signage and sorting bins at Wollongong Waste Resource Recovery Park will be funded from the NSW EPA Waste Less, Recycle More grant funding. The sorting facilities will also be made available to the general community.

CONCLUSION

The recommendations are aligned with Council's commitment to reduce municipal solid waste, increase the diversion of waste from landfill and reduce greenhouse gas emissions.

Document No: Z20/254986





ADOPTED BY COUNCIL: [TO BE COMPLETED BY GOVERNANCE]

PURPOSE

To establish a consistent approach for the exemption of fees from Council's prescribed waste and resource recovery.

POLICY INTENT

The main objectives of this policy are to:

- Provide support to Community Service Organisations with active Community Services
 Exemptions from the NSW Environment Protection Authority to reduce the environmental and financial impact from illegally dumped and unusable material.
- Provide support for Pensioner Concession Cardholders from the Wollongong Local Government Area.

WOLLONGONG 2028 OBJECTIVES

This Policy contributes to the delivery of Our Wollongong 2028 goal "We value and protect our environment". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2021	Annual Plan 2020-2021 Annual Deliverables	
Strategy	3 Year Action		
1.2.1 Reduce our ecological footprint, working together to minimise the impacts of climate change and reduce waste going to landfill.	1.2.1.1 Develop and implement a range of programs that encourage community participation in reducing Wollongong's ecological footprint.	Deliver waste minimisation programs in accordance with the Waste Strategy.	
	1.2.1.3 Methods to reduce emissions are investigated and utilised.	Continue to deploy Council's Waste and Resource Recovery Strategy.	

POLICY

The following rules will apply in relation to waste fee exemptions.

- 1. There will be no exemption for:
 - Garden Organics, Food Organics and Wood Waste;
 - Commercial and business waste; and
 - · Specified items including tyres and mattresses.
- Suitable domestic material destined solely for the recycling or the Revolve Centre will be exempt from fees (other than items in Point 1).
- The RSPCA is exempt from the Dead Animal fee.
- 4. Cover material may be exempt from fees subject to consultation with Waste Services.



WASTE & RESOURCE RECOVERY - FEES & EXEMPTIONS

COUNCIL POLICY

- Council will proactively support eligible Local Community Service Organisations through the development of individualised Waste Management Plans to align with Council's Waste and Resource Recovery Strategy 2022.
- Organisations with an active Community Services Exemption issued by the NSW Environment
 Protection Authority under Section 88 of the Protection of the Environment Operations Act 1997 will
 be exempt from Council waste disposal fees under the following conditions:
 - Proof of the exemption must be in writing and current;
 - Material is sourced from the Wollongong Local Government Area;
 - Suitable reusable and / or recyclable items are sorted and diverted through the Revolve Centre
 and/or Recycling Area including eWaste, scrap metal, white goods, cardboard, paper, fabric,
 mixed recyclables, timber, batteries, gas bottles and fire extinguishers;
 - Material has been illegally dumped (at the Organisation's premises or bins) and the Incident has been reported to Wollongong City Council and investigated prior to delivering the material to Wollongong Waste and Resource Recovery Park;
 - No specified items including tyres and mattresses.
- The General Manager has the delegated authority to determine individual requests for waiving fees for eligible Local Community Service Organisations.
- All Pensioner Concession Cardholder from the Wollongong Local Government Area are exempt from fees for up to:
 - Two (2) transactions of 100 kg or less of Mixed General Waste per financial year;
 - Two (2) transactions of 100 kg or less of Garden Organics for reprocessing per financial year.

Where the following conditions are met:

- Proof of residency is provided
- Current Pensioner Concession Card is provided
- Pensioner Concession Cardholder is present.

LEGISLATIVE REQUIREMENTS

- Waste Avoidance and Resource Recovery Act 2001.
- NSW Waste and Resource Recovery Strategy 2014 to 2021.

REVIEW

This Policy will be reviewed every two years from the date of each adoption of the policy, or more frequently as required.



WASTE & RESOURCE RECOVERY - FEES & EXEMPTIONS

COUNCIL POLICY

Role	Responsibilities Implementation of this Policy.	
Waste and Resource Recovery Manager		
Strategic Projects Coordinator	Development of Waste Management Plans in consultation with Organisations with an active Community Services Exemption.	

RELATED PROCEDURES

Wollongong City Council Waste and Resource Recovery Plan 2022.

	APPROVAL AND REVIEW	
Responsible Division	Open Space and Environmental Services	
Date/s adopted	Executive Management Committee [updated by policy owner]	Council [DD Mmmm YYYY]
Date/s of previous adoptions	[Dates of previous adoptions]	
Date of next review	[Two years from last adoption]	



File: FI-230.01.600 Doc: IC20/664

ITEM 12 TENDER T20/14 - CONSTRUCTION OF CORRIMAL TENNIS COURT AMENITIES

This report recommends acceptance of a tender for the construction of Corrimal Tennis Court Public Toilet in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005.

A Buildings and Facilities audit undertaken by Council has indicated that the current public toilet located at the site is in poor condition and does not meet Council's current standards for functionality, usability and Crime Prevention Through Environmental Design (CPTED) design principles. Wollongong City Council's Draft Public Toilet Strategy has indicated that a new asset should be constructed in a more serviceable location which better meets the needs of the community and also incorporates Disability Discrimination Act (DDA) compliance and CPTED design requirements.

RECOMMENDATION

- 1 In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Donnelley Civil Pty Ltd for the construction of Corrimal Tennis Court Amenities, in the sum of \$162,100.00, excluding GST.
- 2 Council delegate to the General Manager the authority to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required, to give effect to this resolution.

REPORT AUTHORISATIONS

Report of: Robert Ryan, Manager Project Delivery (Acting)

Authorised by: Glenn Whittaker, Director Infrastructure + Works - Connectivity Assets + Liveable City

(Acting)

ATTACHMENTS

1 Location Plan

BACKGROUND

Council has undertaken a Condition and Functionality audit on the existing public toilet structure located at the north-eastern corner of the Corrimal Tennis Court site on Wilga Street, Corrimal. The existing asset was noted to rate poorly in relation to condition, location, accessibility and safety.

As a result, the existing public toilet structure was identified as requiring replacement with a new facility, in a more suitable location which also incorporated Council's current technical design requirements with respect to Disability Discrimination Act (DDA) compliance and Crime Prevention Through Environmental Design principles. The location of the replacement facility will make it far more accessible to all of the local community and visitors to the adjacent parks, sports fields and shopping precinct. The existing facility is not easily seen by members of the public.

The scope of works to be undertaken includes:

- Earthworks to establish levels for new structure;
- Construction of reinforced concrete foundation piers and strip footings
- Establishment of new water service line, new sewer service line and new electrical service line to the proposed amenities;



- Installation of new prefabricated 'Exeloo' public toilet which is being procured directly by Council through the Local Government Procurement Panel to minimise cost and minimise delays to construction program;
- Construction of new concrete pedestrian kerb ramp and footpaths to ensure DDA compliant access to the new facilities;
- Fabrication and installation of galvanised steel handrail to the new concrete ramp;
- Installation of tactile indicators for DDA compliance;
- Installation of signage for new on road disabled parking space;
- Demolition of the existing amenities structure, including termination of existing service lines;
- Minor landscaping works

Tenders were invited for this project by the open tender method with a close of tenders of 10.00 am on Tuesday, 3 November 2020.

Eight (8) tenders were received by the close of tenders and all tenders have been scrutinised and assessed by a Tender Assessment Panel constituted in accordance with Council's Procurement Policies and Procedures and comprising representatives of the Project Delivery, Infrastructure Strategy and Planning, Governance and Customer Service Divisions.

The Tender Assessment Panel assessed all tenders in accordance with the following assessment criteria and weightings as set out in the formal tender documents:

Mandatory Criteria

- 1 Satisfactory references from referees for previous projects of similar size and scope
- 2 Possession of a Work Health & Safety Management System

Assessable Criteria

- 1 Cost to Council 50%
- 2 Appreciation of scope of works and construction methodology 15%
- 3 Demonstrated experience and satisfactory performance in undertaking projects of similar size, scope and risk profile, including staff qualifications and experience 10%
- 4 Proposed sub-contractors 5%
- 5 Project Schedule 5%
- 6 Workplace Health and Safety and Environmental Management Systems 5%
- 7 Demonstrated strengthening of local economic capacity 10%

The mandatory assessment criteria have been met by the recommended tenderer.

The Tender Assessment Panel utilised a weighted scoring method for the assessment of tenders which allocates a numerical score out of 5 in relation to the level of compliance offered by the tenders to each of the assessment criteria as specified in the tender documentation. The method then takes into account pre-determined weightings for each of the assessment criteria which provides for a total score out of 5 to be calculated for each tender. The tender with the highest total score is considered to be the tender that best meets the requirements of the tender documentation in providing best value to Council. Table 1 below summarises the results of the tender assessment and the ranking of tenders.



TABLE 1 - SUMMARY OF TENDER ASSESSMENT

Name of Tenderer	Ranking
Donnelley Civil Pty Ltd	1
Malsave Pty Ltd	2
Davone Constructions Pty Ltd	3
Project Coordination Australia Pty Ltd	4
Joss Facility Management Pty Ltd	5
Rogers Construction Group Pty Ltd	6
Momentum Built Pty Ltd	7
Avant Constructions Pty Ltd	8

PROPOSAL

Council should authorise the engagement of Donnelley Civil Pty Ltd to carry out the works in accordance with the scope of works and technical specifications developed for the project.

The recommended tenderer has satisfied the Tender Assessment Panel that it is capable of undertaking the works to Council's standards and in accordance with the technical specification.

Referees nominated by the recommended tenderer have been contacted by the Tender Assessment Panel and expressed satisfaction with the standard of work and methods of operation undertaken on their behalf.

CONSULTATION AND COMMUNICATION

- 1 Members of the Tender Assessment Panel
- 2 Nominated Referees

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal 5 "We are a healthy community in a liveable city". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21	
Strategy	4 Year Action	Operational Plan Actions	
5.5.1 Public facilities in key locations and transport routes are maintained and clean, accessible and inviting to our community and visitors	5.5.1.2 Manage and maintain community infrastructure portfolio with a focus on asset renewal	Achieve our expenditure targets for capital renewal by programming these works with sufficient flexibility to allow rephasing, deferral and/or the introduction of other deferred renewal works as required	

RISK ASSESSMENT

The risk in accepting the recommendation of this report is considered low on the basis that the tender process has fully complied with Council's Procurement Policies and Procedures and the Local Government Act 1993.

The risk of the project works is considered medium based upon Council's risk assessment matrix and appropriate risk management strategies will be implemented.

SUSTAINABILITY IMPLICATIONS

Construction of the new amenities will reduce the ongoing maintenance requirements when compared to the older facility.



The new amenities structure will also incorporate a self-cleaning mechanism which may reduce ongoing operational costs to Council.

The recommended tenderer for the project is based in the Wollongong LGA and has proposed to utilise local subcontractors and suppliers for the majority of the proposed works.

FINANCIAL IMPLICATIONS

It is proposed that the total project be funded from the following source/s as identified in the Operational Plan –

2020/21 Capital Budget

CONCLUSION

Donnelley Civil Pty Ltd has submitted an acceptable tender for the proposed works and Council should endorse the recommendations of this report.

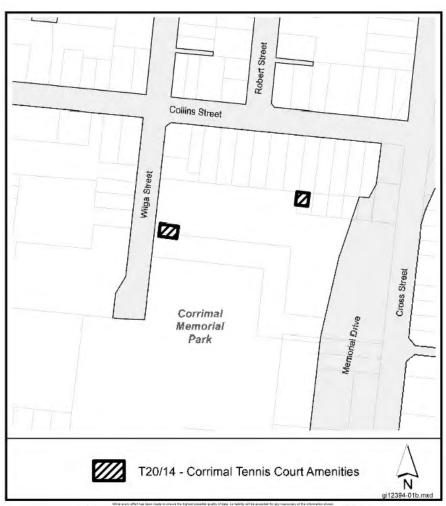




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ITEM 13 TENDER T20/22 - CRINGILA HILLS PLAYGROUND LANDSCAPE WORKS

This report recommends acceptance of a tender for Landscape Works at Cringila Hills Playground and the co-ordination and preparation for the installation of Playground Equipment in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005.

The Cringila Hills Masterplan includes the provision of a Regional Playground. This tender is for the associated landscape works and coordination of playground equipment installers.

RECOMMENDATION

- In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Undercover Landscapes Pty Ltd for Landscape Works as described in Tender T20/22, in the sum of \$445 376.00, excluding GST.
- 2 Council delegate authority to the General Manager to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required, to give effect to this resolution.

REPORT AUTHORISATIONS

Report of: Joanne Page, Manager Open Space & Environmental Services

Authorised by: Glenn Whittaker, Director Infrastructure + Works - Connectivity Assets + Liveable City

(Acting)

ATTACHMENTS

1 Location Plan

BACKGROUND

Following extensive community engagement and research, Council adopted the Cringila Hills Recreation Master Plan in March 2020. The Master Plan features a variety of mountain bike trails, a bike skills park, a BMX / pump track and a new district level playground.

This tender is for the landscape works associated with the playground, the coordination of playground equipment installers and management of potential contamination associated with these works.

The scope of works includes:

- Earthworks
- Masonry Walls
- Sandstone Block Walls
- Concrete Block Walls
- Concrete Paving
- Wetpour Rubber
- Organic Mulch Safety Surface
- Plumbing and Drainage Works
- A Dry Creek Bed
- Timber Bridges



- Furniture
- Garden Edge
- Planting
- Mulching and Lawn Areas
- Playground Fencing
- Bollards
- Post and Rail Fencing
- Shade Structures

The new playground will provide exciting and inclusive play opportunities that cater for children and persons with a disability or limited mobility. Key features of the playground include:

- New multi-user equipment offering graduated challenge and interactive elements;
- Softfall surfacing and dedicated path network;
- Inclusive play equipment including adult swing and wheelchair rocker;
- Advanced tree planting, natural play elements and use of natural materials;
- Communication and navigation boards;
- Public art created by children; and
- Supporting amenities including a variety of seating, bike rack, bubbler, and bins.

The playground has also attracted grant funding of \$150,000 from the NSW Government's Everyone Can Play Program towards the creation of an inclusive playspace.

This work is part of the Capital Works Program 2020/21. Tenders were invited for this project by the open tender method with a close of tenders on 10.00 am 10 November 2020.

11 tenders were received by the close of tenders and all tenders have been scrutinised and assessed by a Tender Assessment Panel constituted in accordance with Council's Procurement Policies and Procedures and comprising representatives of the Open Space and Environmental Services, Procurement and Governance Divisions.

The Tender Assessment Panel assessed all tenders in accordance with the following assessment criteria and weightings as set out in the formal tender documents:

Mandatory Criteria

- 1 Satisfactory references from referees for previous projects of similar size and scope.
- 2 Financial assessment acceptable to Council which demonstrates the tenderer's financial capacity to undertake the works.

Assessable Criteria

1	Cost to Council	40%
2	Appreciation of scope of works and construction methodology	15%
3	Demonstrated prior experience and satisfactory performance in undertaking projects of similar size, scope and risk profile, including staff qualifications and experience	20%
4	Project Schedule	5%
5	Demonstrated strengthening of local economic capacity	10%



6 Workplace health and safety management system and environmental management policies and procedures

10%

The mandatory assessment criteria have been met by the recommended tenderer.

The Tender Assessment Panel utilised a weighted scoring method for the assessment of tenders which allocates a numerical score out of 5 in relation to the level of compliance offered by the tenders to each of the assessment criteria as specified in the tender documentation. The method then takes into account pre-determined weightings for each of the assessment criteria which provides for a total score out of 5 to be calculated for each tender. The tender with the highest total score is considered to be the tender that best meets the requirements of the tender documentation in providing best value to Council. Table 1 below summarises the results of the tender assessment and the ranking of tenders.

TABLE 1 - SUMMARY OF TENDER ASSESSMENT

Name of Tenderer	Ranking
Undercover Landscapes Pty Ltd	1
Lamond Contracting Pty Ltd	2
GJ's Landscapes Pty Ltd	3
Moduplay Group Pty Ltd	4
Growth Civil Landscapes Pty Ltd	5
Romba Civil & Landscape	6
Simpson Landscapes & Consultants Pty Ltd	7
Gauci Civil Contracting Pty Ltd	8
Tricom Civil Contractors Pty Ltd	9
R Line Civil and Concreting	10
Projection Build Pty Ltd	11

PROPOSAL

Council should authorise the engagement of Undercover Landscapes Pty Ltd to carry out the works in accordance with the scope of works and technical specifications developed for the project. Undercover Landscapes has demonstrated a detailed understanding of the scope of works, a thorough methodology to undertake the works and a detailed work program to address the site-specific problems. Undercover Landscapes employs Civil Engineers and Landscapers which will provide Council with the best opportunity for a successful project.

The recommended tenderer has satisfied the Tender Assessment Panel that it is capable of undertaking the works to Council's standards and in accordance with the technical specification.

An acceptable financial capability assessment has been received in relation to the recommended tenderer.

Referees nominated by the recommended tenderer have been contacted by the Tender Assessment Panel and expressed satisfaction with the standard of work and methods of operation undertaken on their behalf.

CONSULTATION AND COMMUNICATION

- 1 Members of the Tender Assessment Panel
- 2 Nominated Referees
 - Parramatta City Council
 - Abergeldie Contractors



PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal "We have a healthy community in a liveable city". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Operational Plan Actions
5.1 'Urban areas are created to provide a healthy and safe living environment for our community'	5.1.4.1 Provide an appropriate and sustainable range of quality passive and active open spaces and facilities Relocate and enhance the Cringila Hills Playground.	Play Wollongong Strategy 2014-2024
	5.2.1.3 – Implement the key projects identified in the Cringila Hills Recreation Masterplan	

RISK ASSESSMENT

The risk in accepting the recommendation of this report is considered low on the basis that the tender process has fully complied with Council's Procurement Policies and Procedures and the Local Government Act 1993.

The risk of the project works, or services is considered moderate based upon Council's risk assessment matrix and appropriate risk management strategies will be implemented.

To mitigate the potential contamination risk at the site, a contamination assessment was undertaken, and a Fill Management Plan developed. The recommended tenderer has demonstrated expertise and experience with similar projects.

SUSTAINABILITY IMPLICATIONS

This project will provide improved and inclusive play opportunities for the community. The project also aims to increase the canopy cover at Cringila Hills and reduce local temperatures.

Other actions taken include:

- Sustainable procurement by providing an open tender to give local companies the opportunity to tender for the work;
- Weighting in the tender assessment for using local services, labour and materials.

FINANCIAL IMPLICATIONS

It is proposed that the total project be funded from the following source/s as identified in the Annual Plan –

2020/21 Capital Budget

CONCLUSION

Undercover Landscapes Pty Ltd has submitted an acceptable tender for this project and Council should endorse the recommendations of this report.





Location of landscape works for the playground at Cringila Hills



File: FI-230.01.678 Doc: IC20/651

ITEM 14 TENDER T20/36 - DESIGN AND CONSTRUCTION OF THE BULLI TENNIS CLUBHOUSE

This report recommends acceptance of a tender for the design and construction of the Bulli Tennis Clubhouse in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005.

Council previously demolished the old clubhouse in May 2020 due to extensive termite damage and structural concerns and the tennis club has been operating out of a temporary building located near the courts.

The project is to replace the previous clubhouse at the Bulli tennis courts. Currently a temporary building is being used to support the tennis club and a permanent solution is required. The new building will have a similar footprint and functionality as the previous clubhouse that was demolished.

RECOMMENDATION

- 1 In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Colin Joss & Co Pty Ltd for the design and construction of the Bulli Tennis Clubhouse, in the sum of \$514,955.34, excluding GST.
- 2 Council delegate to the General Manager the authority to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required, to give effect to this resolution.

REPORT AUTHORISATIONS

Report of: Robert Ryan, Manager Project Delivery (Acting)

Authorised by: Glenn Whittaker, Director Infrastructure + Works - Connectivity Assets + Liveable City

(Acting)

ATTACHMENTS

1 Location Plan

BACKGROUND

Due to structural inadequacies identified in routine maintenance inspections the clubhouse for the Bulli Tennis courts was identified for demolition and replacement.

The clubhouse was demolished in May 2020 and this project follows these works in replacing the facility.

The preferred construction method for this building will be through modular design and construction. This is likely to involve some, or all, of the building being constructed off site and transported to the site for assembly. The scope of works includes:

- Design of the modular building
- Earthworks, piling and foundation works
- Services augmentations, realignments and connections
- Supply, installation and commissioning of the clubhouse
- Footpaths and landscaping works

Tenders were invited for this project by the open tender method with a close of tenders of 10.00 am on 13 October 2020.

Four (4) tenders were received by the close of tenders and all tenders have been scrutinised and assessed by a Tender Assessment Panel constituted in accordance with Council's Procurement Policies



and Procedures and comprising representatives of the Project Delivery, Infrastructure, Strategy and Planning and Property and Recreation and Governance and Customer Service Divisions.

The Tender Assessment Panel assessed all tenders in accordance with the following assessment criteria and weightings as set out in the formal tender documents:

Mandatory Criteria

- 1 Satisfactory references from referees for previous projects of similar size and scope
- 2 Financial assessment acceptable to Council which demonstrates the tenderer's financial capacity to undertake the works
- 3 Possession of a WHS Management System Manual or Plan

Assessable Criteria

- 1 Cost to Council 40%
- 2 Appreciation of scope of works and concept design 20%
- 3 Experience and satisfactory performance in undertaking projects of similar size, scope and risk profile, including staff qualifications and experience 10%
- 4 Proposed sub-contractors 10%
- 5 Project Schedule 5%
- Workplace Health and Safety Management System and Environmental Management Policies and Procedures 5%
- 7 Demonstrated strengthening of local economic capacity 10%

The mandatory assessment criteria have been met by the recommended tenderer.

The Tender Assessment Panel utilised a weighted scoring method for the assessment of tenders which allocates a numerical score out of 5 in relation to the level of compliance offered by the tenders to each of the assessment criteria as specified in the tender documentation. The method then takes into account pre-determined weightings for each of the assessment criteria which provides for a total score out of 5 to be calculated for each tender. The tender with the highest total score is considered to be the tender that best meets the requirements of the tender documentation in providing best value to Council. Table 1 below summarises the results of the tender assessment and the ranking of tenders.

TABLE 1 - SUMMARY OF TENDER ASSESSMENT

Name of Tenderer	Ranking
Colin Joss & Co Pty Ltd	1
Project Coordination Aust Pty Ltd	2
Uniplan Group Pty Ltd	3
Marathon Modular Pty Ltd	4

PROPOSAL

Council should authorise the engagement of Colin Joss & Co Pty Ltd to carry out the design and construction of the Bulli Tennis Clubhouse in accordance with the scope of works and technical specifications developed for the project.

The recommended tenderer has satisfied the Tender Assessment Panel that it is capable of undertaking the works to Council's standards and in accordance with the technical specification.

An acceptable financial capability assessment has been received in relation to the recommended tenderer.



Referees nominated by the recommended tenderer have been contacted by the Tender Assessment Panel and expressed satisfaction with the standard of work and methods of operation undertaken on their behalf.

CONSULTATION AND COMMUNICATION

- 1 Members of the Tender Assessment Panel
- 2 Nominated Referees

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal 5 "We have a healthy community in a liveable city". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Operational Plan Actions
5.1.4 Urban areas are created to provide a healthy and safe living environment for our community	5.1.4.1 Provide an appropriate and sustainable range of quality passive and active open spaces and facilities	Pursue key actions outlined in the 2017-2021 Sports Ground & Sporting Facilities Strategy

RISK ASSESSMENT

The risk in accepting the recommendation of this report is considered low on the basis that the tender process has fully complied with Council's Procurement Policies and Procedures and the Local Government Act 1993.

The risk of the project works or services is considered medium based upon Council's risk assessment matrix and appropriate risk management strategies will be implemented.

SUSTAINABILITY IMPLICATIONS

The proposed tenderer has been selected in part for their capacity to include local businesses and persons into the delivery of these works.

The design of the building is to meet relevant building codes for sustainability as well as having capacity for future rooftop solar installations.

The modular construction methodology will limit disruptions to the tennis club and surrounding community as well as reducing the amount of on-site construction waste.

FINANCIAL IMPLICATIONS

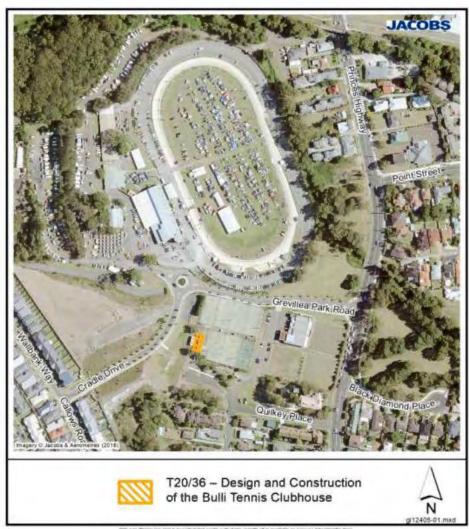
It is proposed that the total project be funded from the following source/s as identified in the Operational Plan –

Capital Budget 2020/21 and 2021/22

CONCLUSION

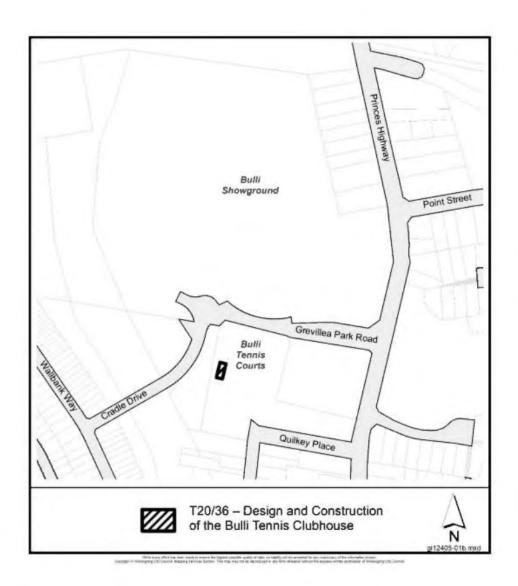
Colin Joss and Co Pty Ltd has submitted an acceptable tender for these works and Council should endorse the recommendation of this report.





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File: FI-230.01.682 Doc: IC20/682

ITEM 15

TENDER T20/37 - BEATON PARK GRANDSTAND ROOF REPLACEMENT AND REMEDIAL WORKS

This report recommends acceptance of a tender for remediation of structural steel, handrails and masonry blockwork walling and roof replacement works to the Beaton Park Grandstand in accordance with the requirements of the Local Government Act 1993 and the Local Government (General) Regulation 2005.

Assessment of the structure identified corrosion on structural steelwork and roofing components and cracking to blockwork infill walls which also coincided with the roof sheeting reaching the end of its design life. These items are required to be remediated in order to extend the serviceable life of the structure and ensure ongoing operations at the Beaton Park facility.

RECOMMENDATION

- In accordance with clause 178(1)(a) of the Local Government (General) Regulation 2005, Council accept the tender of Sullivans Constructions Pty Ltd for Beaton Park Grandstand Roof Replacement and Remedial Works, in the sum of \$477,646.00, excluding GST.
- 2 Council delegate to the General Manager the authority to finalise and execute the contract and any other documentation required to give effect to this resolution.
- 3 Council grant authority for the use of the Common Seal of Council on the contract and any other documentation, should it be required, to give effect to this resolution.

REPORT AUTHORISATIONS

Report of: Robert Ryan, Manager Project Delivery (Acting)

Authorised by: Glenn Whittaker, Director Infrastructure + Works - Connectivity Assets + Liveable City

(Acting)

ATTACHMENTS

1 Location Plan

BACKGROUND

The Beaton Park Grandstand was built circa 2001 and incorporates a covered grandstand, toilets, offices and storage areas beneath the seating. Building Inspections of the structure have identified the following items which require repair or maintenance:

- Corrosion of structural steel members and connections;
- Corrosion of the handrail infill panels and rear louvre screen frames;
- Deterioration of the joint seating of the precast concrete seating;
- Inefficient lighting:
- General paintwork remediation.

The scope of works proposed consists of the following:

- Removal and replacement of all existing roof sheeting and purlins;
- Dismantling, transport, fabrication, abrasive blasting, recoating and reassembly of structural steelwork
- Repair of cracked masonry walls and repainting with flexible elastomeric coating system;



- General repainting of internal areas and other external components;
- Replacement of all existing lighting fixtures with updated energy efficient equivalents including installation of lighting timer system;
- Replacement of degraded concrete seating joint sealant;
- Application of non-slip paint to stair nosings;
- Provision of temporary amenities and storage for stakeholder groups during construction.

Tenders were invited for this project by the open tender method with a close of tenders of 10.00 am on Tuesday 3rd November 2020.

Ten (10) tenders were received by the close of tenders and all tenders have been scrutinised and assessed by a Tender Assessment Panel constituted in accordance with Council's Procurement Policies and Procedures and comprising representatives of the Property and Recreation, Project Delivery, Infrastructure Strategy and Planning and Governance and Customer Service Divisions.

The Tender Assessment Panel assessed all tenders in accordance with the following assessment criteria and weightings as set out in the formal tender documents:

Mandatory Criteria (Delete if not relevant)

- 1 Satisfactory references from referees for previous projects of similar size and scope
- 2 Financial assessment acceptable to Council which demonstrates the tenderer's financial capacity to undertake the works
- 3 Possession of a Work Health & Safety Management System
- 4 Attendance at Site Inspection

Assessable Criteria

- 1 Cost to Council 45%
- 2 Appreciation of scope of works and construction methodology 20%
- 3 Experience and satisfactory performance in undertaking projects of similar size, scope and risk profile, including staff qualifications and experience 10%
- 4 Proposed sub-contractors 5%
- 5 Project Schedule 5%
- 6 Demonstrated strengthening of local economic capacity 10%
- 7 Workplace Health and Safety Management System and Environmental Management Policies and Procedures 5%

The mandatory assessment criteria have been met by the recommended tenderer.

The Tender Assessment Panel utilised a weighted scoring method for the assessment of tenders which allocates a numerical score out of 5 in relation to the level of compliance offered by the tenders to each of the assessment criteria as specified in the tender documentation. The method then takes into account pre-determined weightings for each of the assessment criteria which provides for a total score out of 5 to be calculated for each tender. The tender with the highest total score is considered to be the tender that best meets the requirements of the tender documentation in providing best value to Council. Table 1 below summarises the results of the tender assessment and the ranking of tenders.



TABLE 1 - SUMMARY OF TENDER ASSESSMENT

Name of Tenderer	Ranking
Sullivans Constructions Pty Ltd	1
Advanced Constructions Pty Ltd	2
Project Coordination (Australia) Pty Ltd	3
Reitsma Constructions Pty Ltd	4
Murphys Remedial Builders Pty Ltd	5
Peloton Constructions Pty Ltd	6
Colin Joss & Co t/a Joss Facility Management	7
KGB Protective Coatings Pty Ltd	8
Avant Constructions Pty Ltd	9
AWS Services Pty Ltd	10

PROPOSAL

Council should authorise the engagement of Sullivans Constructions Pty Ltd to carry out the Beaton Park Grandstand Roof Replacement and Remedial Works in accordance with the scope of works and technical specifications developed for the project.

The recommended tenderer has satisfied the Tender Assessment Panel that it is capable of undertaking the works to Council's standards and in accordance with the technical specification.

An acceptable financial capability assessment has been received in relation to the recommended tenderer.

Referees nominated by the recommended tenderer have been contacted by the Tender Assessment Panel and expressed satisfaction with the standard of work and methods of operation undertaken on their behalf.

CONSULTATION AND COMMUNICATION

- 1 Members of the Tender Assessment Panel
- 2 Nominated Referees

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal 5 "We have a healthy community in a liveable city". It specifically delivers on the following:

Community Strategic Plan	Delivery Program 2018-2022	Operational Plan 2020-21
Strategy	4 Year Action	Operational Plan Actions
5.5.1 Public facilities in key locations and transport routes are maintained and clean, accessible and inviting to our community and visitors	5.5.1.2 Manage and maintain community infrastructure portfolio with a focus on asset renewal	Achieve our expenditure targets for capital renewal by programming these works with sufficient flexibility to allow re-phasing, deferral and/or the introduction of other deferred renewal works as required



RISK ASSESSMENT

The risk in accepting the recommendation of this report is considered low on the basis that the tender process has fully complied with Council's Procurement Policies and Procedures and the Local Government Act 1993.

The risk of the project works or services is considered medium based upon Council's risk assessment matrix and appropriate risk management strategies will be implemented. Delay in repair may, overtime result in increased risk to the public, due to the partial failure of individual building elements such as masonry block walls, roof sheeting etc.

SUSTAINABILITY IMPLICATIONS

The first ranked tenderer has proposed to use local subcontractors for the works. Additionally, all steel components to be disposed shall be appropriately recycled.

FINANCIAL IMPLICATIONS

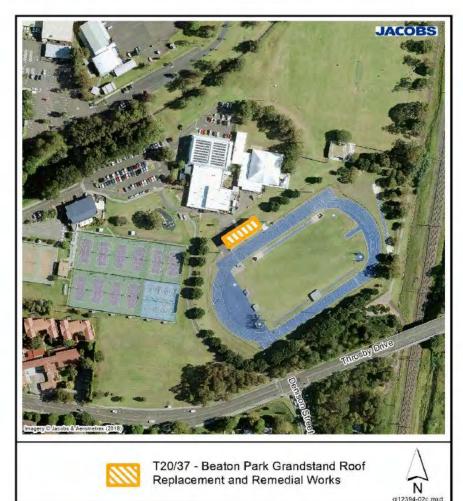
It is proposed that the total project be funded from the following source/s as identified in the Operational Plan –

2020/21 Capital Budget

CONCLUSION

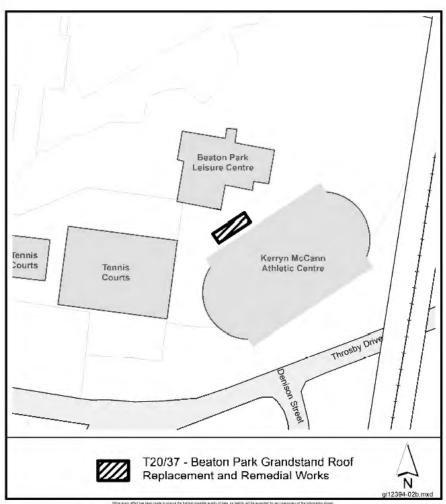
Sullivans Constructions Pty Ltd has submitted an acceptable tender for the proposed works and Council should endorse the recommendations of this report.





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File: GCS-70.031 Doc: IC20/685

ITEM 16 APPOINTMENT OF ARIC CHAIRPERSON

The term of the current Audit Risk and Improvement Committee (ARIC) Chairperson expired on 30 September 2020. This report recommends that independent Committee member, Ms Donna Rygate be appointed as ARIC Chairperson for the period up to 31 October 2023.

RECOMMENDATION

Ms Donna Rygate be appointed as chairperson of the Audit, Risk and Improvement Committee for the period up to 31 October 2023.

REPORT AUTHORISATIONS

Report of: Todd Hopwood, Manager Governance and Customer Service

Authorised by: Renee Campbell, Director Corporate Services - Connected + Engaged City

ATTACHMENTS

There are no attachments for this report.

BACKGROUND

Council, at its meeting on 13 August 2018 appointed the following external independent members to the Audit Risk and Improvement Committee:

Terry Clout - Appointment expired 30 September 2020.
 Catherine Hudson - Appointment expires 30 September 2021.
 Stephen Horne - Appointment expires 30 September 2022.

In accordance with our Audit, Risk and Improvement Committee Charter, Catherine Hudson and Stephen Horne at the expiry of the initial term, may seek reappointment for a further term subject to a formal review of their performance. The total tenure on the Committee for each independent member is not to exceed eight years.

Following the conclusion of the term of appointment of Mr Terry Clout, Council invited Expressions of Interest from suitably experienced and qualified persons to fill the independent member vacancy on the Committee. On 26 October 2020, Council appointed the following independent member to the Audit, Risk and Improvement Committee

Donna Rygate - Appointment expires 31 October 2023

PROPOSAL

Following the appointment of Ms Rygate as an independent member of the Committee, nominations were invited from the independent ARIC members to fill the Chairperson position of the Committee.

The ARIC Charter states that the voting members of the Committee will endorse one of the independent members as chairperson for an initial term of at least three years, with a maximum period of five years.

Council received one nomination from the independent ARIC members for the role of Chairperson, from Ms Donna Rygate. Ms Rygate is now recommended to Council for appointment as the Chairperson of the Audit Risk and Improvement Committee for a 3-year period up to 31 October, 2023.

CONSULTATION AND COMMUNICATION

This recommendation was considered by the Audit Risk and Improvement Committee and by Management.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal "We are a connected and engaged community". It specifically delivers on core business activities as detailed in the Governance and Customer Service, Service Plan 2020-21.

FINANCIAL IMPLICATIONS

There are no direct financial implications relating to the appointment of the ARIC Chairperson.

CONCLUSION

With the impending implementation of a mandatory risk management and internal audit framework that will potentially require changes to ARIC operations that will come into effect after next year's local government elections, continuation of the current committee structure and Chairperson appointment will maintain stability during the OLG Discussion Paper period and the transition to a new structure.



File: GCS-80.06.02.01.022 Doc: IC20/593

ITEM 17 CODE OF CONDUCT COMPLAINT STATISTICS REPORT 2019-2020

The Procedure for the Administration of the Codes of Conduct requires the Complaints Coordinator to provide complaint statistics to Council within three months from the end of September each year.

RECOMMENDATION

The report on Code of Conduct Complaint Statistics for 2019-2020 be received and noted.

REPORT AUTHORISATIONS

Report of: Todd Hopwood, Manager Governance and Customer Service

Authorised by: Renee Campbell, Director Corporate Services - Connected + Engaged City

ATTACHMENTS

1 Code of Conduct Complaints Statistics - Wollongong City Council - 2019 to 2020

BACKGROUND

Under Part 11.1 of the Procedure for the Administration of the Codes of Conduct, the Complaints Coordinator must arrange for the following statistics to be reported to the Council within three months of the end of September each year:

- a) the total number of Code of Conduct complaints made about Councillors and the General Manager under the Code of Conduct in the year to September (the reporting period)
- b) the number of Code of Conduct complaints referred to a conduct reviewer during the reporting period
- c) the number of Code of Conduct complaints finalised by a conduct reviewer at the preliminary assessment stage during the reporting period and the outcome of those complaints
- d) the number of Code of Conduct complaints investigated by a conduct reviewer during the reporting period
- e) without identifying particular matters, the outcome of investigations completed under these procedures during the reporting period
- f) the number of matters reviewed by the Office during the reporting period and, without identifying
- g) particular matters, the outcome of the reviews, and
- h) the total cost of dealing with Code of Conduct complaints made about Councillors and the General Manager during the reporting period, including staff costs.

Under Part 11.2 of the Procedure, Council is to provide the office of Local Government with a report containing the statistics referred to in Part 11.1 within three months of the end of September each year.

CONSULTATION AND COMMUNICATION

The complaint statistics were reported to the Office of Local Government via email on 16 November 2020, a copy of the reported complaint statistics is attached to this report.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal "We are a connected and engaged community". It specifically delivers on core business activities as detailed in the Governance and Customer Service, Service Plan 2019-20.



CONCLUSION

The report presents to Council the complaint statistics relating to the Code of Conduct for 2019-2020.



Page 1 of 3

		Model Code of Conduct Complaints Statistics Wollongong City Council	
N	um	ber of Complaints	
1	а	The total number of complaints received in the period about councillors and the General Manager (GM) under the code of conduct	3
	b	The total number of complaints finalised in the period about councillors end the GM under the code of conduct	2
Ov	/er	view of Complaints and Cost	
2	а	The number of complaints finalised at the outset by alternative means by the GM or Mayor	1
	b	The number of complaints referred to the Office of Local Government (OLG) under a special complaints management arrangement	0
	C	The number of code of conduct complaints referred to a conduct reviewer	2
	d	The number of code of conduct complaints finalised at preliminary assessment by conduct reviewer	0
	e	The number of code of conduct complaints referred back to GM or Mayor for resolution after preliminary assessment by conduct reviewer	1
	f	The number of finalised code of conduct complaints investigated by a conduct reviewer	0
	g	The number of finalised complaints investigated where there was found to be no breach	0
	h	The number of finalised complaints investigated where there was found to be a breach	0
	i	The number of complaints referred by the GM or Mayor to another agency or body such as the ICAC, the NSW Ombudsman, OLG or the Police	0
	j	The number of complaints being investigated that are not yet finalised	1
	k	The total cost of dealing with code of conduct complaints within the period made about councillors and the GM including staff costs	3,850



Page 2 of 3

Pi	elir	minary Assessment Statistics	
3		e number of complaints determined by the conduct reviewer at the preliminary assessment stage by each of e following actions:	
	а	To take no action (clause 6.13(a) of the 2018 and 2020 Procedures)	0
	ь	To resolve the complaint by alternative and appropriate strategies (clause 6.13(b) of the 2018 and 2020 Procedures)	0
	С	To refer the matter back to the GM or the Mayor, for resolution by alternative and appropriate strategies (clause 6.13(c) of the 2018 and 2020 Procedures)	1
	d	To refer the matter to another agency or body such as the ICAC, the NSW Ombudsman, OLG or the Police (clause 6.13(d) of the 2018 and 2020 Procedures)	0
	е	To investigate the matter (clause 6.13(e) of the 2018 and 2020 Procedures)	0
In	ves	tigation Statistics	967 - N
4		e number of investigated complaints resulting in a determination that there was no breach , in which the owing recommendations were made:	
	а	That the council revise its policies or procedures	0
	b	That a person or persons undertake training or other education (clause 7.37 of the 2018 Procedures or clause 7.40 of the 2020 Procedures)	0
5		number of investigated complaints resulting in a determination that there was a breach in which the owing recommendations were made:	
	а	That the council revise any of its policies or procedures (clause 7.36(a) of the 2018 Procedures or clause 7.39 of the 2020 Procedures)	0
	b	In the case of a breach by the GM, that action be taken under the GM's contract for the breach (clause 7.36(h) of the 2018 Procedures or clause 7.37(a) of the 2020 Procedures)	0
	С	In the case of a breach by a councillor, that the councillor be formally censured for the breach under section 440G of the Local Government Act 1993 (clause 7.36(i) of the 2018 Procedures or clause 7.37(b) of the 2020 Procedures)	0
	d	In the case of a breach by a councillor, that the councillor be formally censured for the breach under section 440G of the Local Government Act 1993 and that the matter be referred to OLG for further action (clause 7.36(j) of the 2018 Procedures or clause 7.37(c) of the 2020 Procedures)	ó
6		Matter referred or resolved after commencement of an investigation (clause 7.20 of the 2018 or 2020 Procedures)	0



Page 3 of 3

C	ategories of misco	onduct	
7		tigated complaints resulting in a determination that there was a breach with respect to a categories of conduct:)
	a General conduct	(Part 3)	0
	b Non-pecuniary c	onflict of interest (Part 5)	0
	c Personal benefit	(Part 6)	0
	d Relationship bet	ween council officials (Part 7)	0
	e Access to inform	ation and resources (Part 8)	0
0	utcome of detern	ninations	
8		rigated complaints resulting in a determination that there was a breach in which the onduct reviewers recommendation	0
9		igated complaints resulting in a determination that there was a breach in which the soverturned following a review by OLG	0



File: FI-914.05.001 Doc: IC20/692

ITEM 18 OCTOBER 2020 FINANCIALS

Actual results for October compared to phased budget are favourable over the key performance indicators. The Operating Result [pre-capital] and the Funds Available from Operations show favourable variances of \$13.2M and \$8.3M respectively while the Funds Result shows a favourable variance of \$9.7M.

The balance sheet at the end of the period indicates that there is enough cash to support external restrictions.

Council has expended \$22.8M on its capital works program representing 24% of the annual budget. The year to date budget for the same period was \$25.6M.

The results, variances and commentary include the adjustments proposed at the September Quarterly Review.

RECOMMENDATION

- 1 The financials be received and noted.
- 2 Council approves the proposed changes to the Capital Budget.

REPORT AUTHORISATIONS

Report of: Brian Jenkins, Chief Financial Officer

Authorised by: Renee Campbell, Director Corporate Services - Connected + Engaged City

ATTACHMENTS

- 1 Income and Funding Statement October 2020
- 2 Capital Project Report October 2020
- 3 Balance Sheet October 2020
- 4 Cash Flow Statement October 2020

BACKGROUND

This report presents the Income and Expense Statement, Balance Sheet and Cash Flow Statement for October 2020. Council's current budget has a Net Funding (cash) deficit of \$11.9M, an Operating Deficit [pre capital] of \$22.3M and a Capital Expenditure of \$95.7M.

The following table provides a summary view of the organisation's overall financial results for the year to date.

FORECAST POSITION	Original Budget	Revised Budget	YTD Forecast	YTD Actual	Variation
	\$M	\$M	\$M	\$M	\$M
KEY MOVEMENTS	1-Jul	30-Oct	30-Oct	30-Oct	
Operating Revenue	269.0	270.6	87.0	92.9	5.9
Operating Costs	(291.0)	(292.9)	(98.4)	(91.1)	7.3
Operating Result [Pre Capital]	(22.0)	(22.3)	(11.5)	1.7	13.2
Capital Grants & Contributions	35.5	35.7	7.8	6.7	(1.0)
Operating Result	13.4	13.3	(3.7)	8.5	12.2
Funds Available from Operations	56.9	56.6	14.6	22.9	8.3
Capital Works	93.4	95.7	25.6	22.8	2.8
Contributed Assets	11.6	11.6	-	-	-
Transfer to Restricted Cash	1.4	3.9	2.9	2.9	-
Borrowings Repaid	5.2	5.2	1.8	1.8	-
Funded from:					
- Operational Funds	56.9	56.6	12.8	21.1	8.3
- Other Funding	45.6	47.9	9.1	7.7	(1.4)
Total Funds Surplus/(Deficit)	(9.1)	(11.9)	(6.7)	3.0	9.7



Financial Performance

The October 2020 Operating Result [pre-capital] shows a favourable variance compared to phased budget of \$13.2M that is largely due to greater operating income (\$5.9M) and lower expenditure trends across a range of areas (\$7.3M). The increase in the variance in income is largely due to the allowances made for the COVID-19 pandemic.

The Operating Result shows a positive variance of \$12.2M compared to budget. This includes the net variation above decreased by a lower level of capital income of \$1.0M. This is due to lower West Dapto Developer Contributions.

The Funds Available from Operations indicate a favourable variation of \$8.3M. This result excludes variations in non-cash transactions and transfers to and from Restricted Assets but includes the cash payments for Employee Entitlements to represent the operational budget variations that may impact our funding.

The year to date budget includes a net provision for the impacts of COVID-19 of \$7.7M of which \$2.7M has been utilised. The COVID-19 provisions applied in the budget were focused on income loss and heavily weighted in the phasing of estimates to the first quarter. While the current revenue trends are positive against budget to date, the impacts of COVID-19 currently being experienced will have impacts beyond expectation in expenditure due to increased delivery cost required to meet regulatory requirements. This may become more significant in delivering summer services to larger numbers of people.

Funds Result

The Total Funds result as at 30 October 2020 shows a favourable variance of \$9.7M compared to phased budget.

Capital Budget

At the end of October, the capital program shows an expenditure of \$22.8M compared to a phased budget of \$25.6M.

Through the adoption of the Operational Plan 2020-2021, Council approved a capital budget for 2020-2021 of \$93.4M. During the first quarter, the capital budget has been increased by \$2.3M that is fully offset by funding. The revised projections at October recommend a decrease of \$1.1M that is offset by a corresponding reduction in funding. Details of this change are provided in the Capital Project reports and commentary (attachment 2).



Available Cash

CASH, INVESTMENTS & AVAILABLE FUNDS						
	Actual 2019/20	Original Budget 2020/21	September QR 2020/21 \$M	Actual Ytd October 2020 \$M		
Total Cash and Investments	157.5	114.2	122.9	159.3		
Less Restrictions: External Internal Total Restrictions Available Cash	74.7 62.7 137.4 20.1	73.7 39.0 112.7 1.6	75.4 44.5 119.9 3.0	81.3 61.4 142.6 16.6		
Adjusted for : Payables Receivables Other Net Payables & Receivables	(30.6) 21.7 14.2 5.3	(26.2) 23.7 12.5 10.1	(26.4) 23.9 10.9 8.4	(30.8) 28.9 13.7 11.7		
Available Funds	25.4	11.6	11.4	28.4		

Council's cash and investments increased during October 2020 to holdings of \$159.3M compared to \$146.0M at the end of September 2020.

The Available Funds position excludes restricted cash. External restrictions are funds that must be spent for a specific purpose and cannot be used by Council for general operations. Internal restrictions are funds that Council has determined will be used for a specific future purpose.

Receivables

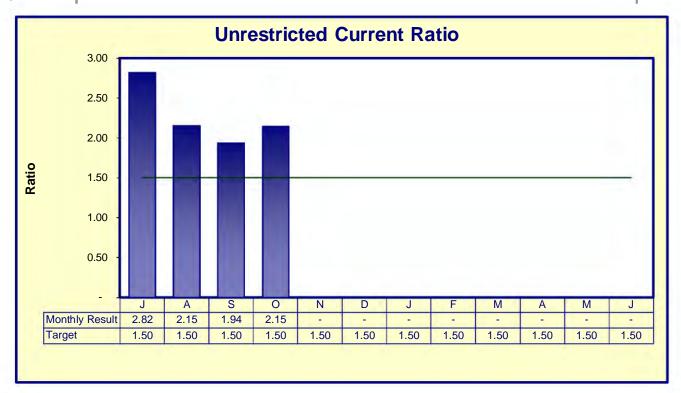
Receivables are the amount of money owed to Council or funds that Council has paid in advance. At October 2020, receivables totalled \$28.9M compared to receivables of \$41.4M at September 2020.

Payables

Payables (the amount of money owed to suppliers) of \$30.8M were owed at September 2020 compared to payables of \$38.3M at September 2020.

The Unrestricted Current Ratio is intended to disclose the ability of an organisation to satisfy payment obligations in the short term from the unrestricted activities of Council. Council's current ratio exceeds the Local Government Benchmark of >1.5:1.





Council continues to have financial strength in its low level of borrowing. The industry measure of debt commitment is the Debt Service Ratio that measures the proportion of revenues that are required to meet annual loan repayments.

Council's Financial Strategy includes provision for additional borrowing in the future and Council will consider borrowing opportunities from time to time to bring forward the completion of capital projects where immediate funding is not available.

Council's Debt Service Ratio forecast for 2020-2021 is a target of <4% and remains low in comparison to the Local Government's benchmark ratio of <20%.

Assets

The Balance Sheet shows that \$2.9B of assets (written down value) are controlled and managed by Council for the community as at 30 October 2020. The 2020-2021 capital works program includes projects such as the West Dapto Infrastructure Expansion, civil asset renewals including roads, car parks and buildings and purchase of library books. Council has expended \$22.8M on its capital works program representing 24% of the annual budget. The year to date budget for the same period was \$25.6M.



PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal 'We are a connected and engaged community'. It specifically delivers on the following:

Community Strategic Plan Strategy		Delivery Program 2018-2022 4 Year Action		Operational Plan 2020-2021 Operational Plan Actions		
4.3.2 Resources (finance, technology, assets and people) are effectively managed to ensure long term financial sustainability 4.3.2.1	technology, assets and	fi	Effective and transparent financial management	Monitor and review achievement of Financial Strategy		
	systems are in place	systems are in place	Continuous budget management is in place, controlled and reported			
		Provide accurate and timely financial reports monthly, quarterly and via the annual statement				
		Manage and further develop a compliance program to promote awareness and compliance with Council's procurement policies and procedures and other related policies				

CONCLUSION

The financial result at the end of October is positive across the leading indicators. Included in this is recognition of the impact of the COVID-19 pandemic.



	21GLBUD	30 October 2020 21GLBUD	21 GLPHAS	21GLACT	Actual v Phase
	Original Budget \$'000	Current Budget \$'000	YTD Budget \$'000	Actual YTD \$1000	Variance \$'000
	Income	Statement	_		
ncome From Continuing Operations Revenue:					
Rates and Annual Charges	208,445	208,512	69,694	69,726	3
Jser Charges and Fees	27,034	27,846	5,788	9,382	3,59
nterest and Investment Revenues	2,343	2,343	781	855	7
Other Revenues	9,498	4,696	1,418	2,393 :	97
Rental Income	0	5,068	984	2,152	1,16
Grants & Contributions provided for Operating Purposes	21,679	22,100	8,305	8,237	(6
Grants & Contributions provided for Capital Purposes	35,460	35,679	7,778	6,746	(1,03
Profit/Loss on Disposal of Assets	0	0	0	146	14
Total Income from Continuing Operations	304,459	306,244	94,750	99,637	4,88
Expenses From Continuing Operations					
Employee Costs	140,635	142,140	48,229	47,155	1,07
Borrowing Costs	2,374	2,374	793	733	6
Materials, Contracts & Other Expenses	104,493	104,847	34,685	28,706	5,97
Depreciation, Amortisation + Impairment	63,702	63,702	21,467	20,207	1,26
nternal Charges (labour)	(18,432)	(18,432)	(6,161)	(5,073)	(1,088
nternal Charges (not labour)	(1,733)	(1,733)	(579)	(387)	
Total Expenses From Continuing Operations	291,038	292,898	98,434	91,142	7,29
Operating Result	13,421	13,346	(3,684)	8,495	12,17
Operating Result [pre capital]	(22,039)	(22,333)	(11,462)	1,749	13,21
NET SURPLUS (DEFICIT) [Pre capital] %	4.4%	4.4%	(3.9%)	8,5%	249.2
Net Operating Result for the Year	Funding	Statement	(3,684)	8,495	12,17
		13,515	(4)	2,122,	
Add back : - Non-cash Operating Transactions	82,363	82,474	28,121	26,940	(1,18
- Restricted cash used for operations	29,815	29,939	10,424	7,301	(3,12
- Income transferred to Restricted Cash	(54,169)	(54,605)	(15,432)	(15,900)	(46)
- Payment of Right of Use Leases	0	0	0	0	(10
- Payment of Accrued Leave Entitlements	(14,533)	(14,533)	(4,844)	(3,984)	86
Net Share Joint Venture using Equity Method	0	0	0	0	
Funds Available from Operations	56,897	56,622	14,586	22,852	8,26
Borrowings repaid	(5,242)	(5,242)	(1,752)	(1,752)	(6
Advances (made by) / repaid to Council	0	0	0	0	
Operational Funds Available for Capital Budget	51,655	51,380	12,833	21,100	8,26
CAPITAL BUDGET					
Assets Acquired	(93,359)	(95,659)	(25,639)	(22,798)	2,84
Contributed Assets	(11,562)	(11,562)	0	0	
	(1,447)	(3,947)	(2,991)	(2,982)	
	(1,447)				
Funded From :-		54.000	40.000	04 488	
funded From :- - Operational Funds	51,655	51,380	12,833	21,100	
unded From :- - Operational Funds - Sale of Assels	51,655 1,801	1,801	126	710	5
Funded From : Operational Funds - Sale of Assels - Internally Restricted Cash	51,655 1,801 13,371	1,801 13,349	126 2,851	710 2,390	5
unded From : Operational Funds - Sale of Assels - Internally Restricted Cash - Borrowings	51,655 1,801 13,371 0	1,801 13,349 0	126 2,851 0	710 2,390 0	5 (46
Funded From : Operational Funds - Sale of Assets - Internally Restricted Cash - Borrowings - Capital Grants	51,655 1,801 13,371 0 4,762	1,801 13,349 0 4,753	126 2,851 0 596	710 2,390 0 690	5i (46
- Sale of Assels - Internally Restricted Cash - Borrowings - Capital Grants - Developer Contributions (Section 94)	51,655 1,801 13,371 0 4,762 11,931	1,801 13,349 0 4,753 12,802	126 2,851 0 596 3,431	710 2,390 0 690 1,866	54 (46 (1,56
Funded From : Operational Funds - Sale of Assets - Internally Restricted Cash - Borrowings - Capital Grants	51,655 1,801 13,371 0 4,762	1,801 13,349 0 4,753	126 2,851 0 596	710 2,390 0 690	8,24 56 (46 9 (1,56 (4



Manager Project Delivery Division Commentary on October 2020 Capital Budget Report

On 29 June 2020, Council approved a Capital budget for 2020-2021 of \$93.4M. As at the end of October 2020, the approved Capital Budget has been decreased from the previously adjusted \$95.7M to \$94.6M due primarily to the rephasing of Strategic Projects Reserve Funding for land purchase for Warrawong Community Centre and Library plus rephasing of CBD Parking charge/income.

Council achieved expenditure at the end of October 2020 of \$22.8M compared to the phased budget expenditure of \$25.6M.

Program	Major Points of change to Capital Budget			
Traffic Facilities	Introduce additional Section 94 funding into Traffic Facilities Program.			
	Reallocate Regional Roads Block Grant funding from Roadworks Program to Traffic Facilities Program.			
Roadworks	Reallocate Regional Roads Block Grant funding from Roadworks Program to Traffic Facilities Program.			
	Reallocate budget from Roadworks program to Commercial Centre Upgrades Program.			
Commercial Centre Upgrades – Footpaths and Cycleways	Rephase Parking charges/Income Reserve funding for future year projects.			
Sysionays	Reallocate budget from Roadworks program to Commercial Centre Upgrades Program.			
Floodplain Management	Introduce additional OEH Funding for demolition of recently acquired flood prone property.			



	Ų.		PROJECT				
		as at the peri	od ended 30 Oc	tober 2020			
	\$'00	00	\$'000			\$'000	
	CURRENT BUD		OGET WORKING BUDGET			VARIATION	
ASSET CLASS PROGRAMME	EXPENDITURE	OTHER FUNDING	EXPENDITURE	OTHER FUNDING	YTD EXPENDITURE	EXPENDITURE	OTHER FUNDING
oads And Related Assets							
Traffic Facilities	2,098	(1,038)	2,207	(1,145)	487	109	(1
Public Transport Facilities	335	0	335	0	25	(0)	
Roadworks Bridges, Boardwalks and Jetties	11,433	(1,556)	11,408	(1,569)	3,881 347	(27)	9
TOTAL Roads And Related Assets	15,846	(2,592)	15,928	(2,714)	4,740	82	(1
est Dapto							
West Depto Infrastructure Expansion	8,031	(100,8)	8,031	(100,8)	1,464	0	
TOTAL West Dapto	8,031	(8,031)	8,031	(8,031)	1,464	0	
ootpaths And Cycleways							
Footpaths	7,330	(2,800)	7,330	(2,800)	2,144	0	
Cycle/Shared Paths	4,085	(2,025)	4,065	(2,025)	1,151	(0)	
Commercial Centre Upgrades - Footpaths and Cycleway	5,547	(2,082)	5,187	(1,582)	1,267	(360)	
TOTAL Footpaths And Cycleways	16,942	(6,907)	16,582	(6,507)	4,561	(360)	
arparks							
Carpark Construction/Formalising Carpark Reconstruction or Upgrading	915 1,585	(200)	915 1,565	(200)	63 216	(0)	
TOTAL Carparks	2,480	(480)	2,480	(480)	279	(0)	
tormwater And Floodplain Management Roodplain Management	1,771	(261)	1,793	(283)	144	22	
Stormwater Management	2,954	(335)	2,954	(335)	1.258	(0)	
Stormwater Treatment Devices	85	(85)	85	(85)	0	(0)	
TOTAL Stormwater And Floodplain Mar	4,811	(681)	4,832	(703)	1,402	22	
uildings							
Oultural Centres (IPAC, Gallery, Townhall)	1,090	0	1,090	0	295	(0)	
Administration Buildings	1,935	0	1,935	0	254	(0)	
Community Buildings	13,128	(1,775)	13,128	(1,775)	3,646	(0)	
Public Facilities (Shellers, Toilets etc.)	230	0	230	0	0	(0)	
TOTAL Buildings	16,383	(1,775)	16,383	(1,775)	4,195	(0)	
ommercial Operations							
ourist Park - Upgrades and Renewal	870	0	870	0	591	(0)	
Crematorium/Cemetery - Upgrades and Renewal	205	0	265	0	20	(0)	
eisure Centres & RVGC	170	0	170	0	4	0	
TOTAL Commercial Operations	1,305	0	1,305	0	616	(0)	
arks Gardens And Sportfields							
Play Facilities	2,510	(670)	2,510	(670)	11	(0)	
Recreation Facilities Sporting Facilities	2,599	(1,861)	2,599	(1,861) (850)	84 260	0 (0)	
Lake Ilawarra Foreshore	100	0	100	0	0	(0)	
TOTAL Parks Gardens And Sportfields							



		as at the peri	od ended 30 Oc	ctober 2020			
	\$100	m	\$1000			eom	
	CURRENT		WORKING BUDGET			\$000 VARIATION	
	1						
ASSET CLASS PROGRAMME	EXPENDITURE	OTHER FUNDING	EXPENDITURE	OTHER FUNDING	YTD EXPENDITURE	EXPENDITURE	OTHER FUNDING
Beaches And Pools							
Beach Facilities	827	q	827	0	41	a	
Rock/Tidal Pools Treated Water Pools	970 1,480	a a	970 1,480	0	860 218	(a) a	
TOTAL Beaches And Pools	3,277	0	3,277	0	1,119	0	
Inche Facilities							
Vaste Facilities Whytes Guly New Cells	2,690	(2,690)	2.690	(2,690)	771	(0)	
Whytes Gully Renewal Works	620	(620)	620	(620)	15	quy	
Helensburgh Rehabilitation	400	(400)	400	(400)	185	a	
TOTAL Waste Facilities	3,710	(3,710)	3,710	(3,710)	971	.0	
leet							
Matar Vehicles	1,800	(940)	1,800	(949)	83	(0)	
TOTAL Fleet	1,800	(949)	1,800	(949)	83	(0)	
lant And Equipment							
Portable Equipment (Mowers etc.)	100	{27}	100	(27)	14	(0)	
Mobile Flant (trucks, backhoes etc.) TOTAL Plant And Equipment	4,290	(826)	4,280	(826)	776 791	(D)	
TOTAL I WILL AND Equipment	4,360	(6.30)	4,360	(633)	731	(0)	
formation Technology							
Information Technology	2,134	O	2,134	Q	108	(0)	
TOTAL Information Technology	2,134	0	2,134	0	106	(0)	
ibrary Books							
ibrary Books	1,251	O	1.251	a	516	(D)	
TOTAL Library Books	1,251	0	1,251	0	516	(0)	
ublic Art							
Art Gallery Acquisitions	100	q	100	0	28	(D)	
TOTAL Public Art	100	0	100	0	28	(0)	
mergency Services							
Emergency Services Plant and Equipment	20	0	20	0	3	(0)	
TOTAL Emergency Services	20	0	20	0	3	(0)	
and Acquisitions							
Land Acquisitions	4,720	(4,670)	3,920	(3,870)	1,566	(800)	
TOTAL Land Acquisitions	4,720	(4,670)	3,920	(3,870)	1,566	(800)	
on-Project Allocations							
Capital Project Contingency Capital Project Plan	944 10	0	944 10	0	0 4	(0) (0)	
TOTAL Non-Project Allocations	954	0	954	0	4	(0)	



WOLLONGONG CIT as at 30 October 2		
	October 2020/21 \$'000	June 2019/20 \$'000
Balance Shee	et	
Current Assets		
Cash Assets	74,034	56,050
Investment Securities	77,235	97,422
Receivables	28,888	21,668
Inventories	468	381
Current Contract Assets	3,377	5,669
Other	10,317	10,572
Assets classified as held for sale	0	0
		0
Total Current Assets	194,319	191,761
Non-Current Assets		
Non Current Cash Assets	8,000	4,000
Non Current Cash Assets Non Current Investment Securities	8,000	4,000
Non-Current Receivables	0	0
Non-Current Inventories	5,972	5,972
Property, Plant and Equipment	2,657,469	2,655,487
Investment Properties	5,000	5,000
Westpool Equity Contribution	3,484	3,484
Intangible Assets	220	254
Right-Of-Use Assets	1,790	1,790
Total Non-Current Assets	2,681,934	2,675,987
TOTAL ASSETS	2,876,253	2,867,748
Current Liabilities		
Current Payables	30,834	30,592
Current Contract Liabilities	2,436	3,571
Current Lease Liabilities	341	341
Current Provisions payable < 12 months	14,973	13,272
Current Provisions payable > 12 months	47,811	47,811
Current Interest Bearing Liabilities	5,260	5,260
Total Current Liabilities	101,655	100,848
Non-Current Liabilities	101,000	,
Sall all minerinals		
Non Current Payables	0	0
Non Current Interest Bearing Liabilities	11,147	12,439
N/C Lease Liabilities	1,519	1,519
Non Current Provisions	40,271	39,775
Total Non-Current Liabilities	52,938	53,734
TOTAL LIABILITIES	154,593	154,582
NET ASSETS	2,721,660	2,713,166
Equity		
		1 000 000
Accumulated Surplus	1,364,836	1,360,922
Asset Revaluation Reserve	1,214,858	1,214,858
	141,967	137,386
Restricted Assets		



WOLLONGONG CITY COUNCIL CASH FLOW STATEMENT as at 30 October 2020 YTD Actual Actual 2020/21 2019/20 \$ '000 \$ '000 CASH FLOWS FROM OPERATING ACTIVITIES Receipts: Rates & Annual Charges 73,628 203,414 User Charges & Fees 6,624 29,485 Interest & Interest Received 1,329 4,130 Grants & Contributions 18,622 68,993 Other 3,285 25,886 Payments: Employee Benefits & On-costs (40, 468) (118,396)Materials & Contracts (19, 192) (73,390) Borrowing Costs (237) (910) Other (13,583) (46,162) Net Cash provided (or used in) Operating Activities 30,008 93,050 CASH FLOWS FROM INVESTING ACTIVITIES Receipts: Sale of Investments Sale of Infrastructure, Property, Plant & Equipment 710 958 Deferred Debtors Receipts Payments: Purchase of Infrastructure, Property, Plant & Equipment (27,631) (83,558) Purchase of Interests in Joint Ventures & Associates (26,921)(82,600) Net Cash provided (or used in) Investing Activities CASH FLOWS FROM FINANCING ACTIVITIES Proceeds from Borrowings & Advances Repayment of Borrowings & Advances (7,935)Repayment of Finance Lease Liabilities (312)(8,247) Net Cash Flow provided (used in) Financing Activities 3,087 30,865 Net Increase/(Decrease) in Cash & Cash Equivalents plus: Cash & Cash Equivalents and Investments - beginning of year 157,475 126,610 160,562 157,475 Cash & Cash Equivalents and Investments - year to date

WOLLONGONG CIT CASH FLOW STATE as at 30 October 2	MENT	IL
	YTD Actual 2020/21 \$ '000	Actual 2019/20 \$ '000
Total Cash & Cash Equivalents and Investments - year to date	160,562	157,475
- year to date	160, 362	157,475
Attributable to:		
External Restrictions (refer below)	81,269	75,470
Internal Restrictions (refer below)	61,355	62,675
Unrestricted	17,938	19,330
	160,562	157,475
External Restrictions		
Develope Contribution	38,950	25.00
Developer Contributions RMS Contributions	748	35,099
	5,703	3,568
Specific Purpose Unexpended Grants	249	214
Special Rates Levy Wollongong Mall Special Rates Levy Wollongong City Centre	249	49
Local Infrastructure Renewal Scheme	276	274
Unexpended Loans	1,147	2.686
Domestic Waste Management	14,994	14,216
Private Subsidies	6,034	6,167
West Dapto Home Deposit Assistance Program	11,050	10,987
Stormwater Management Service Charge	2.098	1.860
Stoffiwater Management Service Charge	2,030	1,000
Total External Restrictions	81,269	75,470
Internal Restrictions		
Property Investment Fund	6,739	7,889
Strategic Projects	41,836	42,900
Sports Priority Program	1,039	938
Car Parking Stategy	1,737	2,195
MacCabe Park Development	1,490	1,440
Darcy Wentworth Park	171	171
Garbage Disposal Facility	1,337	561
West Dapto Development Additional Rates	6,360	6,067
Southern Phone Natural Areas	173	173
Lake Illawarra Estuary Management Fund	473	341
Total Internal Restrictions	61,355	62,675



File: FI-914.05.001 Doc: IC20/693

ITEM 19 STATEMENT OF INVESTMENT - OCTOBER 2020

This report provides an overview of Council's investment portfolio performance for the month of October 2020.

Council's average weighted return for October 2020 was 1.44% which was above the benchmark return of 0.12%. This result was primarily due to positive marked to market valuation of the aggregated Floating Rate Notes. The remainder of Council's portfolio continues to provide a high level of consistency in income and a high degree of credit quality and liquidity.

RECOMMENDATION

Council receive the Statement of Investment for October 2020.

REPORT AUTHORISATIONS

Report of: Brian Jenkins, Chief Financial Officer

Authorised by: Renee Campbell, Director Corporate Services - Connected + Engaged City

ATTACHMENTS

- 1 Statement of Investment October 2020
- 2 Investment Income Compared to Budget 2020-2021

BACKGROUND

Council is required to invest its surplus funds in accordance with the Ministerial Investment Order and Division of Local Government guidelines. The Order reflects a conservative approach and restricts the investment types available to Council. In compliance with the Order and Division of Local Government guidelines, Council adopted an Investment Policy on 10 December 2018. The Investment Policy provides a framework for the credit quality, institutional diversification and maturity constraints that Council's portfolio can be exposed to. Council's investment portfolio was controlled by Council's Finance Division during the period to ensure compliance with the Investment Policy. Council's Audit, Risk and Improvement Committee's (ARIC) role of overseer provides for the review of Council's Investment Policy and the Management Investment Strategy.

Council's Responsible Accounting Officer is required to sign the complying Statement of Investment contained within the report, certifying that all investments were made in accordance with the Local Government Act 1993 and the Local Government Regulation 2005.

Council's investment holdings as at 30 October 2020 were \$159,604,319 (Statement of Investment attached) [25 October 2019 \$147,765,489].

Council's average weighted return for October 2020 was 1.44% which was above the benchmark return of 0.12%. This result was primarily due to positive marked to market valuation of the aggregated Floating Rate Notes. The remainder of Council's portfolio continues to provide a high level of consistency in income and a high degree of credit quality and liquidity. The global markets are still experiencing unprecedented turmoil and volatility in the wake of COVID-19 and may still provide uncertainty for the foreseeable future.

At 30 October 2020, year to date interest and investment revenue of \$854,223 was recognised compared to the year to date budget of \$664,644. This significant variation is the result of a conservative COVID-19 cash flow scenario. The inflow of funds from rates was higher than initially anticipated resulting in additional interest income above the budget.

Council's 21 floating rate notes had a net increase in value of \$78,174 for October 2020.

Council holds two Mortgaged Backed Securities (MBS) that recorded a net increase in value of \$1,909 for October 2020. The coupon margins on these investments reflect pre-Global Financial Crisis (GFC) pricing. For example, the Emerald A is paying 45 basis points over the BBSW where a comparative



investment is now paying 100 basis points over the BBSW. This is reflected in the coupon rates on both these investments. While the maturity dates are outside Council's control, the investment advisors had previously indicated that capital is not at risk at that stage and recommended a hold strategy due to the illiquid nature of the investment.

Council has two investment holdings under the NSW TCorp Hour Glass Facility: the Long-Term Growth Facility and the NSW TCorpIM Cash Fund. The Long-Term Growth recorded a net decrease in value of \$3,121 and the Cash Fund recorded a net increase in value of \$3,483 in October 2020. The fluctuation in the Long-Term Growth Facility is a reflection of the current share market volatility both domestically and internationally and is diversified across a number of different asset classes that have differing risk and return characteristics. The TCorp Cash Fund generally provides relatively stable returns with low potential for capital loss while maintaining high levels of liquidity, similar to an at call account, and only invests in Australian cash and fixed interests.

At their November 2020 meeting, the Reserve Bank of Australia (RBA) reduced the official cash rate from 0.25% to a record low of 0.10%. The RBA will continue to assess the outlook and adjust policy as needed to foster sustainable growth in demand and inflation outcomes consistent with the inflation target over time.

The current investment portfolio complies with Council's Investment Policy which was endorsed by Council on 10 December 2018. Council's Responsible Accounting Officer has signed the Statement of Investment contained within the report, certifying that all investments were made in accordance with the Local Government Act 1993 and the Local Government Regulation 2005.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2022 goal 4 'We are a connected and engaged community'. It specifically delivers on the following:

	Community Strategic Plan Strategy		very Program 2018-2022 4 Year Action	Operational Plan 2020-2021 Operational Plan Actions		
4.3.2	4.3.2 Resources (finance, technology, assets and		Effective and transparent financial management systems are in place	Monitor and review achievement of Financial Strategy		
people) are effectively managed to ensure long term financial sustainability		Continuous budget management is in place, controlled and reported				
	manda sustamasmy			Provide accurate and timely financial reports monthly, quarterly and via the annual statement		
				Manage and further develop a compliance program to promote awareness and compliance with Council's procurement policies and procedures and other related policies		

CONCLUSION

The investments for October 2020 recorded an average weighted return above the annualised Bloomberg Bank Bill Index Benchmark and performed favourably when compared to the year to date budget.



		STATE	INGONG CITY COUNCI MENT OF INVESTMENT 30 October 2020				
DIRECT INVESTMENTS							
Investment Body	Rating	Purchase Price \$	Fair Value of Holding \$	Security	Purchase Date	Maturity Date	Interest / Coupor Rate
NAB Professional Maximiser	A1+	÷	44,996,686	Prof Fund A/c	30/10/2020	30/10/2020	0.659
NAB General Fund	A1+		1,689,295	General A/c	30/10/2020	30/10/2020	
National Australia Bank Ltd	S&P ST A1+	1,030,000	1,030,000	T/De posit	19/11/2019	18/11/2020	1.469
IMB Ltd	S&PST A2	2,000,000	2,000,000	T/De posit	28/11/2019	26/11/2020	1.509
Bank of Queens land Ltd	Moodys A3	3,000,000	3,000,000	T/De posit	14/03/2019	14/12/2020	2.739
IMB Ltd	S&PST A2	3,000,000	3,000,000	T/De posit	20/12/2019	18/12/2020	1.509
Westpac Banking Corporation Ltd	S& P AA-	5,000,000	5,000,000	T/De posit	23/12/2019	23/12/2020	1.489
Members Equity Bank Ltd	S&PST A2	3,000,000	3,000,000	T/De posit	6/03/2020	31/12/2020	1.259
Members Equity Bank Ltd	S&PST A2	2,000,000	2,000,000	T/De posit	25/09/2020	25/01/2021	0.659
Bank of Queens land Ltd	Moodys A3	3,000,000	3,000,000	T/De posit	21/02/2019	19/02/2021	2.809
Bendigo & Adelaide Bank Ltd	Moodys A3	2,000,000	2,000,000	T/De posit	28/11/2019	24/02/2021	1.559
Bank of Queens land Ltd	Moodys ST P-2	2,000,000	2,000,000	T/De posit	6/03/2020	1/03/2021	1.409
Westpac Banking Corporation Ltd	S& P AA-	2,000,000	2,000,000	T/De posit	6/03/2020	8/03/2021	0.999
Bendigo & Adelaide Bank Ltd	Moodys A3	2,000,000	2,000,000	T/De posit	28/11/2019	25/06/2021	1.559
Commonwealth Bank of Australia Ltd	S&P ST A1+	4,000,000	4,000,000	T/De posit	25/09/2020	22/07/2021	0.669
Bank of Queens land Ltd	Moodys A3	2,000,000	2,000,000	T/De posit	25/09/2020	25/11/2021	0.809
Westpac Banking Corporation Ltd	S& P AA-	2,000,000	2,000,000	T/De posit	2/12/2019	2/12/2021	0.979
Bank of Queens land Ltd	Moodys A3	2,000,000	2,000,000	T/De posit	25/09/2020	25/01/2022	0.809
Westpac Banking Corporation Ltd	S&PAA-	2,000,000	2,000,000	T/De posit	6/03/2019	6/03/2024	2.839

Investment Body	Rating	Purchase Price \$	Fair Value of Holding \$	Security	Purchase Date	Maturity Date	Interest / Coupon Rate
National Australia Bank Ltd	S& P AA-	1,000,000	1,002,950	FRN	5/11/2015	5/11/2020	1.18%
Newcastle Permanent Building Society Ltd	5& P B BB	500,000	502,390	FRN	26/02/2019	26/02/2021	1.20%
Suncorp Bank	S&P A+	2,000,000	2,012,860	FRN	12/04/2016	12/04/2021	1.46%
AMP Bank Ltd	S& P B BB	2,000,000	2,011,240	FRN	24/05/2016	24/05/2021	1.46%
Westpac Banking Corporation Ltd	S& P AA-	3,000,000	3,025,410	FRN	3/06/2016	3/06/2021	1.26%
ANZ Banking Group Ltd	S& P AA-	2,000,000	2,021,720	FRN	16/08/2016	16/08/2021	1.23%
Credit Union Australia Ltd	S& P B BB	1,200,000	1,211,904	FRN	6/09/2018	6/09/2021	1.34%
AMP Bank Ltd	5& P B BB	1,500,000	1,504,440	FRN	10/09/2018	10/09/2021	1.17%
Westpac Banking Corporation Ltd	S& P AA-	1,500,000	1,509,630	FRN	16/11/2018	25/10/2021	0.79%
Credit Union Australia Ltd	Moodys Baa1	1,000,000	1,013,340	FRN	4/03/2019	4/03/2022	1.32%
AMP Bank Ltd	5& P B BB	3,000,000	3,000,120	FRN	30/03/2017	30/03/2022	1.14%
Suncorp Bank	S&P A+	1,500,000	1,522,080	FRN	30/08/2017	16/08/2022	1.07%
Bendigo & Adelaide Bank Ltd	Fitch A-	3,000,000	3,033,390	FRN	12/12/2019	12/09/2022	0.94%
Bank Australia Limited	5& P B BB	4,000,000	3,995,800	FRN	2/12/2019	2/12/2022	0.99%
ANZ Banking Group Ltd	S& P AA-	1,000,000	1,020,360	FRN	9/05/2018	9/05/2023	1.00%
National Australia Bank Ltd	S& P AA-	3,000,000	3,065,460	FRN	26/09/2018	26/09/2023	1.01%
Westpac Banking Corporation Ltd	S& P AA-	1,500,000	1,536,405	FRN	16/11/2018	16/11/2023	1.05%
ANZ Banking Group Ltd	S& P AA-	2,000,000	2,053,360	FRN	6/12/2018	6/12/2023	1.12%
National Australia Bank Ltd	S& P AA-	2,000,000	2,048,520	FRN	19/06/2019	19/06/2024	1.01%
Macquarie Bank	Moodys A2	2,000,000	2,030,240	FRN	12/02/2020	12/02/2025	0.94%
Emerald Reverse Mortgage Trust	S& P AAA	516,521	413,759	MBS	17/07/2006	21/08/2051	0.55%
Emerald Reverse Mortgage Trust	Fitch AA	2,000,000	1,303,260	MBS	17/07/2006	21/08/2056	0.85%
Total			40,838,638				

Managed Funds

MANAGED FUNDS								
Investment Body	Rating	Purchase Price \$	Fair Value of Holding \$	Purchase Date	Monthly	FYTD (Actual)		
TcorpIM Cash Fund Facility	N/A	27,683,191	27,683,191	28/06/2019	0.07%	0.23%		
Tcorp Long Term Growth Facility Trust	N/A	1,773,197	2,366,509	13/06/2007	-0.08%	3.26%		
Total			30,049,700					

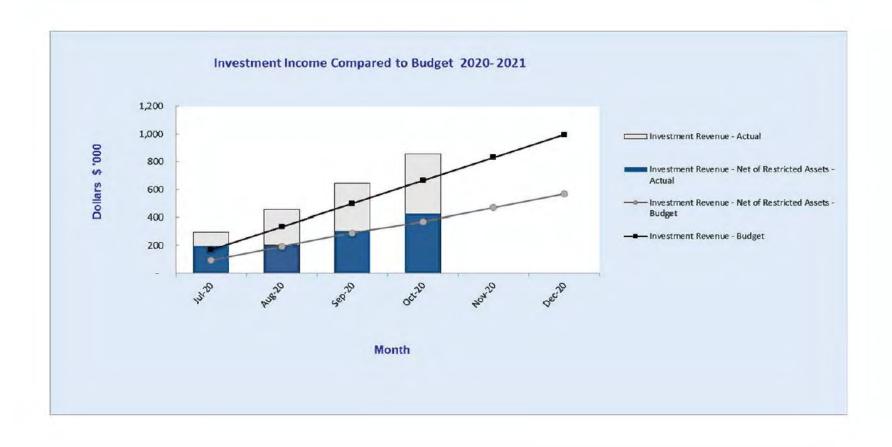
TOTAL INVESTMENTS 159,604,319

This is to certify that all of the above investments have been placed in accordance with the Act, the regulations and Council's Investment Policies.

Brian Jenkins RESPONSIBLE ACCOUNTING OFFICER

^{*} The maturity date provided is the weighted-average life of the security. This is the average amount of time that will elapse from the date of security's issuance until each dollar is repaid based on an actuarial assessment. Assessments are carried out on a regular basis which can potentially extend the life of the investment. Current assessments anticipate an extension of life of the investment.







File: IW-911.01.207 Doc: IC20/669

ITEM 20

CITY OF WOLLONGONG TRAFFIC COMMITTEE MINUTES OF MEETING HELD ON 11 NOVEMBER 2020

The City of Wollongong Traffic Committee meeting was held on 11 November 2020. Items listed in Sections 2 and 4 are to be adopted by Council through delegated authority. Items listed in Section 3 of the minutes are the object of this report and must be determined by Council. It is recommended to Council for approval for temporary Regulation of Traffic on public roads for works or events by independent parties.

RECOMMENDATION

In accordance with powers delegated to Council, the Minutes and Recommendations related to Regulation of Traffic, of the City of Wollongong Traffic held on 11 November 2020, be adopted.

REPORT AUTHORISATIONS

Report of: Trish McClure, Manager Infrastructure Strategy + Planning

Authorised by: Glenn Whittaker, Director Infrastructure + Works - Connectivity Assets + Liveable City

(Acting)

ATTACHMENTS

1 Orthodox Easter Procession 2021

2 Orthodox Saving the Cross Procession 2021

WOLLONGONG Stewart, Harbour and Burelli Streets – Ward 2 (Item 3.1 of Wollongong Traffic Committee Minutes of Meeting)

Stewart, Harbour and Burelli Streets - Orthodox Easter Processions on Friday 30 April 2021

Background

On behalf of both the Macedonian and Greek Orthodox Communities in Stewart Street, Wollongong, the Macedonian Church has requested permission for road closures of Stewart, Harbour and Burelli Streets for the purpose of the traditional Orthodox Easter Processions. The road closures will take effect from 8:00pm to 10:00pm on Friday 30 April 2021. The traffic management plans show suitable vehicle mitigation to protect attendees from out of control vehicles. However, the plans need to state clearly that maximum gap between vehicles and between the vehicles between the adjoining fence/building lines should be 1.2m.

The Macedonian Church procession will occupy Stewart, Harbour and Burelli Streets, but will be confined to the footpath on Corrimal Street as it returns to the Church. Following completion of the first procession, the Greek Orthodox Church will process on the same route and use the same traffic management company. For the duration of the closure all bus services will need to divert via Crown and Corrimal Streets.

Consultation

Consultation is required as part of the approval.

Committees Recommendation

The proposed Regulation of Traffic on Stewart, Harbour and Burelli Streets from 8:00pm to 10:00pm on Friday 30 April 2021 for the Macedonian and Greek Orthodox Churches be approved subject to the submitted Traffic Management Plans being amended to include a note that gaps around the vehicles be no more than 1.2m at the point of road closure, and Council's Standard Conditions for Road Closures. It is recommended that attendees be required to abide by the COVID19 Health Orders which apply at the time.



Proposal Supported Unanimously

2. WOLLONGONG Stewart Street to Wollongong Boat Harbour - VODICI – Ward 2 (Item 3.2 of Wollongong Traffic Committee Minutes of Meeting)

Stewart Street to Wollongong Boat Harbour – Saving the Cross Procession Road Closures - Sunday 19 January 2021

Background

On behalf of the Macedonian Orthodox Community in Stewart Street, Wollongong, the Macedonian Church has requested permission for road closures of Stewart Street, Marine Drive and Cliff Road for the purpose of the traditional Orthodox Saving the Cross Procession. The road closures will take effect from 11:30am until 12:00pm on Sunday 19 January 2021. The closures on Marine Drive and Cliff Road will be short in order to allow the procession to cross these streets. The procession will occupy Stewart Street outside the Church but will proceed on the shared paths from Harbour Street to Belmore Basin.

The bus operators requested that the parade not cross Marine Drive to Lang Park until a point past the bus terminus so that the terminus will remain accessible during the parade.

The traffic management plans show suitable vehicle mitigation to protect attendees from out of control vehicles. However, the closures are shown as half the road at a time which does not provide security for the parade. When amended plans are received, they need to reflect a full road closure at the crossing point where the maximum gap between vehicles and between the vehicles and the boundary/fence line is 1.2m.

Consultation

Consultation is required as part of the approval.

Committees Recommendation

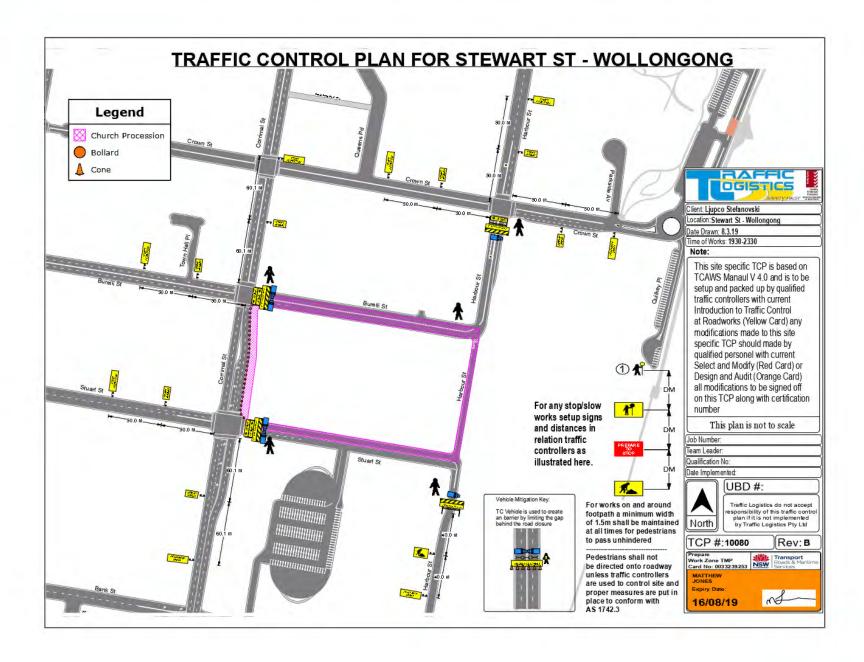
The proposed Regulation of Traffic on Stewart Street to Wollongong Boat Harbour from 11:30am until 12:00pm on Sunday 19 January 2021 be approved subject to the Traffic Management Plans being amended to include a note that gaps around the vehicles be no more than 1.2m at the point of road closure, the crossing point on Marine Drive to be past the bus terminus and Conditions for Road Closures. It is recommended that attendees be required to abide by the COVID19 Health Orders which apply at the time.

Proposal Supported Unanimously

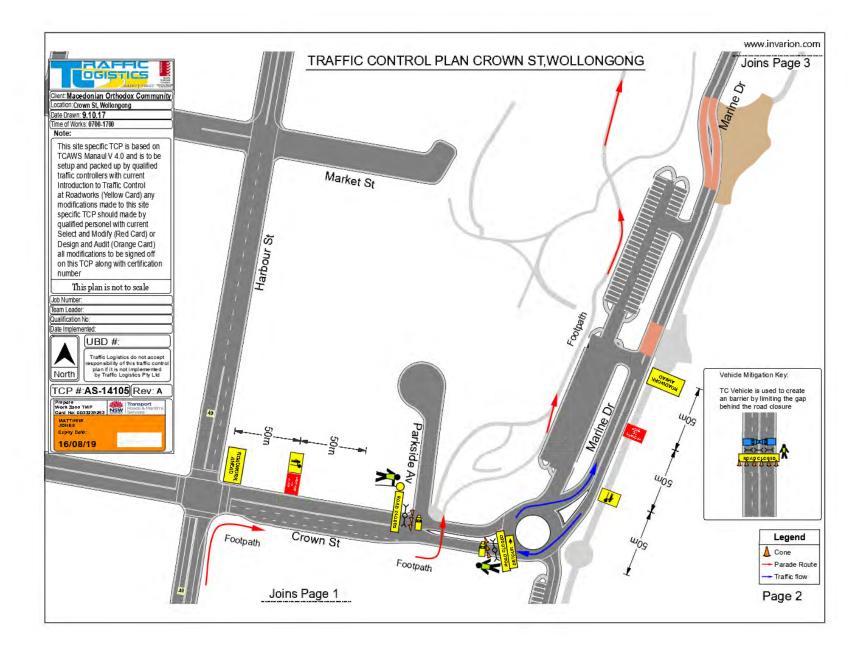
PLANNING AND POLICY IMPACT

This report contributes to the delivery of Our Wollongong 2028 goal "We have affordable and accessible transport". It specifically delivers on the Service Plan 2020-21.











File: PP-2017/4 Doc: IC20/750

ITEM 21

PLANNING PROPOSAL AUTHORITY - DRAFT PLANNING PROPOSAL - 3-15 SHORT STREET AND 312-324 PRINCES HIGHWAY, CORRIMAL

On 29 June 2020, Council resolved not to support the preparation of a draft Planning Proposal for 3-15 Short Street and 312-324 Princes Highway, Corrimal due to concerns including bulk and scale, the high flood risk, substantial work required to the riparian corridor, potential contamination, traffic impacts and loss of parking.

The applicant lodged a request for a rezoning review with the NSW Department of Planning, Industry and Environment, which referred to the review to the Southern Regional Planning Panel (Panel). The Panel determined that the Planning Proposal request has strategic and site-specific merit and should be submitted for a Gateway determination and be progressed to exhibition.

The NSW Department of Planning, Industry and Environment has asked Council whether it wishes to be the Planning Proposal Authority and undertake the administrative processes of progressing the draft Planning Proposal. It is recommended that Council accept this role.

RECOMMENDATION

The NSW Department of Planning, Industry and Environment be advised that Council is willing to be the Planning Proposal Authority for the draft Planning Proposal for 3-15 Short Street and 312-324 Princes Highway, Corrimal.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

There are no attachments for this report.

BACKGROUND

The site is located at 3-13 Short Street and 312-324 Princes Highway, Corrimal and consists of 11 lots and has an area of approximately 7,460m² and is currently zoned part SP2 Infrastructure (Car park) and part R2 Low Density Residential.

In 2017, a Planning Proposal request was to rezone the site to R3 Medium Density Residential to facilitate a mixed use "shop-top" development with a maximum building height of 29 metres, a Floor Space Ratio of 1.5:1, and amend Schedule 1 (Additional Permitted Uses) to include development for the purpose of 'food and drink premises', 'car park', 'flood mitigation works'.

On 29 June 2020, Council considered a report on the preparation of a draft Planning Proposal to rezone part of the site to R3 Medium Density Residential with a 15 metre building height limit and 1:5:1 Floor Space Ratio, to facilitate a residential development, and to rezone other parts of the site to RE1 Public Recreation and RE2 Private Recreation.

Council resolved that:

A draft Planning Proposal not be prepared for 3-13 Short Street, 312-324 Princes Highway Corrimal and 15 Short Street Corrimal and not be submitted to NSW Department of Planning, Industry and Environment for the following reasons -

- 1 The size and bulk of the proposed development.
- 2 No relationship between the proposal and the surrounding structures.
- 3 The proposal requires substantial work and alteration to the riparian corridor.
- 4 Proximity and overshadowing of a community facility being the Library and Community Centre.



- 5 The site is categorised as a high flood risk.
- 6 Increased traffic in an already congested area.
- 7 Potential contamination on the site.
- 8a The original DA 1995/255 required the provision of carparking therefore the site is zoned SP2 infrastructure (carpark) for that purpose.
- 8b Moving the required carparking spaces to the shopping centre site would require a multi-level carpark on either Railway Street, Princes Highway or Short Street, Corrimal which will destroy the amenity of that site with non-activity facing one or more of those streets.

The Department was advised of Council's decision.

On 14 August 2020, the applicant lodged a rezoning review request with the NSW Department of Planning, Industry and Environment (DPIE). The Department referred the review request to the Southern Regional Planning Panel (Panel). The Panel determined that the Planning Proposal request has strategic and site-specific merit and should be submitted for a Gateway determination.

The Panel made the following conclusions/recommendations:

- Support the preparation of a Planning Agreement to facilitate construction of the floodway prior to any redevelopment of the site;
- Satisfied in relation to Section 9.1 Ministerial Direction 4.3 Flood Prone Land that the proposed flood mitigation works would create a net improvement and are of minor significance with regard to overall flood management in the Towradgi Creek Catchment;
- The required car parking provision be resolved prior to finalisation of the planning proposal, and a new Part 7 Local provision be applied to the site requiring the future consent for development on the site be conditional on the provision of the car parking required in the development consent for DA-1995/255;
- The site be designated as a "Key Site" in Wollongong LEP to ensure future development is the subject of a design excellence process, and a new Part 7 Local provision "Sun Plane Protection" clause be included to ensure that the adjoining community facilities are not subject to excessive overshadowing;
- The Planning Agreement include a requirement that the developer ensure that 5% of all residential units are available for affordable rental housing – this requirement to be satisfied in the first stage of the development;
- Further design analysis be undertaken to ensure that the proposed height of 15m and FSR of 1.5:1 work together as a condition of any Gateway approval and prior to public exhibition of the planning proposal;
- The significant stand of street edge trees on the site, particularly along the Princes Highway, should be retained where possible – this requirement to be specifically addressed in the sitespecific DCP provisions;
- Part 7 Local provisions for the site include a requirement that a future development application for residential development on the R3 zoned part of the site include consolidation of the lots to ensure the area is developed as one integrated development; and
- An updated Stage 1 Preliminary site investigation addressing proposed residential uses and a Phase 2 detailed investigation assessment and Site Audit Statement process under the Contaminated Land Management Act 1997 as part of a Gateway determination and prior to public exhibition.



PROPOSAL

The Department has asked Council whether it wishes to be the Planning Proposal Authority (PPA) for this proposal. This would largely be an administrative role, as the Department would not give Council delegation to finalise the draft Planning Proposal, and the Department would make the final decision on the Planning Proposal.

Council has 2 options:

Advise the Department that Council is willing to be the Planning Proposal Authority (PPA) matter.

This would involve Council officers preparing a draft Planning Proposal based on the Panel's recommendation and submitting it to the Department for a Gateway determination. Council officers would have the opportunity to guide the content of the additional studies that have been required by the Panel. Council officers would manage the exhibition and prepare a report on submissions to Council.

The Council would have the opportunity to make a decision on whether the Planning Proposal should be finalised. Council's resolution would be forwarded to the Department who would make the final decision on the Planning Proposal and LEP amendment.

This option is largely administrative and may seem contrary to Council's resolution on 29 June 2020. However, it would allow Council to continue to be involved in the plan making process for local planning decisions, and Council would have the opportunity to consider the submissions lodged through the post exhibition report.

Advise the Department that Council does not wish to be the Planning Proposal Authority (PPA) for this matter.

The Department would appoint the Panel to prepare the draft Planning Proposal, submit it to the Department for a Gateway determination and then the Panel would exhibit the draft Planning Proposal. The Panel would consider any submissions and make the final post exhibition decision.

Council's role would be limited to making a submission during the exhibition.

Separate to the draft Planning Proposal, Council still has a role in the preparation and exhibition of:

- A Draft DCP Chapter to provide more detail guidance on development outcomes for the site, including built form, overshadowing, parking, landscaping
- A Draft Planning Agreement to facilitate the flood channel, 5% Affordable Rental Housing, parking arrangements and offsite landscaping.

Both draft documents would need to be reported to Council prior to exhibition. Ideally, all three draft documents would be exhibited concurrently, so the community can consider all aspects of the proposal, rather than three separate exhibitions.

CONCLUSION

On 29 June 2020, Council resolved not to support the preparation of a draft Planning Proposal for 3-15 Short Street and 312-324 Princes Highway, Corrimal due to concerns including bulk and scale, the high flood risk, substantial work required to the riparian corridor, potential contamination, traffic impacts and loss of parking.

The Southern Regional Planning Panel (Panel) has determined that the Planning Proposal request has strategic and site-specific merit and should be submitted for a Gateway determination and be progressed to exhibition.

The NSW Department of Planning, Industry and Environment has asked Council whether it wishes to be the Planning Proposal Authority and undertake the administrative processes of progressing the draft Planning Proposal.



Despite Council's previous resolution, it is recommended that Council advise the Department that Council is willing to be the Planning Proposal Authority.



File: CO-910.01.010 Doc: IC20/705

ITEM 22

NOTICE OF MOTION - COUNCILLOR LEIGH COLACINO - TRAFFIC CONTROL MEASURES - STANWELL PARK

Councillor Colacino has submitted the following Notice of Motion -

"I formally move that -

- Council investigate, as soon as possible, options available that would put in place traffic calming measures along the length of road from the corner of Station Street and Lawrence Hargrave Drive slip road to the intersection of the Lawrence Hargrave Drive slip road and Lawrence Hargrave Drive main road Stanwell Park. The investigation to look at, but not be limited to, speed humps, blisters and side barriers.
- 2 Council investigate what is required to lower the speed limit on all streets in Stanwell Park to 40 km/h, including the Lawrence Hargrave slip road mentioned in point 1, but excluding Lawrence Hargrave Drive, and implement as soon as possible.
- A report, including costings for all options in points 1 and 2, in the form of Briefing Note or at a Briefing, be delivered to Councillors before the Councillor Planning Workshop meeting scheduled for 27 February 2021 so that works can be included into the 2021-2022 work schedule or sooner."



File: CO-910.01.002 Doc: IC20/717

ITEM 23

NOTICE OF MOTION - COUNCILLOR MITHRA COX - ILLAWARRA RENEWABLE ENERGY ZONE

Councillor Mithra Cox has submitted the following Notice of Motion -

"I formally move that the General Manager write to Energy Minister Matt Kean to -

- 1 Thank him for his leadership in legislating a plan to transform the NSW electricity grid to renewable energy, for naming the Illawarra as a Renewable Energy Zone in the Renewable Energy Infrastructure Bill, and for including \$50m for the development of a green hydrogen industry.
- 2 Request a briefing on the Illawarra Renewable Energy Zone and how it may impact on Council's Economic Development Plan, our ambition to achieve net zero emissions in Wollongong by 2050 and on our future land use planning."

Background provided by Councillor Cox:

The NSW Parliament adopted the Renewable Energy Infrastructure Bill in November 2020. This legislated a plan to transform the NSW electricity grid, retire aging coal fired power stations and replace them with renewable energy and storage. The plan will see NSW achieve 75% renewable energy in the grid by 2030 and 100% by 2050.

The Bill named the Illawarra as a Renewable Energy Zone, which will see significant investment in the renewable technologies in this zone, with an emphasis on developing the Port Kembla Hydrogen Hub, but potentially also including renewable energy production and storage. The Bill also includes \$50m in funding to help grow the green hydrogen industry.

These changes at the NSW Government level will assist Wollongong in achieving our aspirational targets to achieve net zero emissions for our entire community by 2050.

However, it is important that we work closely and collaboratively with the state government to ensure that we have sufficient industrial land in appropriate places to support the renewable energy zone, and that our long-term strategic planning supports the growth of these industries.



File: CO-910.01.007 Doc: IC20/720

ITEM 24

NOTICE OF MOTION - COUNCILLOR CAMERON WALTERS - INTERNAL MEDIA TRANSPARENCY

Councillor Walters has submitted the following Notice of Motion -

"I formally move that Council -

- 1 Establishes a Media Notifications Protocol for media events organised by Wollongong City Council for the Lord Mayor and Councillors.
- 2 Outlines that the protocol:
 - a Provides 14 days' notice to elected officials of a planned media event that Wollongong City Council holds or organises;
 - b Provides a minimum 72-hour alert via email to all elected officials of any media event due to occur, and, if this period is missed, justification be provided to all elected officials within 24 hours via email, and;
 - c Allows for events planned within this 72-hour period to occur after immediate email notification of the pending media event to all elected officials, once it has been raised with Council staff."



File: CO-910.01.007 Doc: IC20/721

ITEM 25

NOTICE OF MOTION - COUNCILLOR CAMERON WALTERS - WOLLONGONG CBD FREE PARKING PERIOD

Councillor Walters has submitted the following Notice of Motion -

"I formally move that Council -

- Notes the ongoing consequences and financial impacts of COVID-19 on residents and businesses in the Wollongong LGA;
- Turns off all parking meters in the Wollongong CBD, starting 21 December 2020 and finishing 17 January 2021, with the following put in place:
 - a All metered zones are to become free parking, with current time limits still applying;
 - b Appropriate signage and social media alerts be arranged, noting that parking is "free" during the above dates, and;
 - c Notification be made to local businesses within the CBD that free parking will be offered during the above dates.
- Write to the owners of Wollongong Central, GPT Group, calling on them to implement free parking during this period in line with Wollongong City Council, noting in the letter:
 - a That, as a compromise, Wollongong City Council would be supportive of a 3-hour free parking period during the above dates in Wollongong Central car parks."



File: CO-910.01.007 Doc: IC20/722

ITEM 26

NOTICE OF MOTION - COUNCILLOR CAMERON WALTERS - SUPPORT FOR PERSONAL ELECTRIC TRANSPORT

Councillor Walters has submitted the following Notice of Motion -

"I formally move that Council -

- 1 Supports the usage and uptake of personal electric transport such as electric bicycles in the City of Wollongong;
- 2 Notes the increased usage and demand for electric scooters and skateboards, and;
- Writes to the Minister for Transport and Roads, The Hon Andrew Constance MP, to support the legalisation of electric scooters and skateboards on public land in New South Wales, noting in the letter that:
 - a Public usage of electric scooters and skateboards is already widespread in the Wollongong LGA:
 - b Council would prefer that legislation was in place to allow for the safe usage of electric scooters and skateboards in New South Wales, just like electric bicycles, and;
 - c Wollongong City Council would be willing to host a trial period for electric scooters and skateboards before any state-wide legalisation was put in place."